DISCOVER

Conrad Prebys
Student Union
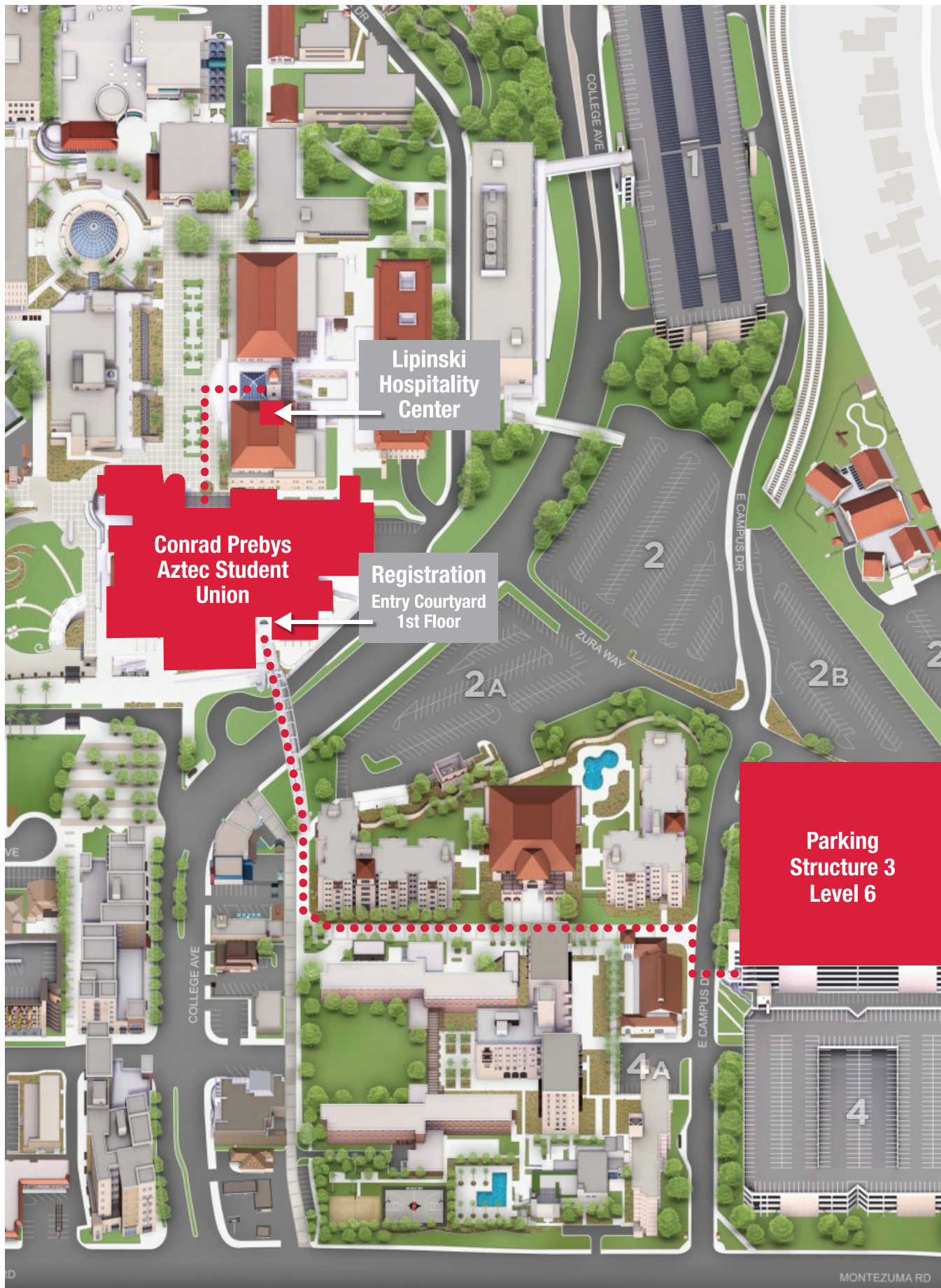February 28, 2025

SDSU | Division of
Research and Innovation

18th Annual SDSU Student Symposium

February 28, 2025

A showcase of discovery, innovation and creativity

SDSU | San Diego State University

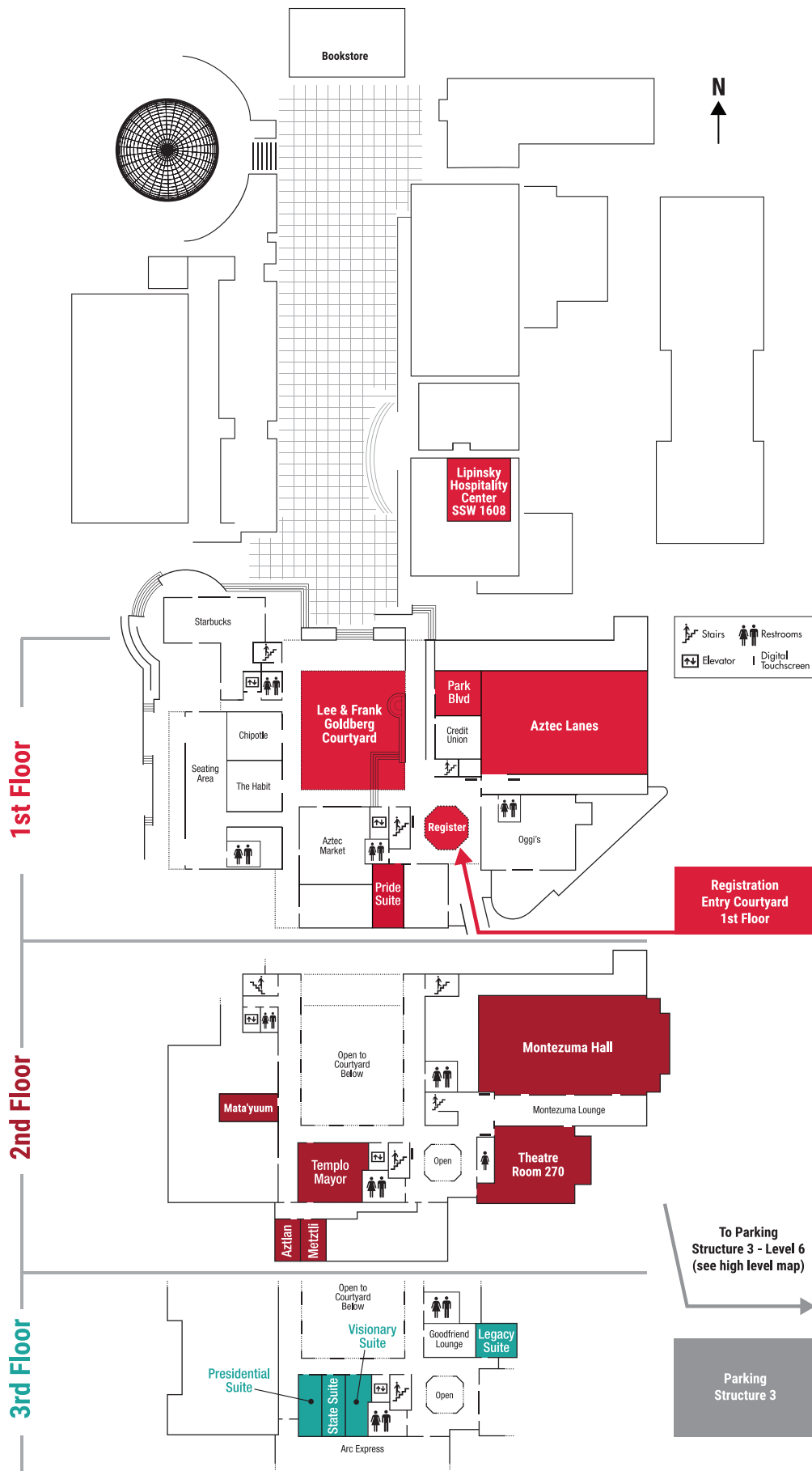TABLE OF CONTENTS

Lipinski
Hospitality
Center

Conrad Prebys
Aztec Student
Union

Registration
Entry Courtyard
1st Floor

Parking
Structure 3
Level 6

SAN DIEGO STATE UNIVERSITY CAMPUS MAP

Centennial Plaza and Walkway

Conrad Prebys Aztec Student Union

1st Floor

2nd Floor

3rd Floor

N

Bookstore

Lipinsky Hospitality Center SSW 1608

Stairs | Restrooms | Elevator | Digital Touchscreen

Starbucks

Park Blvd

Credit Union

Aztec Lanes

Lee & Frank Goldberg Courtyard

Chipotle

Seating Area

The Habit

Aztec Market

Register

Oggi's

Pride Suite

Registration Entry Courtyard 1st Floor

Open to Courtyard Below

Montezuma Hall

Montezuma Lounge

Mata'yuum

Templo Mayor

Open

Theatre Room 270

Aztlan Metztli

To Parking Structure 3 - Level 6 (see high level map)

Open to Courtyard Below

Visionary Suite

Goodfriend Lounge

Legacy Suite

Presidential Suite

State Suite

Open

Parking Structure 3

Arc Express

Montezuma Hall and Montezuma Lounge
Poster and Exhibitor Layout

Room Diagram

Supply Table

Supply Table

Sponsor/Promotion Tables

| 5 | 6 | 7 | 8 |

| 96 | 95 | 94 | 93 | 92 | 91 | 90 | 89 | | 88 | 87 | 86 | 85 | 84 | 83 | 82 | 81 |
| 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |

| 64 | 63 | 62 | 61 | 60 | 59 | 58 | 57 | | 56 | 55 | 54 | 53 | 52 | 51 | 50 | 49 |
| 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 |

Exhibitor 1

| 32 | 31 | 30 | 29 | 28 | 27 | 26 | 25 | | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |

Supply Table

| 9 |

| 10 |

Supply Table

| 1 | 2 | 3 | 4 |

Promotion Tables

Judges' Lounge
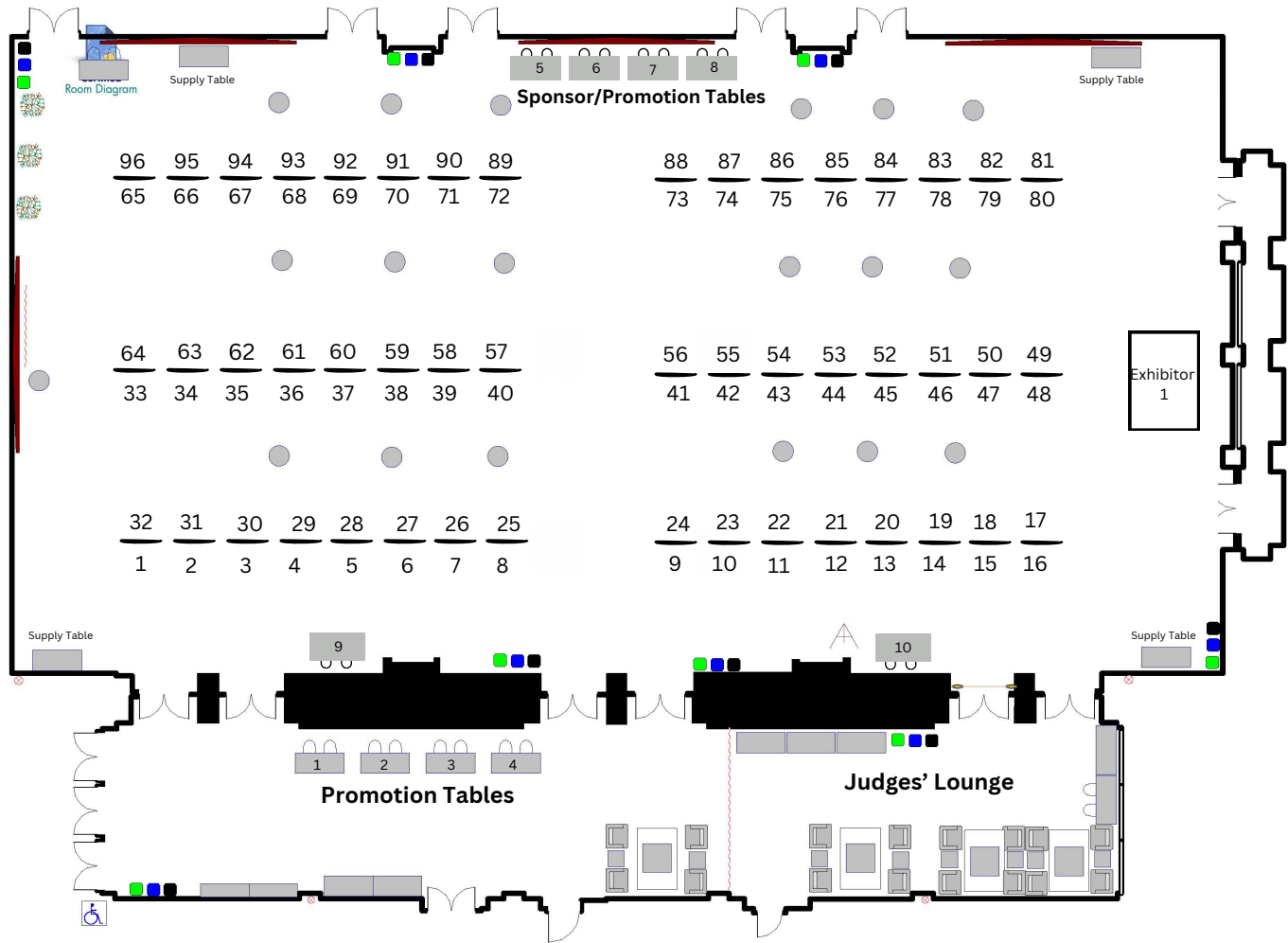
We would like to thank our sponsors

Adela de la Torre
President
San Diego State University

Dear colleagues and guests,

On behalf of San Diego State University, I welcome you to the 18th SDSU Student Symposium (S³)! This event is a wonderful platform to showcase the research, creativity, scholarship and diversity that is elevating SDSU among the nation's elite research universities.

S³ is an opportunity to shine a spotlight on the academic innovation and excellence that our students bring to their experiences at SDSU. Our research enterprise spans all of the university's colleges and disciplines, and more than 500 of our undergraduate and graduate students will share their performances, insights and discoveries representing this broad spectrum of sciences, humanities and more.

External grants and contracts for SDSU's research have grown more than 60% in the last three years, attracting faculty leaders in their fields, expanding access to resources and offering students practical, hands-on experiences that lead to bright, rewarding careers. S³ aligns strongly with this mission, both through discipline-specific training and through development of professional skills like networking, teamwork and communication. This is especially true for the more than 80 students who will receive awards for their impact and excellence, and beyond that, for all who participate.

I am proud of the dedication of SDSU's faculty and staff who have mentored these fine students, and grateful for the growing, synergistic relationship they have created with the research ecosystem in San Diego and beyond. I also want to thank the hundreds of faculty, staff and volunteers who not only spent countless hours organizing this event, but also are giving freely of their time as judges to evaluate the exhibits, presentations and other research.

And to all of our guests in attendance, whether affiliated with SDSU or members of our community, thank you for being here to acknowledge and celebrate our amazing students!

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

WELCOME FROM THE PRESIDENT

Hala Madanat
Vice President of Research and Innovation
San Diego State University

Thank you for participating in the 2025 San Diego State University Student Symposium (S³)!

S³ is an incredible venue for our students to present work they've spent the past year – and sometimes longer – developing. At SDSU, we want every student, across disciplines and experience levels, to have access to high-impact activities like research, scholarship and creative activities. We support students interested in participating in fieldwork, analyzing archival materials, learning bench science, creating new art, synthesizing literature with lived experiences, and much more. At S³, students have the opportunity to share their work with faculty, staff and our larger San Diego community, and to engage with their peers' extracurricular endeavors. This showcase is an excellent opportunity to exchange ideas and learn from one another, and that is why S³ is one of my favorite events of the academic year!

Students: You are essential to SDSU's rapidly growing research enterprise. Each year, thousands of you participate in discovery and creative innovation. You elevate our research, and your involvement makes us a stronger, more impactful institution. I hope your time spent preparing for and presenting at S³ helps you grow as scholars, and allows you to identify paths that are both fulfilling and full of possibilities!

Behind each undergraduate and graduate student presenter is a team of faculty, staff, mentors, families, and friends. To each of these valuable supporters, 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.

And to the dedicated 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 of Research and Innovation
San Diego State University

Tierra Wilson
Recent graduate from the School of Art and Design
Designed the S³ 2025 artwork
San Diego State University

Tierra Wilson is a December 2023 graduate from the School of Art and Design at San Diego State University. She loves graphic design because of its ability to create effective communication through creative visual elements. Her favorite fields of design are branding and marketing design. Born and raised in San Diego, CA, she has found a strong influence of contemporary and minimal vintage art in her work.

After consultation with student audiences and strategic communications staff, the S³ committee selected Wilson's design from among seven designs created by students in the Design Studio course taught by Gary Benzel.

When creating the poster series and other design assets, Wilson wanted her designs to call out to individuals of all majors and disciplines. The ribbon illustration shown across all three posters is her interpretation of combining art and research. Wilson pulled inspiration from multiple disciplines by looking at images of sound waves, neuron synapses, and even analytics, which all created interesting patterns across a page. Rather than creating an exact illustration of these sources of inspiration, Wilson created the ribbon illustration.

In order to create more depth and dimension, the ribbon intertwines with each character, making the headline pop. Incorporated into the ribbon was a gradient of SDSU's brand colors in order to identify its affiliation to the school. The three core values of S³ — discovery, creativity and innovation — are individually displayed on each poster. When placed together they can successfully work as a unit; alone they are still identifiable in relation to one another and to S³.

INTRODUCING THE NEW S3 DESIGN FOR 2025

Kendall Robinson
Recent graduate from the 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".

Friday, February 28, 2025

8:00 am – 3:00 pm	Registration	Entry Courtyard
8:00 am – 10:00 am	Continental Breakfast	Montezuma Lounge
8:30 am – 8:45 am	Opening Remarks	Theatre
9:00 am – 11:00 am	Session 1	Student Union/ Library
11:00 am – 1:00 pm	Session 2	Student Union/ Library
11:30 am – 1:30 pm	Volunteer Lunch	Montezuma Lounge
1:00 pm – 3:00 pm	Session 3	Student Union/ Library
3:00 pm – 5:00 pm	Session 4	Student Union/ Library
5:00 pm – 7:30 pm	S³ Social	Student Union, Aztec Lanes

Sample Session 1 Schedule - Oral / Performance/ Film Presentations					
Presenter 1	Presenter 2	Presenter 3	Presenter 4	Presenter 5	Presenter 6
9:00 am Set Up	**9:20 am** Set Up	**9:40 am** Set Up	**10:00 am** Set Up	**10:20 am** Set Up	**10:40 am** Set Up
9:05 am Presentation	**9:25 am** Presentation	**9:45 am** Presentation	**10:05 am** Presentation	**10:25 am** Presentation	**10:45 am** Presentation
9:15 am Q/A	**9:35 am** Q/A	**9:55 am** Q/A	**10:15 am** Q/A	**10:35 am** Q/A	**10:55 am** Q/A

Sample Session 1 Schedule - Poster/ Exhibit Presentations	
9:00 am - 9:05 am 5 minutes	Poster Set Up Presenters set up posters and get into position
9:05 am - 10:50 am 1 hr 45 minutes	Poster Presentations - Judges should allocate 15 mins max per student, to ensure enough time to judge seven students - Judges can also judge how students answer questions from the audience not just from the judges
10:50 am - 11:00 am 10 minutes	Board Reset - Students will clear the space in preparation for the next session - Judges can use this time to finish up evaluations

Friday, February 28, 2025 - Sessions A-E

Time	Session Number	Session Type	Session Title	Presentation Location
9:00	A - 1	Oral	Behavioral and Social Sciences (U) 1	Legacy Suite
	A - 2	Oral	Business, Economics & Public Administration (U/G) 1	State Suite
	A - 3	Oral	Behavioral and Social Sciences (G) 1	Lipinsky Suite
	A - 4	Oral	Behavioral and Social Sciences (G) 2	Park Boulevard
	A - 5	Oral	Biological and Agricultural Sciences (U/G) 1	Pride Suite
	A - 6	Oral	Engineering and Computer Science (G) 1	Metztli
	A - 7	Oral	Humanities, History, Literature, & Philosophy (G) 1	Aztlan
	A - 8	Oral	Health Nutrition and Clinical Sciences (G) 1	Mata'yuum
	A - 9	Oral	Engineering and Computer Science (U/G) 1	Visionary Suite
11:00 am	B - 1	Oral	Behavioral and Social Sciences (U/G) 1	State Suite
	B - 2	Oral	Visual and Creative Arts (U/G) 1	Lipinsky Suite
	B - 3	Oral	Biological and Agricultural Sciences (U) 1	Legacy Suite
	B - 4	Oral	Physical and Mathematical Sciences (U) 1	Visionary Suite
	B - 5	Oral	Behavioral and Social Sciences (G) 3	Park Boulevard
	B - 6	Oral	Biological and Agricultural Sciences (G) 1	Pride Suite
	B - 7	Oral	Humanities, History, Literature, & Philosophy (U) 1	Aztlan
	B - 8	Oral	Physical and Mathematical Sciences (U/G) 1	Mata'yuum
	B - 9	Oral	Education (U/G) 1	Metztl
1:00 pm	C - 1	Oral	Behavioral and Social Sciences (U) 4	Metztli
	C - 2	Oral	Engineering and Computer Science (G) 2	Legacy Suite
	C - 3	Oral	Humanities, History, Literature, & Philosophy (U) 2	Visionary Suite
	C - 4	Oral	Humanities, History, Literature, & Philosophy (U/G) 1	Lipinsky Suite
	C - 5	Oral	Health Nutrition and Clinical Sciences (U/G) 1	Park Boulevard
	C - 6	Oral	Engineering and Computer Science (G) 3	Pride Suite
3:00 pm	D - 1	Oral	Business, Economics & Public Administration (G) 1	Legacy Suite
	D - 2	Oral	Health Nutrition and Clinical Sciences (G) 2	Pride Suite
	D - 3	Oral	Humanities, History, Literature, & Philosophy (G) 2	Lipinsky Suite
	D - 4	Oral	Visual and Creative Arts (G)	Aztlan
	D - 5	Oral	Education (G) 1	Metztli

Special Sessions

9:00 am	E - 1	Oral	Cultivating a Sustainable Food Future (U/G)	Templo Mayor
11:00 am	E - 2	Oral	Cancer Research Oral Session (G)	Templo Mayor
1:00 pm	E - 3	Oral	Food Insecurity (U/G	Templo Mayor
3:00 pm	E - 4	Oral	Cancer Research Oral Session (U/G)	Templo Mayor

Friday, February 28, 2025 - Sessions - F, G, H, I, L

9:00 am	F - 1	Poster	Behavioral and Social Sciences (U) 1	Montezuma Hall
	F - 2	Poster	Behavioral and Social Sciences (U) 2	Montezuma Hall
	F - 3	Poster	Biological and Agricultural Sciences (U) 1	Montezuma Hall
	F - 4	Poster	Engineering and Computer Science (U) 1	Montezuma Hall
	F - 5	Poster	Engineering and Computer Science (U) 2	Montezuma Hall
	F - 6	Poster	Physical and Mathematical Sciences (U) 1	Montezuma Hall
	F - 7	Poster	Health Nutrition and Clinical Sciences (U) 1	Montezuma Hall
	F - 8	Poster	Behavioral and Social Sciences (G) 1	Montezuma Hall
	F - 9	Poster	Biological and Agricultural Sciences (G) 1	Montezuma Hall
	F - 10	Poster	Engineering and Computer Science (G) 1	Montezuma Hall
	F - 11	Poster	Education (G) 1	Montezuma Hall
11:00 am	G - 1	Poster	Behavioral and Social Sciences (U) 3	Montezuma Hall
	G - 2	Poster	Behavioral and Social Sciences (U) 4	Montezuma Hall
	G - 3	Poster	Biological and Agricultural Sciences (U) 2	Montezuma Hall
	G - 4	Poster	Engineering and Computer Science (U) 3	Montezuma Hall
	G - 5	Poster	Physical and Mathematical Sciences (U/G) 1	Montezuma Hall
	G - 6	Poster	Health Nutrition and Clinical Sciences (U) 2	Montezuma Hall
	G - 7	Poster	Education (U/G) 1	Montezuma Hall
	G - 8	Poster	Behavioral and Social Sciences (G) 2	Montezuma Hall
	G - 9	Poster	Biological and Agricultural Sciences (G) 2	Montezuma Hall
	G - 10	Poster	Engineering and Computer Science (G) 2	Montezuma Hall
	G - 11	Poster	Health Nutrition and Clinical Sciences (G) 1	Montezuma Halll
1:00 pm	H - 1	Poster	Behavioral and Social Sciences (U) 5	Montezuma Hall
	H - 2	Poster	Behavioral and Social Sciences (U) 6	Montezuma Hall
	H - 3	Poster	Biological and Agricultural Sciences (U) 3	Montezuma Hall
	H - 4	Poster	Biological and Agricultural Sciences (U/G) 1	Montezuma Hall
	H - 5	Poster	Engineering and Computer Science (U/G) 1	Montezuma Hall
	H - 6	Poster	Humanities, History, Literature, & Philosophy (U/G) 1	Montezuma Hall
	H - 7	Poster	Health Nutrition and Clinical Sciences (U/G) 1	Montezuma Hall
	H - 8	Poster	Behavioral and Social Sciences (G) 3	Montezuma Hall
	H - 9	Poster	Biological and Agricultural Sciences (G) 3	Montezuma Hall
3:00 pm	I - 1	Poster	Behavioral and Social Sciences (U) 7	Montezuma Hall
	I - 2	Poster	Behavioral and Social Sciences (U/G) 1	Montezuma Hall
	I - 3	Poster	Behavioral and Social Sciences (G) 5	Montezuma Hall
	I - 4	Poster	Physical and Mathematical Sciences (G) 1	Montezuma Hall
	I - 5	Poster	Behavioral and Social Sciences (G) 4	Montezuma Hall
	I - 6	Poster	Business Economics & Public Administration (U/G) 1	Montezuma Hall
	I - 7	Poster	Visual and Creative Arts (U/G) 1	Montezuma Hall
	I - 8	Poster	SDSU VISTA Poster Presentation Exhibit 1	Montezuma Hall
	I - 9	Poster	SDSU VISTA Poster Presentation Exhibit 2	Montezuma Hall
	I - 10	Poster	SDSU VISTA Poster Presentation Exhibit 3	Montezuma Hall
	I - 11	Poster	SDSU VISTA Poster Presentation Exhibit 4	Montezuma Hall

Special Sessions

9:00	L - 1	Poster	Cancer Research Poster Session (G) 1	Montezuma Hall
11:00	L - 2	Poster	Cultivating a Sustainable Food Future Poster Session (U/G)	Montezuma Hall
	L - 3	Poster	Cancer Research Poster Session (U/G) 1	Montezuma Hall
1:00	L - 4	Poster	Cancer Research Poster Session (U) 1	Montezuma Hall
	L - 5	Poster	Cancer Research Poster Session (U) 2	Montezuma Hall
3:00	L - 6	Poster	Cancer Research Poster Session (G) 2	Montezuma Hall
	L - 7	Poster	Cancer Research Poster Session (U) 3	Montezuma Hall
	L - 8	Poster	Food Insecurity Poster Session (U/G)	Montezuma Hall

Friday, February 28, 2025 - Sessions - J

11:00	J - 1	Exhibit	Visual Arts Exhibit (U) 1	Montezuma Hall
1:00	J - 2	Exhibit	Visual Arts Exhibit (U) 2	Montezuma Hall
3:00	J - 3	Exhibit	Visual Arts Exhibit (G) 1	Montezuma Hall

Friday, February 28, 2025 - Sessions - K

| 1:00 | K - 1 | Performance/Film | Performance Arts (U/G) 1 | Montezuma Theatre |

Friday, February 28, 2025 - Sessions - M

| 3:00 | M - 1 | Oral & Poster | Dual Language and Critical Multilingual Learner Education (G) | Online |

Awards

Awards will be presented at the closing award ceremony on Saturday, March 8th 2025 at 10:00 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

Four Research, Scholarship and Creative Activities Mentor Awards of $500 each, will be given to recognize excellence in student mentoring (2 undergraduate and 2 graduate awards). Awardees are nominated by students when they submit their presentation for the symposium.

Provost's Awards

Sixteen Provost's Awards of $250 each, will be given for the top two 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 (BS) and graduate (MS/PhD) 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. Five awards of $250 each, will be given to the best oral or poster presentations that exemplify our ongoing commitment to diversity, inclusion, and social justice.

Hispanic Serving Institution Award

Sponsored by the office of <u>Hispanic Serving Institution (HSI) and Regional Affairs Student Research</u>, 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.

Arts Alive Award

The S³ Arts Alive SDSU Award, Sponsored by Arts Alive, is offered to an outstanding student from any academic program who integrates the arts as part of an interdisciplinary research project that addresses cultural or sociopolitical issues. One award of $250 will be given.

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

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

- Theater: 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 <u>SURP program</u>.

Sustainability Award

The primary mission of the <u>Center for Regional Sustainability (CRS)</u> is to advance sustainability and environmental justice through regional collaborations in community-based participatory research, stewardship, and outreach to support our region in becoming a more equitable, resilient, and sustainable place to live, work, and play. CRS sponsors the SDSU Student Symposium Sustainability Award to recognize student work that focuses on creating a more just, equitable, and sustainable world by integrating vital environmental, social, and economic needs of the present while ensuring future prosperity. One award of $250 will be given.

Library Awards

Five Library Awards of $250 each will be given for oral or poster 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.

Food Insecurity Awareness and Solutions Awards

Co-hosted by the Division of Research and Innovation and the Fowler College of Business, the Food Insecurity Special Session will showcase projects that focus on researching, understanding, and proposing solutions to food insecurity. Sponsored by the ZIP Launchpad, SDSU's on campus business incubator, the Food Insecurity Awareness and Solutions Awards ($250 each) will be awarded to one oral and one poster presentation from the Food Insecurity Special Session. These awards are open to students enrolled in courses across the university that incorporate discussions, presentations, individual and group projects focused on food, food access and food insecurity-related topics during the Fall 2024 semester or to students working on research related to this topic area.

Dean's Awards

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

Undergraduate Research Excellence Awards

Ten Undergraduate Research Excellence Awards of $150 each will be given for undergraduate presentations across all disciplines recognizing scholarly achievement.

SDSU VISTA Student Presentation 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, a Three-Minute Thesis competition. This event runs in parallel with S3 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.

Please note – Students will be awarded the highest award they qualify for but will not be considered for additional awards.

CALIFORNIA STATE UNIVERSITY
GRAD SLAM
THREE-MINUTE THESIS COMPETITION
MAY 9, 2025

HOSTED BY
CALIFORNIA STATE UNIVERSITY
SAN BERNARDINO

SDSU Grad Slam: Three Minute Thesis Competition

The College of Graduate Studies has partnered with the Division of Research and Innovation to host the SDSU Grad Slam competition (a.k.a. 3-Minute Thesis) as part of the SDSU Student Symposium (S³). This event provides an additional opportunity for SDSU master's and doctoral students to showcase their research, scholarship, or other creative work.

During the competition, graduate students will be judged by a panel based on their ability to successfully engage a non-specialist audience while communicating key details about their research, scholarship, or other creative work in **three minutes or less with just a single PowerPoint slide**.

To accommodate students participating either in an oral or poster presentation during the in-person S³ event on February 28, 2025, *the SDSU Grad Slam competition has been moved to a virtual environment to be held on* **Wednesday, March 5, 2025**. This format simulates the actual CSU-wide Grad Slam competition which is to be held virtually via Zoom on May 9, 2025.

The top two presenters at the SDSU competition 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 and other S³ competitions.

Participation is not guaranteed; the College of Graduate Studies will review interested participants and invite finalists to compete.

Please contact CGS.SDSU.Grad-Slam@sdsu.edu with any questions.

Oral Presentations

Friday, February 28, 2025

Sessions A-D

Each oral presentation is allotted 10 minutes followed by 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) = Masters ; (D) = Doctoral

Friday, February 28, 2025
Session A: Oral Presentations

Session A-1

Behavioral and Social Sciences (U) 1
Friday, February 28, 2025 9:00 AM
Legacy Suite

9:05 AM
The Efficacy of Joint Experimental Psychological and Philosophical Interventions to Reduce Suicidal Ideation in Populations of People Dealing with Housing Insecurity
Axel Quero, Liberal Studies: Emphasis in Education-Generalist (U)

9:25 AM
Education: The Influence of Confucianism in China and South Korea
Bernardette Jovana Solares Bolanos, International Security and Conflict Resolution (U)

9:45 AM
How GenZ Undergraduates Define a Good Job
Cassandra Lapham, Sociology (U)

10:05 AM
Faith and Feminism: Catholic Nuns in a Patriarchal Religious Institution
Lorena Ford, Political Science (U)

10:25 AM
Commands, Avoidance, and Resistance: Interactional Challenges Between Police Officers and Civilians
Ekaterina Pavlova, Communication (U)

10:45 AM
The Contact Zones of Domestic Work in a Historically White Community in Cape Town, South Africa
Kaisly Moreno, Political Science (U)

Session A-2

Business, Economics and Public Administration (U/G) 1
Friday, February 28, 2025 9:00 AM
State Suite

9:05 AM
Redevelopment, Divided: Place-Based Disparities in the Implementation of the Rental Assistance Demonstration (RAD) in San Francisco, CA
Charlie Kanelopoulos, Urban Studies (U)

9:25 AM
Inclusion of Generative Artificial Intelligence Policies in Undergraduate Accounting Syllabi: A Systematic Review
Justin Deppiesse, ISCOR and International Business-Chinese (U)

9:45 AM
Skate Safety on Hilltop Way: An Empirical Approach Toward Commuter Safety on SDSU Campus
Matthew Philbin, Economics & Linguistics (U)

10:05 AM
Effects of hospital access on take-up of SSI/SSDI benefits among persons with disabilities, particularly in rural areas
Sagel Provancher, Economics and Sociology (U)

10:25 AM
Characteristics of U.S. Public Firms Involving Child Labor Abuse
Daniela Peregrino, Sociology and Political Science (U)

10:45 AM
Unifying Voices in Crisis: Examining Interagency Coordination and Messaging Strategies to Counter Misinformation
Spencer Marion, Master of Art in Mass Communication (M)

Session A-3

Behavioral and Social Sciences (G) 1
Friday, February 28, 2025 9:00 AM
Lipinsky Suite

9:05 AM
Examining Healthcare Utilization among American Indian and Alaska Native Adults in California
Akanksha Ravi, Public Health with a concentration in Health Promotion and Behavioral Science (M)

9:25 AM
Bosque Urbano De Las Californias: A Transnational Urban Forest In Urban Mediterranean North America
Andres Reyna, Geography (M)

ORAL PRESENTATIONS

(U) = Undergraduate ; (M) = Masters ; (D) = Doctoral

9:45 AM

Deutsche-Mexicana: The History of German Involvement in the Municipality of Chapala

Arturo Avalos, Anthropology/MA (M)

10:05 AM

Health Literacy, Status and Access Amongst Low Income Adults Living with Chronic Illness in Rural Unincorporated Communities

Candace Juhala, Master's of Public Health | Health Promotion and Behavioral Science (M)

10:25 AM

Communicating Foster Care: Reaching Prospective Caregivers Amid Crisis

Charity Edgar, Master of Arts (M)

Session A-4

Behavioral and Social Sciences (G) 2
Friday, February 28, 2025 9:00 AM
Park Boulevard

9:05 AM

Stars on the Ballot: Exploring the Phenomenon of Celebrity Politics in Mexico

David Mejorada Sesma, Political Science (M)

9:25 AM

Beyond Borders: Understanding Cross-Cultural Variations in Skin Tone Preferences

Devanshi Upadhyaya, Psychology (M)

9:45 AM

Using Acceptance and Commitment Therapy in the reduction of depression, stress, and anxiety, and increasing value based behaviors with a mother with an autistic child

Emily Shearon, M.A. Special Education with a specialization in autism (M)

10:05 AM

How does separation or divorce of parents affects the incidence of depression in their children?

Estela Jimenez, Sociology (M)

10:25 AM

Prenatal Cannabidiol (CBD) Exposure Increases Activity and Alters Risk-Taking Behavior

Ilse Fleischer, Psychology (M)

10:45 AM

Weaving Heritage: Dialogues of Cultural Preservation

Irene Gonzalez, Latin American Studies (M)

Session A-5

Biological and Agricultural Sciences (U/G) 1
Friday, February 28, 2025 9:00 AM
Pride Suite

9:05 AM

CoalMiner: a random coalescent model generator for fastsimcoal28

Raya Esplin-Stout, Evolutionary Biology (D)

9:25 AM

Investigating the Nuclear Pore Complex Localization Domain of Megator in Drosophila

Tristan McDonnell, B.S. Biology, Emphasis in Cellular and Molecular Biology (U)

9:45 AM

Deciphering the Polyploid Ks Histogram with Forward Time Simulations

Tamsen Dunn, Evolutionary Biology JDP (D)

10:05 AM

Drivers of Neuronal Phenotypes in Alzheimers Disease

Rosemary Annunziata, M.S. Molecular Biology (M)

10:25 AM

The Diet, Activity, and Habitat Use of Moor Macaques (Macaca maura) Living in A Human-Modified Forest in South Sulawesi, Indonesia

Vanessa Morgan, Anthropology (M)

10:45 AM

Determining the presence of a potential novel pathogen in coast live oak (Quercus agrifolia)

Vince Rivas, Biology, Ecology Program Area (M)

Session A-6

Engineering and Computer Science (G) 1
Friday, February 28, 2025 9:00 AM
Metztli

9:05 AM

Preliminary Computational Explorations of Spinal Segments under Biomechanics Loading Conditions

Carlos Ortega Castro, MS Bioengineering (M)

ORAL PRESENTATIONS

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9:25 AM

Investigation of Fire Behavior in Simulated Microgravity Conditions using a Narrow Channel Apparatus
David Fredriksson, Masters of Science in Mechanical Engineering (M)

9:45 AM

Properties of Cellulose Acetate Extracted from Littered Cigarette Filters
Eric Wilkinson, Master of Science in Mechanical Engineering (M)

10:05 AM

PD-SAC: Priority-Driven and Status-Aware Chain Scheduling for Weakly-Hard Real-Time Tasks
Hyunhee Kwak, Computer Science (M)

10:25 AM

Mitigating online advertisement fraud with differential privacy framework
Kartiki Pande, Management Information System (M)

10:45 AM

Glassy carbon BioFETS: Employing transistor technology for bio-analyte detection
Katie Naretto, Bioengineering-Biomechanics (M)

Session A-7

Humanities, History, Literature, & Philosophy (G) 1
Friday, February 28, 2025 9:00 AM
Aztlan

9:05 AM

Swallowing and spitting out the red pill: young men, vulnerability, and radicalization pathways in the manosphere
Ifairi Clarke, Mass Communication (M)

9:25 AM

Musical Theatre As Means To Queer Thriving: A Strange Loop by Michael R. Jackson and Taylor Macs 24-Decade History of Popular Music
Karen Diaz de Regules, Theatre Arts (M)

9:45 AM

The Advocacy of Repatriation and its Economic Impact on the Museum Industry
Leeann Jones, History (M)

10:05 AM

Podcasts and their Influence on Black Identity
Malia Henry, Mass Communication and Digital Media (M)

10:25 AM

Come and Get These Memories: Motown Records, Detroit & the American Dream in the Postwar Era
Maximus Miesner, History (M)

10:45 AM

The Struggle for Equality In American History
Nakai Contreras, Political Science (M)

Session A-8

Health Nutrition and Clinical Sciences (G) 1
Friday, February 28, 2025 9:00 AM
Mata'yuum

9:05 AM

Prenatal Health Care Provider Survey
Destiny Akins, Nutritional Sciences (M)

9:25 AM

ImpactofFresh Watermelon Consumption on Sexual and Mental Health in Overweight Adults
Emily Ager, Nutritional Sciences (M)

9:45 AM

Assessing Healthcare Access Among Residents in Rural Eastern San Diego County: A Qualitative Study
Loretta Sosa Ortiz, Master of Public Health- Health Promotion and Behavioral Science (M)

10:05 AM

Exploring the Availability of and Access to Mental Health Services AmongstIndigenous Communities in Oaxaca
Maya Valdez, Public Health/Latin American Studies (M)

10:25 AM

Between Violence and Resilience: Depression and Anxiety in Pregnant and Postpartum Asylum-Seekers at the U.S.-Mexico Border
Samantha Sidline, Master of Social Work (M)

10:45 AM

Over-the-Counter Hearing Aid Management and Technology Familiarity
Chris Rodriguez, JDP Audiology (D)

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Session A-9

Engineering and Computer Science (U/G) 1
Friday, February 28, 2025 9:00 AM
Visionary Suite

9:05 AM

Benchtop Models of Patient-Specific
Cardiovascular Flow Dynamics
Britton Mennie, Biomechanical Engineering (U)

9:25 AM

Evaluating the Degradation of Pharmaceuticals
due to Anammox Bacteria
Shiloh Bolden, Environmental Engineering (U)

9:45 AM

BALANCE: Bitrate-Adaptive Limit-Aware Netcast
Content Enhancement Utilizing QUBO and
Quantum Annealing
Michael Kelley, Astronomy (U)

10:05 AM

Offloading Localization and Perception Tasks for
Resource-Constrained Autonomous Racing Vehicles
Pascal Reich, Computer Science (U)

10:25 AM

Exploration of Bioelectronic Device for Epileptic
Seizure Management using Glassy Carbon Electrodes
**Paulette Suro, Mechanical Engineering with Emphasis in
Bioengineering (U)**

10:45 AM

Pollution dynamics in the Tijuana River Estuary
during continuous, multi-year cross-border
contaminated river flow
Alexandra Grant, Civil Engineering, Environmental (M)

Friday, February 28, 2025
Session B: Oral Presentations

Session B-1

Behavioral and Social Sciences (U/G) 1
Friday, February 28, 2025 11:00 AM
State Suite

11:05 AM

Impacts of Lithium Extraction in the Imperial Valley
Cristina Gutierrez Plaza, Social Science (U)

11:25 AM

Gender Stereotype Through the Lens of the
Bilingual Brain: An ERP Study
Maria Christina Huerta-Avila, Psychology (U)

11:45 AM

The Impacts of a Mother-Daughter Health Program
on Latina Mothers and Daughters Social-Emotional
Behaviors: Findings from a Single-arm Pilot Study
Mia Quintana, Psychology (U)

12:05 PM

The Role of Township Tourism in Shaping Identity and
Social Realities in Langa, Cape Town, South Africa
Senait Hagos, Sociology (U)

12:25 PM

A qualitative analysis of menstrual hygiene practices
and stigma among adolescent girls in Ibadan, Nigeria
Yuna Ysabelle Ong, Public Health (U)

12:45 PM

Early Childhood Sleep Disturbances Predicting
Internalizing and Externalizing Problems Among
Children In Foster Care
**Nikki Lane, Child Development with a concentration in
Early Childhood Mental Health (LPCC) (M)**

Session B-2

Visual or Creative Arts (U/G) 1
Friday, February 28, 2025 11:00 AM
Lipinsky Suite

11:05 AM

Faith, Justice, and Morality: A Study of Christianity
& Law and Order: SVU
Ines Laimeche, Sociology (U)

11:25 AM

Oklahoma! to The Outsiders: Tools for Teaching
Country and Americana Singing in Musical Theatre
Nole Jones, MFA Musical Theatre (M)

11:45 AM

In My Ears and In My Eyes: Hauntology and
Post War Dreams in Penny Lane
Andrew Ginzel, Critical Studies in Music MA (M)

ORAL PRESENTATIONS

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12:05 PM

In the Shadow of a Giant: Gay Resonances in the AIDS-Era Musical Into the Woods
Anthony Methvin, MFA Musical Theatre (M)

12:25 PM

Utilizing Emotional Intelligence in the Acting Practice:Case Study Wicked
Courtney Corey-Armstrong, MFA Musical Theatre (M)

12:45 PM

Crusading the Canon: The Jazz Crusaders and the Issue of Fusion within the Jazz Canon
Dylan Soto, Jazz Studies (M)

Session B-3

Biological and Agricultural Sciences (U) 1
Friday, February 28, 2025 11:00 AM
Legacy Suite

11:05 AM

Impact of Extracellular Matrix Stiffness Variation on Cardiac Fibroblast Activation
Alpher Aspiras, Cell and Molecular Biology (U)

11:25 AM

Black Carbon Trends and Environmental Inequities in Imperial County: A Seasonal Analysis
Alyssa Garcia, Public Health (U)

11:45 AM

Microhabitat Use of Red Diamond Rattlesnakes (Crotalus ruber) In Southern California Coastal Sage Scrub
Ella Horvath, Environmental Sciences (U)

12:05 PM

Developing a Bioassay to Assess the Ability of Squamate Reptiles to Detect Volatile Semiochemicals
Harshita Vallabhaneni, Biology, Emphasis in Zoology (U)

12:25 PM

Seasonal Variation of Ambient Particulate Matter Air Pollution Concentration In Calexico, Imperial County
Jessa Mae Guanga, Public Health (U)

12:45 PM

Impact of sHSP 23 Overexpression on Striated Muscle Function in a Drosophila Progressive Myopathy Model
Rebecca Blum, Biology (U)

Session B-4

Physical and Mathematical Sciences (U) 1
Friday, February 28, 2025 11:00 AM
Visionary Suite

11:05 AM

Dynamic Schlieren Imaging Using a Pulsed LED
Faith Poutoa, Physics (U)

11:25 AM

Structural insights of isocitrate dehydrogenase 1 derived from the É'-10 helix
Josselyn Jacobo, Cellular & Molecular Biology and Psychology (U)

11:45 AM

Creating and Analyzing Imperfections in Quantum Materials: A Look into Advanced Manufacturing Techniques
Mary Becker, Physics (U)

12:05 PM

Physics-Informed Deep Neural Networks for Layer Identification of 2D Materials
Miche Maral, Physics, B.S. (U)

12:25 PM

Balancing condensed matter on top of a hill: a quantum realization of the inverted pendulum
Roberto Marquez, Applied Mathematics/Aerospace Engineering (U)

12:45 PM

Illustris Cosmological Simulation Uses GRB No Host Problem to Shed Light on Gravitational Wave Locations
Rodney Speight Jr., Physics (U)

Session B-5

Behavioral and Social Sciences (G) 3
Friday, February 28, 2025 11:00 AM
Park Boulevard

11:05 AM

Media Literacy in the United States Armed Forces
Jacob Sugg, Journalism and Mass Communication (M)

ORAL PRESENTATIONS

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11:25 AM

Using High-Resolution Remote Sensing Images and Deep Learning Algorithms for Identifying Homeless Encampments Distribution in San Diego
Jiachen Wang, Geographical Information Science (M)

11:45 AM

Executive Functioning in Young Children in Foster Care and Children Living with their Biological Parents
Lucyann Atkins, Master's of Science in Early Childhood and Family Clinical Counseling (M)

12:05 PM

Inadvertent Effects from Media Portrayals of Human Trafficking on Society
Manuel Mata, Mass Communication and Media Studies (M)

12:25 PM

Exploring the Role of Spiritual Health in Quality of Life Flourishing and Depressive Symptoms Among Latina Churchgoers
Maria Arantes, Psychology (M)

12:45 PM

Agent-based modeling of passenger behavior, case study of San Diego International Airport
Matthew Velasco, Geography (Geographic Information Sciences) (M)

Session B-6

Biological and Agricultural Sciences (G) 1
Friday, February 28, 2025 11:00 AM
Pride Suite

11:05 AM

Reconstructing viral phylodynamics of human-associated pathogen agents surrounding the COVID-19 pandemic
Zoe Holzer, Computational Science - Data Science Emphasis (M)

11:25 AM

Application of Genomics Reveals Key Timepoints in the Evolution of Domesticated Hops
Alex McElwee-Adame, Evolutionary Biology Joint Doctoral Program with UCR (D)

11:45 AM

Animal metamorphosis requires bacteria and the innate immune system
Emily Darin, Molecular Biology (D)

12:05 PM

An Immunological Wildfire: Trichomonas vaginalis Sparks Pyroptosis in Ectocervical Cells
Johann Tailor, SDSU/UCSD JDP in Cell and Molecular Biology (D)

12:25 PM

A Novel Drosophila Z-disc Protein,CG42319, Essential for Myofibril Organization in Indirect Flight Muscles: Implications for Human Muscle Function
Ebru Robinson, Molecular Biology (D)

Session B-7

Humanities, History, Literature, & Philosophy (U) 1
Friday, February 28, 2025 11:00 AM
Aztlan

11:05 AM

Mauds Mad: How the Stress of Neurodivergence and Gender Roles Shaped L.M. Montgomerys Life and Work
Amanda Dean, History (U)

11:25 AM

Winning Hearts and Minds but Losing the War in Iraq: Government Lies, Intelligence Failure, and Privatization of Military
Andrea Albanese-Fishel, History (U)

11:45 AM

Reclaiming Personhood Through Participatory Art: An Analysis of Yoko Ono and Adrian Piper's Works
Angelica Castillo, Art with an Emphasis in Art History (U)

12:05 PM

Spring Valley Gun Emplacement and its Place in San Diego's World War Two History
Ethan Guernsey, Anthropology (U)

12:25 PM

Inaugurating a New Form of Sovereignty: Haitians, the Haitian Revolution, andInternational Law
Ethan Pellegrini, History and Politics Science (U)

12:45 PM

Women in Ancient Africa
Jada Reed, Urban Studies: Cultures and Societies (U)

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Session B-8

Physical and Mathematical Sciences (U/G) 1
Friday, February 28, 2025 11:00 AM
Mata'yuum

11:05 AM

From Bacteria to Biomaterials: Leveraging Bacterial Surface Display for the Synthesis of Spider Silk Fibers
Mariam Slewa, Biology (U)

11:25 AM

Breaking Wind: The Role of Galactic-Scale Gas Flows in Regulating Galaxy Growth
Andrew Pitts, Astronomy (M)

11:45 AM

Small-Scale Morphological Properties of the Cool Gaseous Disk-Halo Interface: Initial Constraints using the Flexible Parametric Model CloudFlex
Nissia Indradjaja, Astronomy M.S. (M)

12:05 PM

Direct and Indirect Excitons in hBN encapsulated Moire Superlattices
Ryan Palmares, Physics MS (M)

12:25 PM

Tunable Size Control in the Photochemical Self Assembly of Silver Nanoparticles
Joseph Charlonis, Chemistry (D)

12:45 PM

Ultrasensitive Detection of Biomarkers Associated with Chronic Traumatic Encephalopathy via Nonlinear Multi Photon Wave-Mixing Laser Spectroscopy
Nino Shatirishvili, Chemistry (D)

Session B-9

Education (U/G) 1
Friday, February 28, 2025 11:00 AM
Metztli

11:05 AM

Am I Being Served?: A Critical Autoethnography by a Latina Transfer Student at a Hispanic Serving Institution
Amy Zarate, English (U)

11:25 AM

A Photovoice Collaborative Autoethnography: Exploring Transfronterizx College Students Intersections of Gender and Sense of Belonging at the Imperial Valley-Mexicali Borderlands
Neyda Hernandez, Liberal Studies (U)

11:45 AM

The Influence of AI on Education in Spain Compared to the United States
Shreya Patil, Accounting (U)

12:05 PM

Evaluating undergraduate students Perceptions of the Magnitude of Variation (PMoV) across biological phenomena
Cecylia Quintero, Evolution Biology (M)

12:25 PM

Evading Race in HSIs: How Anti-DEI Legislation Affects HSI STEM Servingness
Daniela Hernandez, Postsecondary Educational Leadership and Student Affairs (M)

12:45 PM

Move Analysis on Candidate Statements
Liliana Reyes, Linguistics (M)

Friday, February 28, 2025
Session C: Oral Presentations

Session C-1

Behavioral and Social Sciences (G) 4
Friday, February 28, 2025 1:00 PM
Metztli

1:05 PM

Neural and behavioral indices of central executive dysfunction in people with fibromyalgia
Yasmin Epir, M.A. Psychology (Concentration in Behavioral and Cognitive Neuroscience) (M)

1:25 PM

Development of a faith-based organization leader workshop to support the implementation of an evidence based physical activity program
Jackelyne Garcia-Villegas, Joint Doctoral Program in Clinical Psychology (D)

ORAL PRESENTATIONS

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1:45 PM

From the Chair to Care: How Trust Creates Pathways to Mental Health Conversations and Help-Seeking Behaviors Between African American Men and Trauma-Informed Barbers as Neighborhood Healers
John W. Edwards, III, Social Work - Direct Practice (M)

Session C-2

Engineering and Computer Science (G) 2
Friday, February 28, 2025 1:00 PM
Legacy Suite

1:05 PM

Continuous Microfluidic Electroporation for Enhancing Gene Expression Modification through Efficient mRNA Delivery
Samantha Omer, Bioengineering (M)

1:25 PM

Investigation of a Glassy Carbon BioFET for the Detection of Analytes: Case of Glucose
Sara Herrera, Bioengineering (M)

1:45 PM

Impact Efficacy of Additively Manufactured Sandwich Structures
Sean Eckstein, Mechanical Engineering (M)

2:05 PM

Exploring the Potential of Vagus Nerve Stimulation for Type 2 Diabetes Management in Mice
Smruthi Jaishankar Iyer, Bioengineering (M)

2:25 PM

Characterizing Seismic Damage and Crack Patterns in Reinforced Concrete Slabs
Taylor Auerbach, Civil Engineering (M)

2:45 PM

Preliminary Results of Novel Full-field Strain Quantification Method
Anushka Sarode, Mechanical and Aerospace Engineering (D)

Session C-3

Humanities, History, Literature, & Philosophy (U) 2
Friday, February 28, 2025 1:00 PM
Visionary Suite

1:05 PM

Equity Gaps in Logic Courses
Joel Varon, Philosophy (U)

1:25 PM

Dialectic IntelligenceFortuneTellingThroughHegel
Kristina Bardhi, Philosophy (U)

1:45 PM

The Evolution of Women: From Late Imperial (Qing) China To Early Communist (1949-1976) China
Lola Fregoso, Asian Studies. Emphasis in Chinese Studies & Language (U)

2:05 PM

ESL and Multilingual Students' Perception and Strategies of Use With Generative AI
Madeline Kerins, Linguistics (U)

2:25 PM

A Systematic Framework for the Unmanned Revolution: Understanding the Role of Drones and Emerging Trends in the 2022 Russo-Ukrainian War
Purnell Strom, Political Science & International Security and Conflict Resolution (U)

2:45 PM

Belonging and Identity Negotiations of International Students in U.S. Academia: A Case Study with Taiwanese Students
Sophia Chang Chien, Communication (Liberal Arts) (U)

Session C-4

Humanities, History, Literature, & Philosophy (U/G) 1
Friday, February 28, 2025 1:00 PM
Lipinsky Suite

1:05 PM

Possibilities for (Dis)Empowerment: Female Sexuality and Subjectivity in Gothic Literature
Taylor Gibbs, English (U)

ORAL PRESENTATIONS

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1:25 PM

The Perils of Positive Stereotyping:
The Origins of the Model Minority Myth
Alexis Petty, History (M)

1:45 PM

Eros & Psyche: Magical Gemstones and
Lovemaking Dynamics in Mythology
Andrea Tarabay, History (M)

2:05 PM

Understanding the Social Determinants of
Health in Homeless Populations
Annie Mewkill, Geography (M)

2:25 PM

Baudrillard, Shantay You Stay: Song Selection
Reinforcing Hyperreality in RuPauls Drag Race
Donovan Alcones, Critical Studies in Music (M)

2:45 PM

When You're Lost in the Darkness, Look for
the Light: Ecogothic Monsters in The Last of Us
Edgar Brito, English (M)

Session C-5

Health Nutrition and Clinical Sciences (U/G) 1
Friday, February 28, 2025 1:00 PM
Park Boulevard

1:05 PM

Interdisciplinary Research and Design:
Making Knowledge Actionable
Aurora Bryant, Art with Emphasis in Graphic Design (U)

1:25 PM

Hearing Loss in Latino Older Adults: Exploring
the Disconnect Between Subjective and
Objective Measures
Brianna Angel, Speech Language and Hearing Sciences (U)

1:45 PM

Radiation Therapy Utilization and Outcomes in Primary
and Secondary Central Nervous System Lymphoma
**Brianna Hostler, Psychology with an Emphasis in
Neuroscience (U)**

2:05 PM

Healthcare Workers' Experiences of Patient Aggression
**Vivian Magahis, Psychology with an Emphasis in Industrial
and Organizational Psychology (U)**

2:25 PM

The Moderating Role of APOE4 on the Relationship
Between Blood Pressure and Brain Volumes Among
Hispanic/Latino Adults
Carolina L. Costa, Psychology (M)

Session C-6

Engineering and Computer Science (G) 3
Friday, February 28, 2025 1:00 PM
Pride Suite

1:05 PM

Title: Reactive Molecular Dynamics Modeling and
Experimental Investigation of Engineered Hybrid
Carbon Materials
Carter Faucher, Bioengineering (D)

1:25 PM

Lattice structure Bioceramic Components via
3D-Printing and Sintering
Maryam Ghorbani, Mechanical Engineering (D)

1:45 PM

Numerical Modelling of Cross-Laminated
Timber Shear Walls
Ramin Sarange, Structural Engineering (D)

Friday, February 28, 2025
Session D: Oral Presentations

Session D-1

Business, Economics and Public Administration
(G) 1
Friday, February 28, 2025 3:00 PM
Legacy Suite

3:05 PM

Climate Change Adaptation Strategies and
Sustainable Innovation in Southern California
and Baja Wineries: A Vineyard Case Study
**Cesar Lopez, Master's in Business Administration
(Undergrad- Management) (M)**

ORAL PRESENTATIONS

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3:25 PM

Examining Gender-Based Violence in Honduras and Its Mitigation through Government Funds
Genesis Velez, Master of Public Administration/MA in Latin American Studies (M)

Session D-2

Health Nutrition and Clinical Sciences (G) 2
Friday, February 28, 2025 3:00 PM
Pride Suite

3:05 PM

One size does not fit all: Leveraging alternative data approaches to improve single-language DLD screening for multilingual public-school students
Erica Gutmann, Joint Doctoral Program in Language and Communicative Disorders (D)

3:25 PM

Types of social support and mental health among sex workers in Vancouver, Canada: An analysis of a community-based cohort
Hannah Barca, Public Health, Epidemiology (D)

Session D-3

Humanities, History, Literature, & Philosophy (G) 2
Friday, February 28, 2025 3:00 PM
Lipinsky Suite

3:05 PM

Censorship as Decolonization in the Irish Free State
Sara Romano, History (M)

3:25 PM

From Migrant Caravans to the End of Title 42: Immigration as a Critical Incident in Spanish-language Television News
Maria Jose Duran, Mass Communications (M)

Session D-4

Visual or Creative Arts (G) 1
Friday, February 28, 2025 3:00 PM
Aztlan

3:05 PM

Musical Theater in Tanzania
Janeth Shayo, MFA Musical Theater (M)

3:25 PM

Immersive Theater: History, Analysis and Impact on Engaging New Audiences
Ajay Junious, MFA Musical Theatre (M)

3:45 PM

Someone tell the story American School Shooting Culture & The Missing Perspective from Modern Day Productions of Stephen Sondheim's Assassins
Rebecca Murillo, MFA Musical Theatre (M)

4:05 PM

Hits That'll Make You Make You Hit Harder: Roller Derby and Musical Identity
Sophia Simmons, Master's in Jazz Studies (M)

Session D-5

Education (G) 1
Friday, February 28, 2025 3:00 PM
Metztli

3:05 PM

Evaluating Spirit Toolkit Post-Training Across Psychologists And Service Coordinators
Monique Zarate, Child Development (M)

3:25 PM

An Analysis of ChatGPT Written Feedback on Second Language Academic Writing
Natacha Garbe, Applied Linguistics (M)

3:45 PM

Examining the Impact of Racial Trauma on Mental Health in Minority Youth: A Quantitative Study on Racial Stress and Psychological Well-Being
Arwa Alkhawaja, Education (D)

4:05 PM

STEM is NOT Culture-Free: Ways to Incorporate Culturally Relevant Pedagogy in STEM at HSIs
Elizabeth Nguyen, Doctoral Program in Education (D)

4:25 PM

Student-Led Servingness: Highlighting the often invisible advocacy of students in the era of HSIs
Griselda Paredes, Education (D)

4:45 PM

Needs Analysis for ESL Students in CNA Program
Isabella Mullins, Applied Linguistics (M)

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Oral Presentations

Friday, February 28, 2025

Sessions E

Each oral presentation is allotted 10 minutes followed by a 5-minute question and answer period. Participants and guests are asked to enter or leave the rooms only between presentations.

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Friday, February 28, 2025
Session E: Oral Presentations

Session E-1

Cultivating a Sustainable Food Future (U/G)
Friday, February 28, 2025 9:00 AM
Templo Mayor

9:05 AM

Agroforestry as a Climate Adaptation Strategy for Farmers in San Diego County
Chie Tsujimoto, Sustainability (U)

9:25 AM

Investigating Genetic Spillage in Erythranthe cardinalis Common Garden Experiment
Lydia Duran, Biology emphasis in Ecology (U)

9:45 AM

Comparing Satellite-Based Evapotranspiration Models and Groundwater Pumping Measurements for Improved Irrigation Management in a Mandarin Orchard
Adam Oliphant, Geography (D)

10:05 AM

Rethinking the Benefits vs Risks of Community Gardens: From Environmental Justice (EJ) to Lead Contamination in San Diego, CA
Aneika Perez, Geography (D)

10:25 AM

Using the AI program AlphaFold to engineer transient tertiary structure (TTS) tags to enhance S1-casein solubility
Sierra Murrell, Chemistry Joint Doctoral Program (D)

10:45 AM

Role of Language Preservation & Food Knowledge Within La Mixteca Baja
Anahi Martinez, M.A. in Latin American Studies (M)

Session E-2

Cancer Research (G)
Friday, February 28, 2025 11:00 AM
Templo Mayor

11:05 AM

From Blood to Brain: Leveraging Stem Cells and Regenerative Medicine through Direct Reprogramming of Monocytes and Fibroblasts
Nino Gvalia, Biochemistry (M)

11:25 AM

Individual and Organizational Factors Associated with Tobacco Cessation Counseling among Patients within a Federally Qualified Health Center
Linda Salgin, PhD Public Health (D)

11:45 AM

Chemotherapy enriched macrophages promote cancer stem-like cells in ovarian cancer
Luis Cruz, PhD Cell and Molecular Biology (D)

12:05 PM

Loss of DNA mismatch repair protein alters actin dynamics to promote breast cancer metastasis
Megha Raghunathan, Biomedical Sciences (D)

12:25 PM

The impact of obesity-induced changes in adipose tissue on ovarian cancer progression
Sofia Howe, JDP - Cell & Molecular Biology (D)

Session E-3

Food Insecurity (U/G)
Friday, Febraury 28, 2025 1:00 PM
Templo Mayor

1:05 PM

Resilience and Community Building among Street Food Vendors: A Foodscape Case Study of the City of San Diego
Osvaldo Napoles Robledo, Geography (M)

ORAL PRESENTATIONS

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1:25 PM

En Busca de Provecho: Exploring the Relationship Between Food Deserts and Gestational Diabetes Mellitus Among Latinas

Leticia Camacho, MPH Epidemiology and Biostatistics (M)

1:45 PM

The Degradation of the Land and the Worker: The Story of San Quintín

Lauren Gomez, Latin American Studies (M

2:05 PM

Rural Heat Islands: How do they affect WBGT and agricultural workers?

Benjamin Wells, Environmental Science (U)

2:25 PM

High-throughput Phenotyping for Model Validation of Haematococcus lacustris

Barbara Saucedo, Microbiology/Cell & Molecular Biology Masters Program (M)

2:45PM

Model-Driven Discovery and Characterization of the Metabolism of Diatoms at Genome Scale Using Biomass Compositional Data Under Environmentally Relevant Temperatures

Shaila Prasad, Microbiology with emphasis in Clinical Laboratory Science (U)

Session E-4

Cancer Research (U/G)
Friday, February 28, 2025 3:00 PM
Templo Mayor

3:05 PM

Radiation Therapy Utilization and Outcomes in Primary and Secondary Central Nervous System Lymphoma

Brianna Hostler, Psychology with an Emphasis in Neuroscience (U)

3:25 PM

Development of the Culturally TargetedFinancial Navigation Program for Underserved Latina Breast Cancer Patients

Samantha Llanas-Medina, Social Work (U)

3:45 PM

Identifying New Pathways Susceptible to Mutant IDH1-Driven Inhibition

Sean Alfaro-Cunningham, Chemistry with an Emphasis in Biochemistry (U)

4:05 PM

Optimizing Expression of IDH2 Enzyme in E. coli for Mechanistic and Therapeutic Study

Aaron Le, Biochemistry (M)

4:25 PM

Advancing Reproductive Health Access Through Transnational Collaboration: A Study on Cervical Cancer Prevention in Bolivia

Morgan Newport, MPH/MA LatAm (M)

ORAL PRESENTATIONS

Poster Presentations

Friday, February 28, 2025

Sessions F-I

Poster presenters are required to stand
by their poster during the entire
1-hour and 30 minute discussion period.

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Friday, February 28, 2025
Session F: Poster Presentations

Session F-1

Behavioral and Social Sciences (U) 1
Friday, February 28, 2025 9:00 AM
Montezuma Hall

9:00 AM   1

Social Determinants of Health and Patient Engagement with Electronic Health (E-Health) Education Materials among Hispanic/Latino patients with Type 2 Diabetes (T2DM)
Adriana Rivera, Psychology (U)

9:00 AM   2

Identifying Barriers and Facilitators to Sports Participation among Rural, Hispanic Girls: A Qualitative Study
Ana Santos, Public Health (U)

9:00 AM   3

Sleep and Workplace Functioning among Low-Wage Hospital Workers
Anali Cruz, Psychology (U)

9:00 AM   4

Sanitation Justice in San Diego: Identifying Opportunities for Coalition Building and Narrative Change
Andy Lopez, IS3D (U)

9:00 AM   5

Exploring Implicit Bias and Political Participation Among Asian Americans: The Impact of Group Efficacy, Self-Assertion, and Model Minority Theories
Angelica Tharpe, Psychology (U)

9:00 AM   6

Higher Sensitivity to Internal Symptoms is Related to Feeling Worse after Self-touch
Audrey Duane, Psychology, Neuroscience emphasis (U)

9:00 AM   7

Macaca mauras consumption of native and non-native plant species in the Education Forest, Sulawesi, Indonesia
Ava Gulson, Anthropology (U)

Session F-2

Behavioral and Social Sciences (U) 2
Friday, February 28, 2025 9:00 AM
Montezuma Hall

9:00 AM   8

Neurobehavioral Dysregulation of Inhibitory Control in Fibromyalgia
Ben Salemme, Interdisciplinary Studies (U)

9:00 AM   9

Exploring Cognitive-Linguistic Profiles and the Attentional Blink in Aphasia
Caden Sajnog, Speech, Language, and Hearing Sciences (U)

9:00 AM   10

Impact of Prenatal CBD Exposure on Maternal Factors and Offspring Physical Development in Rats
Daniel Miramontes, Psychology (U)

9:00 AM   11

Investigating Reaction Time and Language Comprehension in Spanish-speaking Children with the Web-based Computerized Comprehension Task
Diego Leon, Psychology with an emphasis in Neuroscience (U)

9:00 AM   12

Prenatal CBD Exposure Impairs Spatial Memory in a Sex-Dependent Manner
Dorsa Naderpour, Psychology (U)

9:00 AM   13

Promoting STEM engagement in Latina Communities Through Elementary and High School Outreach Activities
Elena Enriquez, Speech Language and Hearing Sciences (U)

9:00 AM   14

Understanding the Effect of Substance Use on Depression Through EMA
Ella Moyer, Psychology with an emphasis in Neuroscience (U)

Session F-3

Biological and Agricultural Sciences (U) 1
Friday, February 28, 2025 9:00 AM
Montezuma Hall

POSTER PRESENTATIONS

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9:00 AM   15

Quantitating Mitochondrial Parameters from Diverse Species' Spermatozoa Using Electron Microscopy

Aaliyah Ringor, Microbiology (U)

9:00 AM   16

Multiple dimensions of plant diversity as drivers of soil microbial communities in tallgrass prairie ecosystems

Alec Juliano, Biology (U)

9:00 AM   17

The development of a neuronal model of GNB1 syndrome derived from hiPSCs

Amaya Valenzuela, Biology (U)

9:00 AM   18

Evaluating Transduction Potentials of Achromobacter Therapy Phages Used to Treat Cystic Fibrosis

Anusha Palanivelu, Microbiology Emphasis in Clinical Laboratory Science (U)

9:00 AM   19

Mytilus galloprovincialis Heart Rate and Valve-Gaping Behavior in Response to Acute Dissolved Oxygen Stress

Arianna Dial, Microbiology with an Emphasis in Clinical Laboratory Sciences (U)

9:00 AM   20

Investigating Nematode Infection Resistant Alleles to BacteriaBordetella atropi Through Hydrogen Peroxide Exposure

Breana Reyes, Biology with an emphasis in Cell and Molecular Biology (U)

9:00 AM   21

Metal Oxide Catalysts for Alternative Anodic Reactions of Water Oxidation

Deren Qian, High School Student (U)

Session F-4

Engineering and Computer Science (U) 1
Friday, February 28, 2025 9:00 AM
Montezuma Hall

9:00 AM   22

Thermal Durability of Polymer-Bonded Lunar Regolith Simulants for Enhanced Lunar Transportation

Adrianna De Los Garzas, Civil Engineering (U)

9:00 AM   23

An Enhanced Remotely Accessible Platform of Testbeds for AI and Robotics Research and Education

Alejandro Rivera Lara, Computer Engineering (U)

9:00 AM   24

Evaluation of Biopolymer-Amended Soils for Sustainable and Climate-Resilient Infrastructure: Mechanical Properties, Durability, and Recycling Potential

Alek Zhang, Civil Engineering (U)

9:00 AM   25

Analysis of the concentrations of human-associated fecal indicators and pathogens along the Tijuana River in California

Alina Alex, Environmental Engineering (U)

9:00 AM   26

Transformer Based Navigation on Embedded Devices

Alyssa Serrano, Computer Science (U)

9:00 AM   27

Dual Excitation Co-located Dual Band Miniaturized Loop Antennas Utilizing Inherent Impedance Matching for Wearable RF Applications

Arthur Gratas, Electrical Engineering (U)

9:00 AM   28

Trash Types and Pathways to the Coast in the San Diego Watershed

Camryn Crumpton, Environmental Engineering (U)

Session F-5

Engineering and Computer Science (U) 2
Friday, February 28, 2025 9:00 AM
Montezuma Hall

9:00 AM   29

Development of Test Setup for Large-Scale Structural Testing

Carlos Navea, Civil engineering (U)

9:00 AM   30

Assessing wildfire impacts on Critical Water Supply Areas and Water Infrastructure in the Western United States

Dalston J. Karto, Computer Science (U)

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9:00 AM   31

Examining the Temporal Changes in characteristics and performance of an ABR over a feeding cycle
Giselle Lemus, Environmental Engineering (U)

9:00 AM   32

Analyzing Edge of Chaos Behavior in Reservoir Computer Activation Functions
David Kaauwai, Computer Science and Applied Mathematics (U)

9:00 AM   33

Communicating Sustainable Civil and Environmental Engineering Research with Native American Communities (SDSU Weber Honors College)
Derin Guler, Psychology (U)

9:00 AM   34

Traumatic Brain Injury (TBI) and its Progression to Neurodegeneration Using Cortical Brain Organoids Derived From Human Induced Pluripotent Stem Cells (hiPSC)
Emily Sok, Mechanical Engineering with an Emphasis in Bioengineering (U)

9:00 AM   35

Miniaturized Dual-Band Electrically Small Co-Located Loop Antennas with Inherent Matching and Single Excitation
Eric Smith, Electrical Engineering (U)

Session F-6

Physical and Mathematical Sciences (U) 1
Friday, February 28, 2025 9:00 AM
Montezuma Hall

9:00 AM   36

Europa Clipper: Application of Artificial Neural Networks for Identifying Thermal Ion Compositions in Europa's Plasma Environment
Alexandria Dunkhase, Astronomy Major, Evolutionary Biology Minor (U)

9:00 AM   37

Utilizing Atropisomerism as a Strategy to Obtain a Mutant Selective c-KIT Inhibitor
Angeline Philip, Biology with an emphasis and cellular and molecular biology (U)

9:00 AM   38

Investigating the Bimetallic Synergism of Copper and Nickel as Electrocatalysts for Biomass Conversion
Claire Baeriswyl, Chemistry (U)

9:00 AM   39

Electrocatalytically Upcycling of Biomass Toward High Selective Formic Acid Production
Evan Ji, High School Student (U)

9:00 AM   40

Exploration of Deep Eutectic Solvents
Kayla Arlantico, B.S. Chemistry with an emphasis in Biochemistry (U)

9:00 AM   41

Elucidating the effect of IDH1 mutations on its hydride transfer reactivity
Mateo Contreras, Chemistry B.S. (U)

9:00 AM   42

Deep eutectic solvents as media for protein separation
Payton Lee, Chemistry (U)

Session F-7

Health Nutrition and Clinical Sciences (U) 1
Friday, February 28, 2025 9:00 AM
Montezuma Hall

9:00 AM   43

Overground Walking Adaptations to Unloading Knee Braces in Patients with Knee Osteoarthritis
Aalok Gokarn, Kinesiology (Pre-PT) (U)

9:00 AM   44

The Need to Generate Stem Cell Banks from a Diverse Range of Individuals to Advance Research Towards Personalized Medical Treatments
Abygail Olivares, Biology (U)

9:00 AM   45

Knee Brace-Associated Improvements in Walking Kinematics Among Knee Osteoarthritis Patients
Amanda Williams, Kinesiology (U)

9:00 AM   46

Impacts of invasive vegetation on fire and burn severity patterns in Otay Valley Regional Park, San Diego
Anahi Mendez Lozano, Environmental Engineering (U)

POSTER PRESENTATIONS

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9:00 AM   47

Comparing Trans Fatty Acid Production Through Heat in Rapeseed, Soybean, and Olive Oil Oils
Beniam Refera, Foods & Nutrition (U)

9:00 AM   48

The Impact of Asylum-Deterrence Policies and Other Socio-Structural Factors on Sexual and Reproductive Health Outcomes for Asylum-seeking women in Transit to the United States:
A Systematic Review
Charlize Chu, Public Health (U)

9:00 AM   49

Campus Safety Skateboard Study
Emily Hernandez Rincon, Psychology: emphasis in neuroscience (U)

Session F-8

Behavioral and Social Sciences (G) 1
Friday, February 28, 2025 9:00 AM
Montezuma Hall

9:00 AM   50

How Gen Z and Millennial Social Media Patterns Can Predict Gen Alpha Behavior for Digital Marketing
Belen Ruth Herrera, MA Communication and Mass Media (M)

9:00 AM   51

Gender and Sociability
Citlalli Martinez Cano, Sociology (M)

9:00 AM   52

Anti-Trans Abuse in Intimate Partner Violence and Its Impact on Transgender and Nonbinary Health
Cleo Spencer, Master of Public Health (M)

9:00 AM   53

Diverse Young Adults and Depressive Outcomes
David Magallanes, Sociology MA (M)

9:00 AM   54

Belief in Election Conspiracies: The Interplay of Evangelical Identity and Alienation in Democratic Trust
Dean Hall, MA/Sociology (M)

9:00 AM   55

Screening Sexual Minority Men for Intimate Partner Violence in Clinical Settings:Provider Experiences and Recommendations
Divya Sen, Masters of Public Health (M)

9:00 AM   56

Elvan Guzman, M.S. Early Childhood and Family Clinical Counseling (M)

Session F-9

Biological and Agricultural Sciences (G) 1
Friday, February 28, 2025 9:00 AM
Montezuma Hall

9:00 AM   57

Preliminary Assessment on Agricultural Occupational Exposures in Relation to Acute Kidney Injury
Cynthia Abuede, Public Health/ M.S. (M)

9:00 AM   58

Monitoring Changes in Plasticity Following the Introduction of Psychedelic Compounds in Cortical Organoids
Dylan Oates, Biology with a concentration in Molecular Biology (M)

9:00 AM   59

The Generation of HEK293T Cell Lines That Disrupt Binding Interactions of NEMO Using Prime Editing
Sally Luong, Chemistry (D)

9:00 AM   60

Exploring the role of ABC Transporters in the development of stem cells for future egg and sperm
Timothaus Haddad, Cellular and Molecular Biology (D)

9:00 AM   61

Effects of Tris(4-chlorophenyl)methanol Exposure in the HTR8/SVneo Placental Cell Line
Gabriel Romo, Environmental Health Sciences (M)

9:00 AM   62

Deciphering the repressive pathway that controls precision of X chromosome dosage compensation
Kavana Gonur, M.S. Molecular Biology (M)

POSTER PRESENTATIONS

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9:00 AM   63

Cryopreservation of Marine Bacterial Secretion System: Metamorphosis-Associated Contractile Structures
Leah Ponce, Cellular and Molecular Biology (M)

Session F-10

Engineering and Computer Science (G) 1
Friday, February 28, 2025 9:00 AM
Montezuma Hall

9:00 AM   64

Alvarado Creek: Time Series Analysis of High-Frequency Fluorescence Spectroscopy Data in Urban Water Systems
Jesse Hurtado, Big Data Analytics (M)

9:00 AM   65

Molten Aluminum Thermal Energy Storage System (MATESS)
Jorge Balvaneda, Master of Science in Mechanical Engineering (M)

9:00 AM   66

Miniaturized, Tri-Band (2.4 GHz, 5.2 GHz and 5.8 GHz), and Self-Matched Antenna Design for Body Wearable Applications
Pranav Yogesh Mahajan, Electrical Engineering (M)

9:00 AM   67

Assessing the Role of Visual Distraction by Roadside Advertising onVehicular Safety in Traffic Incident: A Data-Driven Study on California's Crash Data
SAMIH SHAIKH, Computational Data Science (M)

9:00 AM   68

Managerial practices and construction workers mental health: an exploratory analysis
Tejaswini Hegade, Civil Engineering (M)

9:00 AM   69

AI for Menstrual Health: Detecting Disorders Through Period Pad Analysis' - HER HEALTH AI
Vineeta Khanna, MS in computational Science Data Science (M)

9:00 AM   70

A concentrate-&-destroy strategy enabled by an adsorptive photocatalyst for enhanced destruction of perfluorobutanoic acid in water
Jiali Wang, Joint PhD (D)

Session F-11

Education (G) 1
Friday, February 28, 2025 9:00 AM
Montezuma Hall

9:00 AM   71

Math Students and Their AI Sidekicks: A Look Into the Classroom
Sunday Stein, Mathematics with a concentration in Teaching Service Major (M)

9:00 AM   72

Teacher Collaboration: The Influences and Components of Effective Elementary Grade-Level Teams When Planning Math Instruction
Bill Ricketts, EdD in Educational Leadership (D)

9:00 AM   73

How Many Do You Have? Investigating Students' Counting Abilities Across Different Task Types
Carlos de Alba, Mathematics and Science Education (D)

9:00 AM   74

Benefits of a Paid Teacher Residency
Cheryl Bayley, Educational Leadership (D)

9:00 AM   75

Transformative Teaching: Mentoring Preservice Secondary Math Teachers in Trauma-Informed Pedagogy
Claudia Pruitt, Ed.D. in Educational Leadership [PreK-12 School Leadership] (D)

9:00 AM   76

Co-teaching in the Secondary Science Classroom: A Case Study Exploring Parity and Collaboration in the Age of NGSS
Lindsay Goulet, Educational Leadership (D)

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9:00 AM   77

An Investigation of How Eighth-Grade Students Solve Word Problems That Can Be Modeled With a System of Linear Equations
Stacy Roberts, Ed.D. in Educational Leadership [PreK-12 School Leadership] (D)

Friday, February 28, 2025
Session G: Poster Presentations

Session G-1

Behavioral and Social Sciences (U) 3
Friday, February 28, 2025 11:00 AM
Montezuma Hall

11:00 AM   1

Examining Autistic Young Adults Mindsets Influencing Their Driving Performance
Elyse Simakaski, Psychology (U)

11:00 AM   2

Exploring Impairment Patterns and Language Proficiency in Mandarin-English Bilinguals with Aphasia
Emily Mu, Speech, Language, and Hearing Sciences (U)

11:00 AM   3

The Right to Stay Cool: Coping with Extreme Heat in the Imperial Valley
Emily Figueroa Salazar, Criminal Justice and Spanish (U)

11:00 AM   4

Is Flagging Dead? The Cultural Significance of Visibility Behaviors to College-Aged Queer Youth In San Diego
Erin Petersen, Anthropology and Sociology Double (U)

11:00 AM   5

Exploring the Relationship Between Socialization and Substance Use Among Youth Experiencing Homelessness (YEH)
Irish Rhea Edusada, Public Health (U)

11:00 AM   6

Combined Prenatal Cannabis and Nicotine Exposure Impacts Hippocampal Development
Isabel Caballero, Psychology (U)

11:00 AM   7

AI and the Student Experience: Gender Perceptions and Student Fears in AI Platforms
Emma Puckett, Language, Culture, and Society/French/ Interdisciplinary Honors (U)

Session G-2

Behavioral and Social Sciences (U) 4
Friday, February 28, 2025 11:00 AM
Montezuma Hall

11:00 AM   8

Making a Fresh Start: Reentry After Resentencing
Isabella Kalivas, Criminal Justice, Political Science, & Sociology (U)

11:00 AM   9

When words collide: An eye-tracking study examining the impact of top-down and bottom-up input during bilingual picture-word matching
Jaime Antoshak, Linguistics (U)

11:00 AM   10

Spilling the Tea About HIV: Health Films as Catalysts for Change
Jennifer Lothridge, Social Work/Gerontology (U)

11:00 AM   11

Primates and pollution: Macaca maura roadside garbage interactions in Bantimurung-Bulusaraung National Park, Indonesia
Joaquin Rafael Ramoso, Interdisciplinary Studies (Sustainability, Political Science, Psychology) (U)

11:00 AM   12

Exploring Effects of Interactions between Socioeconomic Status and Sex on Early Language Development: An Intersectional Approach
Josie Hartford, Psychology (U)

11:00 AM   13

International declines in academic performance and increases in loneliness are linked to electronic devices
Julia Lima, Psychology (U)

11:00 AM   14

Lower social communication skills in children with autism are associated with reduced synchrony of brain responses while watching an engaging movie
Julia Valois, Psychology with Emphasis in Neuroscience (U)

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Session G-3

Biological and Agricultural Sciences (U) 2
Friday, February 28, 2025 11:00 AM
Montezuma Hall

11:00 AM   15

Scents and Scent Ability: Can Prairie Rattlesnakes Identify Conspecifics Using Volatile Semiochemicals?
Elisa Paider, Biology (U)

11:00 AM   16

Exploring the Role of Molecular Chaperone Hsp83 in Muscle Function and Integrity
Ivan Leon, Kinesiology (Pre-PT) (U)

11:00 AM   17

Phylogenetic and Demographic Modeling of the Endangered Pacific Pocket Mouse Using Mitochondrial Genomes
Jackson Wolfe, Biology (U)

11:00 AM   18

Investigating Mechanisms Underlying Planarian Sensory Neuron Differentiation and Function
Jennifer Severance, Biology (U)

11:00 AM   19

How Giardia Shapes Host Metabolism: A Metabolic Investigation
Jordan Edens, Chemistry with an emphasis in Biochemistry (U)

11:00 AM   20

Changing the Menu: Altering Microalgae Diet for Effective Lytechinus Pictus Husbandry
Kaelyn Nguyen, Biology with an Emphasis in Cellular and Molecular Biology (U)

11:00 AM   21

Investigating the Role of Nup93 Interacting Partners in Developmental Gene Mis-expression and Polycomb-Linked Histone Modifications
Kameneff Bojorquez Gastelum, BA Biology (U)

Session G-4

Engineering and Computer Science (U) 3
Friday, February 28, 2025 11:00 AM
Montezuma Hall

11:00 AM   22

Ehancing Access to Medical Care in the Imperial Valley
David Aguilar, Mathematics (U)

11:00 AM   23

Developing Computational Tools to Map Neural Connectivity and Measure Influence in the Fruit Fly Brain
Isabelle Bernal, Computer Science (U)

11:00 AM   24

Computational Modeling of Grain Structures with Boundary Lacerations
James Burns, Mechanical Engineering (U)

11:00 AM   25

Numerical Modeling Of Cross-Laminated Shear Walls
Jefferson Young, Mechanical Engineering (U)

11:00 AM   26

Investigating the Photodegradation of Organic and Fluorescent Contaminants in Wastewater and Its Impact on Human Fecal Indicator Bacteria
Mia Pollasky, Environmental Engineering (U)

11:00 AM   27

Enhancing Material Property Prediction In High Entropy Alloys Through Machine Learning
Oscar Osuna, Mechanical Engineering (U)

11:00 AM   28

Investigating Transition Temperature and Aggregation of Elastin-Like Polypeptides for Enhanced Scaffold Design in Tissue Engineering
Praneel Singla, B.S. Mechanical Engineering (U)

Session G-5

Physical and Mathematical Sciences (U/G) 1
Friday, February 28, 2025 11:00 AM
Montezuma Hall

11:00 AM   29

Photochemical tuning of silver nanoprism sizes for energy and sensing applications
Rocco Ammirata, Bachelors of Science Biochemistry (U)

POSTER PRESENTATIONS

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11:00 AM   30

Peroxide Driven Seedless Synthesis of Silver Nanoprisms of Tunable Size
Timothy Mai, Chemistry (U)

11:00 AM   31

Spatial analysis of water potential between dominant tree species along a hill-slope in the Eel River Watershed
Antonio Estudillo, Environmental Sciences (U)

11:00 AM   32

Mathematical Model of Salmon Populations
Caleb Molina, Mathematics Major (U)

11:00 AM   33

Determining Reproduction Number using Physics Informed Neural Networks
Peter Lenz, Applied Math (M)

11:00 AM   34

Modeling HIV Latent Infection Under Drugs of Abuse
Tim Liang, Applied Mathematics Dynamical Systems of Chaos (M)

11:00 AM   35

Investigation of Reaction Pathways of Ethylene Glycol Upcycling via a Pd doped Ni Catalyst
Vayle Vera Cruz, Chemistry (M)

Session G-6

Health Nutrition and Clinical Sciences (U) 2
Friday, February 28, 2025 11:00 AM
Montezuma Hall

11:00 AM   36

The Role of Tactile Feedback Congruence in Rapid Reaching Corrections
Emily Reeder, Microbiology (U)

11:00 AM   37

Does neighborhood walkability associate with walking function?
Farah Basmagi, Kinesiology- Pre-Physical Therapy (U)

11:00 AM   38

Knee Brace Induced Muscle Recruitment Among Knee Osteoarthritis Patients
Justin Kim, Kinesiology (U)

11:00 AM   39

Creatine Supplementation in Concussion Recovery
Michaela Renfro, Foods and Nutrition (U)

11:00 AM   40

Over-the-Counter Hearing Aids: How Much Are Consumers Willing to Pay?
Lluvia Vazquez, Speech Language and Hearing Sciences (U)

11:00 AM   41

Integrating Social Determinants of Health Data: Developing a Machine Learning-Based Predictive Public Health Index
Sathvika Musuvathy, Public Health (U)

11:00 AM   42

Effect of Oropharyngeal Cancer Tumor Burden on Speech Production
Sydney Coleman, Speech, Language, and Hearing Science (U)

Session G-7

Education (U/G) 1
Friday, February 28, 2025 11:00 AM
Montezuma Hall

11:00 AM   43

Bridging the Digital Divide: Addressing AI Accessibility for Black High School Students
Abir Mohamed, Africana Studies (U)

11:00 AM   44

AI and the Student Experience: How Advertisements Are Promoting AI-Powered Educational Services to Target the Student Market
Rosabel Ibrahim, Information Systems (U)

11:00 AM   45

Optimizing Habitat Suitability for Salmonids in the Eel River: A Study of Temperature and Dissolved Oxygen Dynamics
Babette Romano, Sustainability (U)

11:00 AM   46

Cultural Competency Preparedness-Student Readiness for Self-Actualization as an Undergraduate
Shaye Phung, Liberal Studies, Elementary Education (U)

POSTER PRESENTATIONS

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11:00 AM 47

Rasquachismo: Leveraging the Resourcefulness of First Generation Latino Parents and their Contributions to their Children's Wellbeing
Stephania Uribe Garcia, Child and Family Development (U)

11:00 AM 48

The Role of Mentoring in a Community College Undergraduate Research Program
Jahaziel Sanchez, Accounting Information Systems (M)

11:00 AM 49

Bridging Values and Science: The Role of Faculty Communication in Shaping Students' Research Engagement
Rosalva Romero Gonzalez, MA Psychology (M)

Session G-8

Behavioral and Social Sciences (G) 2
Friday, February 28, 2025 11:00 AM
Montezuma Hall

11:00 AM 50

Exploring Gender-Based Attitudes Toward Perinatal Depression: Implications for Treatment and Support
Emily Leslie, MPH Health Promotion and Behavioral Sciences (M)

11:00 AM 51

Does ability to pay matter? Analyzing post-Humphrey pretrial decision-making in Southern California
Emma Bailey, Criminal Justice (M)

11:00 AM 52

Griefbots, Deadbots, and Postmortem Avatars: A Technological Shift in Communication and Grieving
Eric Uhden, Mass Communication (M)

11:00 AM 53

Trash2Treasure: An AI-Powered Educational Platform for Marine Pollution Awareness and Action
FNU Dipsy, Big Data Analytics (M)

11:00 AM 54

Cerebellar white matter tracts in young children with autism spectrum disorder
Giovanna Arantes de Oliveira Campos, Psychology (M)

11:00 AM 55

Exploring Cognitive and Olfactory Differences in APOE e4 Carriers
Hector Reyes, Psychology MA (M)

11:00 AM 56

Objects, Mementos, and Artifacts: How Cultural Objects Reveal Insights About the Transmission and Preservation of Heritage Culture
Jacara Terry, Child Development (M)

Session G-9

Biological and Agricultural Sciences (G) 2
Friday, February 28, 2025 11:00 AM
Montezuma Hall

11:00 AM 57

The characterization of novel dual-species infecting Stenotrophomonas maltophilia phages for the treatment of multi-drug resistant pathogens
Lindsey Camara, Cell and Molecular Biology (M)

11:00 AM 58

Bio-Inspired Mining Of Critical Minerals
Mauricio Salazar, Cellular and Molecular Biology (M)

11:00 AM 59

Impact of Heat Stress on Boechera depauperata
Nathen Walton, Masters in Biology (Evolution) (M)

11:00 AM 60

Exploring the Genetic and Metabolic Efficiency of Zymomonas mobilis Using Independent Component Analysis
Nhi Nguyen, master in bioinformatic and medical informatics (M)

11:00 AM 61

Using Directed Differentiation to Establish a Novel Neural Model of Kabuki Syndrome
Priscilla Plascencia, Cell and Molecular Biology, MS (M)

POSTER PRESENTATIONS

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11:00 AM   62

Impact of Prune Consumption on the Gut Microbiome in Women

Shyan Polman, Bioinformatics and Medical Informatics, MS (M)

11:00 AM   63

svArcher: A Reproducible Structural Variant Calling Pipeline Module For Plant Genomes

Trevor Mugoya, Bioinformatics and Medical Informatics (M)

Session G-10

Engineering and Computer Science (G) 2
Friday, February 28, 2025 11:00 AM
Montezuma Hall

11:00 AM   64

Wideband Circularly Polarized Array Antenna using a Novel Radiating Element for Ku-band SATCOM Applications

Nhat Truong, Electrical Engineering (D)

11:00 AM   65

Enhancing adsorption and photocatalytic degradation of short-chain PFAS by engineering material surface properties and solution chemistry

Rodney Leary, Joint Doctoral Program (Mechanical & Aerospace Engineering) (D)

11:00 AM   66

Enhanced adsorption and photocatalytic defluorination of perfluorobutane sulfonate using copper-modified boron nitride

tiantian chen, Civil, Construction, and Environmental Engineering (D)

11:00 AM   67

Investigating High-Velocity Impact Response of Polyurea via Molecular Dynamics

Tyler Collins, Computational Science (D)

11:00 AM   68

3d Printing Martian Soil using Selective Laser Melting

Zackary Skinner, Doctorate in Mechanical and Aerospace Engineering (D)

11:00 AM   69

A Comprehensive Evaluation Framework for Synthetic Medical Tabular DataGeneration

Anastasia Kurakova, MS in Big Data Analytics (M)

Session G-11

Health Nutrition and Clinical Sciences (G) 1
Friday, February 28, 2025 11:00 AM
Montezuma Hall

11:00 AM   70

The Association Between Precipitation Shifts and Autumn Coccidioidomycosis Prevalence in San Diego County Regions from 2004 to 2023

Kara Howard, MPH Epidemiology (M)

11:00 AM   71

Comparing Deceased Donor Proportions by Ethnicity Across the United States Using a Linear Regression Model

Kenya Benitez, Public Health (M)

11:00 AM   72

Evaluation of Urinary Biomarkers Linked to Acute Kidney Injury in Firefighters Exposed to Occupational Hazards

Mia Gault, MS Environmental Health Sciences (M)

11:00 AM   73

Older Adults Thoughts and Views on Managing OTC Hearing Aids

Eliana Marvizon, Audiology (D)

11:00 AM   74

Mapping Public Sentiment: A Data-Driven Analysis of Covid-19 Discourse on Social Media in Italy

Siddharth Suresh Babu, MSc in Big Data Analytics (M)

11:00 AM   75

Effects of thirdhand smoke house dust extracts on cytotoxicity in the placental cell line HTR-8/SVneo

Soraya Campbell, Environmental Health (M)

11:00 AM   76

The relationship of neighborhood adversity and physical activity in a low-income migrant community along the U.S.-Mexico border

Valarie Castellanos-Ponce, Psychology M.A. Graduate Program (M)

POSTER PRESENTATIONS

(U) = Undergraduate ; (M) = Masters ; (D) = Doctoral

Friday, February 28, 2025
Session H: Poster Presentations

Session H-1

Behavioral and Social Sciences (U) 5
Friday, February 28, 2025 1:00 PM
Montezuma Hall

1:00 PM   1
Uneven Narratives: Trends in Minority Heritage Preservation on the National Register in California
Kaia De Leon, Anthropology (U)

1:00 PM   2
Exploring the Influence of Attention and Visual Field on N400 and P300 Responses in Lexical and Stimuli
Lauren Magliocco, Psychology: Neuroscience (U)

1:00 PM   3
Uneven Ideologies: Regional and Spatial Differences in Authoritarianism and Social Dominance across the United States
Lexi Koelzer, Psychology, Emphasis in Neuroscience (U)

1:00 PM   4
Sleep phenotype of evening chronotypes at higher risk of increased sugar intake due to elevated sweet sweet taste preference
London Caceres, Food and Nutrition (U)

1:00 PM   5
Understanding Vaping and E-Cigarette Usage Amongst CPS Involved Youth
Luna Hiivala, Anthropology (U)

1:00 PM   6
Reward Processing Offers Insight Into Trauma's Effects on the Development of Anxiety
Madelin Gredvig, Psychology with an Emphasis in Neuroscience (U)

1:00 PM   7
Evaluating San Diego's Policy Landscape: Supporting Healthy Communities through the 1000 Cities Challenge
Madeline Roke, Kinesiology (Pre-PT) (U)

Session H-2

Behavioral and Social Sciences (U) 6
Friday, February 28, 2025 1:00 PM
Montezuma Hall

1:00 PM   8
Rewriting the Narrative: Empowering Black Women Through HIV Awareness
Marlena Ngim, Health Communication (U)

1:00 PM   9
Impacts of religion on women, socially and psychologically in the modern world
Maya Hossaini, Psychology (U)

1:00 PM   10
Prenatal CBD Exposure Alters Normal Motor Development in Rats
Maya Rusnak, Psychology: Emphasis in Neuroscience (U)

1:00 PM   11
Bilingual children expressing thought, emotion, and perception in two languages
Mia Mangney, Speech, Language, and Hearing Sciences (U)

1:00 PM   12
Examining the Impact of LOC on Driving Attitudes
Mikayla Boykin, Psychology (U)

1:00 PM   13
Cognitive Mapping of Commuter Students
Miles Coppage, Political Science (U)

1:00 PM   14
Enhancing Cultural Responsiveness in Early Intervention: The Critical role of Provider Preparedness for Marginalized Families of Autistic Children
Monserrat Valladares, Psychology with emphasis on neuroscience (U)

Session H-3

Biological and Agricultural Sciences (U) 3
Friday, February 28, 2025 1:00 PM
Montezuma Hall

1:00 PM   15
Identifying the gene responsible for bacterial adherence in C.elegans via forced evolution
Kinjaal Nagindas, Microbiology (U)

POSTER PRESENTATIONS

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1:00 PM   16

Data integration to investigate Microbial Abundance in Terrestrial and Aquatic Ecosystems and its Causes

Leo Sai, Biology - Emphasis In Cellular And Molecular Biology (U)

1:00 PM   17

Habitat Use and Activity Patterns of the moor macaque (Macaca maura) in a Human-Modified Forest

Mackenzie Karl, Sustainability (U)

1:00 PM   18

Osteological Analysis of an Anatomy Collection Comparing Non-Metric Genetic Traits

Marisol Lomeli, Criminal Justice (U)

1:00 PM   19

Riprap Reinforcements: How Do Photosynthesis And Respiration Affect The Abiotic Environment In A New Coastal Armoring Technology?

Miles Ghannadian, Biology with an emphasis in Marine Science (U)

1:00 PM   20

Heart Rate and Valve-gaping Response of Crassostrea [Magallana] gigas to Estuary Water Quality Changes

Neenah Mendez, Biology with an Emphasis in Marine Biology (U)

1:00 PM   21

An Exploration of Ambient Air Pollution Concentrations in the Border Region of Calexico, California

Nivi Sudhir Kumar, Public Health (U)

Session H-4

Biological and Agricultural Sciences (U/G) 1
Friday, February 28, 2025 1:00 PM
Montezuma Hall

1:00 PM   22

Success in the City: Morphological and Physiological Adaptations in Aegean Wall Lizards

Rory Mendelow, Environmental Sciences (U)

1:00 PM   23

Gut Morphology and Host-Microbe Interactions in the sea urchin Lytechinus pictus

Samantha Stenzel, Marine Biology (U)

1:00 PM   24

Inhibition of Metamorphosis Due to Loss of Alphaproteobacteria Megaplasmid Does Not Affect Growth and Biofilm Forming Ability

Shivani Mahesh, Biology - emphasis in Cellular and Molecular Biology (U)

1:00 PM   25

Investigating the role of immune and developmental genes during bacterial-stimulated metamorphosis in the marine tubeworm Hydroides elegans

Tatyana Ali, Biology (U)

1:00 PM   26

Microscopy to Metagenomics: Searching for the Cause of Black Spot Disease in two Local San Diego Sea Urchin Species

Erin Horkan, Cellular and Molecular Biology (M)

1:00 PM   27

Role of Isoform-specific region of Raf in regulating CRD and lipid interaction: Live Cell Study

Alexia Morales, Chemistry (M)

1:00 PM   28

Activation potential of enteric bacteriophages on the intestinal epithelium

Allison Hedin, Cellular and Molecular Biology (M)

Session H-5

Engineering and Computer Science (U/G) 1
Friday, February 28, 2025 1:00 PM
Montezuma Hall

1:00 PM   29

Development and Characterization of Lunar and Martian Concrete: Effects of Biopolymer Additives and Manufacturing Methods on the Physical and Mechanical Properties

Shezreen Khan, Aerospace Engineering (U)

1:00 PM   30

Non-native vegetation impacts on fire patterns in urban riparian areas in southern California

Shruti Gokhale, Environmental Engineering (U)

1:00 PM   31

3D-Printed Polymer-Bonded Clay as a Sustainable Alternative to Concrete

Tiffany Mae Casaje, Psychology (U)

POSTER PRESENTATIONS

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1:00 PM   32

Extraterrestrial Farming: Assessing the Effects of Perlite and Gypsum Amendments on Lunar and Martian Regolith Hydraulic Properties, and Alfalfa Plant Growth
Ava Halkola, Electrical Engineering, Mathematics Minor (U)

1:00 PM   33

Enhancing Agricultural Burn Detection in Arid Regions: Neural Network Analysis for Burn Scar Classification in the Mexicali Valley
Chris Flores, Geography [Geographic Information Science] (M)

1:00 PM   34

Bioelectrochemical Desalination: Combined Wastewater Treatment, Energy Recovery, and Desalination in One System
Craig Sutter, Environmental Engineering (M)

1:00 PM   35

Exploring a New 3D Metal Printing Approach via Selective Induction Sintering (SIS)
Ethan Morrison, Mechanical Engineering (M)

Session H-6

Humanities, History, Literature, & Philosophy (U/G) 1
Friday, February 28, 2025 1:00 PM
Montezuma Hall

1:00 PM   36

Memory as Resistance: Safeguarding the Truth After Human Rights Abuses
Jasmin Zeis-Khalil, Political Science/ International Security and Conflict Resolution (U)

1:00 PM   37

Social Recognition Predicts In-Lab Experiences and Career Decisions for STEM Student Researchers
Brooke Isrow, Graduate Social Psychology (M)

1:00 PM   38

The Impact of Socioeconomic Status on Flood and Storm Damage in Southeast San Diego: A Case Study of the January 22nd, 2024, Storm
Sarah Royer, City Planning (M)

1:00 PM   39

US-Mexico Border Surveillance Study: Community Views on Technology and AI
Alice Wilshire, Homeland Security Graduate Program (M)

Session H-7

Health Nutrition and Clinical Sciences (U/G) 1
Friday, February 28, 2025 1:00 PM
Montezuma Hall

1:00 PM   40

Covid Human Mobility Patterns
TImothy Boyd, GIS (U)

1:00 PM   41

Examining Speech Production in Adults with Dyslexia
Valarie Vito, Speech, Language, and Hearing Sciences (U)

1:00 PM   42

Noise-Induced Hearing Loss in Latino Farmworkers
Colten Mouzin, Audiology Joint Doctoral Program (D)

1:00 PM   43

A Case for Dual-Task Cost as a Measure of Gait Adaptability
Doug Mitchell, Masters of Exercise Physiology (M)

1:00 PM   44

Odor nudging promotes short term weight loss
Emma Johnson, MS Nutritional Sciences (M)

1:00 PM   45

The Chiara Project Dashboard: Empowering Women and Addressing Health Inequalities at the US-Mexico Border
Fernanda Carrillo, Big Data Analytics (M)

1:00 PM   46

Familism and Hearing Loss in Older US Latino Adults
Jenny Ortega, Audiology (D)

Session H-8

Behavioral and Social Sciences (G) 3
Friday, February 28, 2025 1:00 PM
Montezuma Hall

1:00 PM   47

Traumatic Brain Injuries and Violent Crime Offending: A longitudinal study of NFL Players, 1993-2023
Jackson Perry, Criminology (M)

POSTER PRESENTATIONS

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1:00 PM   48

Lets Talk About It. Period(s). An SDSU Needs Assessment to Plan a Menstrual Health Literacy Curriculum

Jasmine Garcia, Public Health (Health Promotion & Behavioral Science concentration) (M)

1:00 PM   49

Mapping the San Diego Floods of 2024: The Intersection of Media Coverage and Water Coverage

Jason Woo, Geography (M)

1:00 PM   50

Dynamics between Hours Worked and Self-Rated Happiness

Jerry Paras, Sociology (M)

1:00 PM   51

School Connectedness and the Relationship to Adolescent Delinquency

Jillian O'Keeffe, Masters in Sociology (M)

1:00 PM   52

P.L.U.R. Me Baby:Kandi Coated Community and Self-Efficacy at Music Festivals

Kristina Zahabi, Communication (M)

1:00 PM   53

Examining Fan Reactions and Support in Response to Criminal AllegationsAgainst Celebrities

Madison Ruffin, Masters of Criminal Justice and Criminology (M)

Session H-9

Biological and Agricultural Sciences (G) 3
Friday, February 28, 2025 1:00 PM
Montezuma Hall

1:00 PM   54

Optimizing Transduction Methods for Studying Growth Arrest-Specific 6 in Relation to TAM Receptors

Valeria Montes, Chemistry and Biochemistry (M)

1:00 PM   55

Investigating the Necessity of the Gut Microbiome in Metabolic and Reproductive Dysregulation in a Mouse Model of Polycystic Ovary Syndrome

Jada Brown, Cell and Molecular Biology (D)

1:00 PM   56

Characterization of a contractile injection system in a human gut bacterium

Josie Rivera Alfaro, PhD Biology (D)

1:00 PM   57

Advancing population genomics: A constrained admixture model for local and ghost ancestry detection

Margaret Wanjiku, Evolutionary Biology (D)

1:00 PM   58

Mapping Residual Dry Matter across California Rangelands with UAV LiDAR and Hyperspectral Imagery

Bruce Markman, Geography (M)

Friday, February 28, 2025
Session I: Poster Presentations

Session I-1

Behavioral and Social Sciences (U) 7
Friday, February 28, 2025 3:00 PM
Montezuma Hall

3:00 PM   1

Examination of Racial and Ethnic Differences in Injuries Sustained Due to Use of Police Force in San Diego County

Olivia Parisette, Criminal Justice (U)

3:00 PM   2

Confronting Prejudiced Responses (CPR): Addressing Implicit Biases and Disparities in Cardiac Arrest Survival for Women and People of Color

Raina Davis, Public Health (U)

3:00 PM   3

Booze and Boards Dont Mix: Unveiling the Risks of Impaired Riding in Alternative Vehicles on San Diego State University's Campus

Rianne Nabo, Psychology (U)

3:00 PM   4

How spatial attention modulates word recognition: An event-related potential (ERP) study

Sage Placer, Psychology with an Emphasis in Neuroscience (U)

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3:00 PM   5

Prenatal Cannabidiol Exposure Alters
Emotion-Related Behavior

Savana Hampton, Psychology Emphasis in Neuroscience (U)

3:00 PM   6

Risky Sexual Health Behaviors Among
Latina Immigrants

Sheccid Gonzalez, psychology (U)

3:00 PM   7

Analyzing the Link Between Language Skills
and Perception of Social Skills in Children

Simone Caruthers, Speech, Language, and Hearing Sciences (U)

Session I-2

Behavioral and Social Sciences (U/G) 1
Friday, February 28, 2025 3:00 PM
Montezuma Hall

3:00 PM   8

Promotoras in Action: The impact of
Communication skills and Personalismo on
participant class attendance

Vivianna Alfaro, Psychology" Industrial/ Organizational (U)

3:00 PM   9

Ethical, Legal, and Social Issues (ELSI) in
GeoAI Applications: A Case Study of Studying
Homelessness in San Diego

Alexandra Nguyen, Big Data Analytics (M)

3:00 PM   10

Validating a Measure of Innovation-Values Fit
in Faith-Based Organizations

Andrew Salcedo Alvarez, Psychology MA (M)

3:00 PM   11

Evaluating Employee Engagement and Streamlined
Communication in Government Health Agency

**Andres Huizar, Master of Public Health - Health Promotion
and Behavioral Science (M)**

3:00 PM   12

Regional Differences and Spatial Clustering in
Defining the American Identity

Ashar Abdallah, Social Psychology (M)

3:00 PM   13

Prenatal Exposure to Cannabidiol: Effects on Sleep

Ashley Nechyba, MA in Psychology (M)

3:00 PM   14

Impact of a Latina mother-daughter physical
activity program on girls physical activity and body
appreciation: Findings from a single-arm pilot study

**Athena Cisneroz, M.A. in Psychology, Physical and Mental
Health Research Emphasis (M)**

Session I-3

Behavioral and Social Sciences (G) 5
Friday, February 28, 2025 3:00 PM
Montezuma Hall

3:00 PM   15

Neural Measures of Semantic Context Processing
in People at Clinical High-Risk for Psychosis

Sidney Horne, Psychology (M)

3:00 PM   16

How does gender affect the perception of
credibility of sports announcers?

Sienna Perez, Graduate (M)

3:00 PM   17

A Program Evaluation of SDSU's Health Expo

**Sudha Singh, Masters of Public Health - Health Promotion
and Behavioral Science (M)**

3:00 PM   18

Linguistic Attitudes and Perceptions of Indigenous
Languages Among Students and Professors at a
private University in Oaxaca City

Vanessa Castro, Spanish (M)

3:00 PM   19

The relationship between school belonging and
peer victimization among Gender-Sexuality
Alliance student members during COVID-19

**Andy Lim, Joint Doctoral Program in Public Health
(Health Behavior) (D)**

POSTER PRESENTATIONS

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3:00 PM 20

Barriers, Facilitators, and Recommendations for Participation in PrEP Well: A Community-Led PrEP Implementation Project at a Transgender and Non-Binary Community Center
Carrie Nacht, PhD Public Health (D)

Session I-4

Physical and Mathematical Sciences (G) 1
Friday, February 28, 2025 3:00 PM
Montezuma Hall

3:00 PM 21

Continuous flow synthesis of borohydride-reduced citrate-capped silver nanoparticles
Christopher Turchiano, Chemistry (D)

3:00 PM 22

IDH1 R132Q: X-ray Crystallography Reveals Active Site Remodeling
Matthew Mealka, Chemistry/Biochemistry (D)

3:00 PM 23

Elucidating the Mechanism of Enantioselective Cyclopropanation"Ring Expansion of Indoles to Quinolines
Nilay Dogan, Chemistry / JDP with UCSD (D)

Session I-5

Behavioral and Social Sciences (G) 4
Friday, February 28, 2025 3:00 PM
Montezuma Hall

3:00 PM 24

Breaking Barriers: The Role of COSA San Diego in Facilitating Reentry for Individuals with Sexual Offenses
Malia Kohls, Criminal Justice & Criminology (M)

3:00 PM 25

The Role of Self and Partner Objectification in Body Image Outcomes in Sexual Minority Men
Nicole Nazareth, Psychology Masters (M)

3:00 PM 26

Using Family Structure to Contextualize the Effects of SES on Vocabulary
Noemi Garcia, M.A. Psychology (M)

3:00 PM 27

Beyond the Count: A Qualitative Approach to Understanding Homelessness in San Diego
Olivia Pugsley, Public Health (M)

3:00 PM 28

Pathways to Progress: Empowering the Middle Eastern/MENA Community in San Diego
Rita Herfi, Big Data Analytics (M)

3:00 PM 29

Can we believe everything we think we see? How the cross-race effect impacts the wrongfully convicted
Rowan Konstanzer, Criminal Justice and Criminology (M)

3:00 PM 30

Altered visual white matter connectivity to the posterior superior temporal sulcus in children and adolescents with autism
Savannah Scarlett, Master's of Arts in Psychology (M)

Session I-6

Business, Economics and Public Administration (U/G) 1
Friday, February 28, 2025 3:00 PM
Montezuma Hall

3:00 PM 31

Board Composition of Closed-End Funds
Daniel Diner, Finance (U)

3:00 PM 32

Disparities in Social Security and Medicaid Program Participation among Same-sex vs Different-sex Couples: Evidence from COVID-19 Pandemic Shocks
Nathan Rosenthal, Economics: Specialization in Quantitative Analysis (U)

3:00 PM 33

Key Insights into Tax Filing and Financial Planning
Ayoob Abed, Masters in Accounting-Taxation (M)

3:00 PM 34

Fear Campus mapping
Avery Kryger, Information systems (U)

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Session I-7

Visual or Creative Arts Poster Session (U/G) 1
Friday, February 28, 2025 3:00 PM
Montezuma Hall

3:00 PM   35

A Week of Creative Expansion for Emerging Artists
Lana Moss, Applied Design - Emphasis in Jewelry and Metalworking (U)

3:00 PM   36

A New Brain: From Sketch to Stage, How's it Made?
Tamarra Sylber, MFA in Design and Technology (M)

Session I-8, I-9, I-10, I-11

SDSU VISTA Poster Presentation Exhibits (U) 1-4
Friday, February 28, 2025 3:00 PM
Montezuma Hall

San Diego State University (SDSU) is committed to making education accessible to all, including individuals experiencing incarceration. Through Valuing Incarcerated Scholars Through Academia (VISTA), SDSU offers two Bachelor of Arts (BA) degree programs inside Centinela State Prison. The first VISTA cohort began in 2023 with an Interdisciplinary Studies degree, followed by a Journalism degree in 2024. These programs embody SDSU's belief that education transforms lives, fostering growth, leadership, and community inside and outside prison walls. We are happy to share that SDSU-VISTA scholars will be represented at the 2025 SDSU Student Symposium (S³) through research posters.

Session I-8

SDSU VISTA Poster Presentation Exhibits (U) 1
Friday, February 28, 2025 3:00 PM
Montezuma Hall

3:00 PM   49

Dungeons and Dragons
Tai Abreu, Journalism and Media Studies (U)

3:00 PM   50

Rehabilitative Properties of the Arts
Rubén Alarcón, Journalism and Media Studies (U)

3:00 PM   51

Low Self-Esteem: The Hidden Public Health Problem
Bryant Barraza, Interdisciplinary Studies (U)

3:00 PM   52

The Power of Education: Rehabilitation vs Recidivism
E'drick Brown, Journalism and Media Studies (U)

3:00 PM   53

The Art of Rehabilitation
Phillip Christianson, Journalism and Media Studies (U)

3:00 PM   54

Bentham & Foucault's Vision for the Future of Corrections: Discursive Formation Theory and the Panopticon
Jamie Creech, Interdisciplinary Studies (U)

3:00 PM   55

Smart Phones: Effects on Face-to-Face Interactions
Ian Ellis, Interdisciplinary Studies (U)

Session I-9

SDSU VISTA Poster Presentation Exhibits (U) 2
Friday, February 28, 2025 3:00 PM
Montezuma Hall

3:00 PM   56

Does the Education of Incarcerated Individuals Have an Effect on Society?
David Fitzgerald II, Journalism and Media Studies (U)

3:00 PM   57

Social Lens: The Social Theories that Explain how Society Changes and Functions
Erick Fuentes, Journalism and Media Studies (U)

3:00 PM   58

English Only Curriculum for Non-English Speakers in ABE Facilities: Examining Communication and English Hegemony in a Prison Education Context
Swan Galarze, Interdisciplinary Studies (U)

3:00 PM   59

To Do or Not to Do
Rigoberto Ganceda, Journalism and Media Studies (U)

3:00 PM   60

The Impact of Transformative Curriculums on the Incarcerated through The Change Parallel Project. A Nonprofit Organization.
Marlon Gray, Interdisciplinary Studies (U)

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3:00 PM   61

Human Exploitation and Trafficking Stoppage (H.E.A.T.S.) / Influencing Motivating Productive And Constructive Thoughts (I.M.P.A.C.T.)
Floyd Greene, Journalism and Media Studies (U)

3:00 PM   62

Non-Verbal Artifacts and Their Effects on Academia
Jason Hernández, Interdisciplinary Studies (U)

Session I-10

SDSU VISTA Poster Presentation Exhibits (U) 3
Friday, February 28, 2025 3:00 PM
Montezuma Hall

3:00 PM   63

With Liberty and Justice for All? The Case for Incarcerated Voting Rights
Silas Johnson, Interdisciplinary Studies (U)

3:00 PM   64

Finding a New Normal: Protecting our Mental Health
Gabriel Lira, Interdisciplinary Studies (U)

3:00 PM   65

How Materiality Can Shape Identities
Cesar Martinez, Journalism and Media Studies (U)

3:00 PM   66

Love Thine Ocean: Clean It Up
David Olvera, Interdisciplinary Studies (U)

3:00 PM   67

12-Steps of Destruction: An Apologetic Discourse on the Dangers of the Vagueness of "God as We Understand Him"
Jaime Ozaeta II, Interdisciplinary Studies (U)

3:00 PM   68

The Effect Higher Education in a Carceral Setting has on Society
Shawn Powell, Journalism and Media Studies (U)

3:00 PM   69

To Understand the Viking Age We Must Understand Intercultural Tensions between Economics, Religion, Communication, and Warfare
Joseph Rice, Interdisciplinary Studies (U)

Session I-11

SDSU VISTA Poster Presentation Exhibits (U) 4
Friday, February 28, 2025 3:00 PM
Montezuma Hall

3:00 PM   70

The Effects of Childhood Trauma
Arturo Suarez, Journalism and Media Studies (U)

3:00 PM   71

Facts are Facts: "A Better Way to Lower Recidivism"
Walter Thomas, Interdisciplinary Studies (U)

3:00 PM   72

"Choose Freedom" design art project
Jose Torres, Interdisciplinary Studies (U)

3:00 PM   73

OMCP: Offender Mentor Certification Program
Alex Valencia, Journalism and Media Studies (U)

3:00 PM   74

Strategic Communication
Manuel Vela, Interdisciplinary Studies (U)

3:00 PM   75

The Power of Education
Juan Castro, Interdisciplinary Studies (U)

3:00 PM   76

Expanding the Frame
Gabriel Madrigal, Journalism and Media Studies (U)

POSTER PRESENTATIONS

Poster Presentations

Friday, February 28, 2025

Sessions L

Exhibitors are required to stand by their presentations during the entire 1-hour and 30 minute discussion period.

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Friday, February 28, 2025
Session L: Poster Presentations

Session L-1

Cancer Research (G) 1
Friday, February 28, 2025 9:00 AM
Montezuma Hall

9:00 AM   78
Ligand-dependent clustering of galectin-3 on two-dimensional membrane surfaces
Ani Chakhrakia, Chemistry/ Biochemistry (D)

9:00 AM   79
Developing New Tools to Investigate Peroxisomal Lipid Metabolism
Brittany Conley, Biochemistry (D)

9:00 AM   80
Kinetic and Structural Characterization of Human Isocitrate Dehydrogenase 1
Elene Albekioni, Chemistry and Biochemistry (D)

9:00 AM   81
Intracellular Consequences of IDH1 Mutations in U87MG Glioma Cells
Grace Chao, Biological Sciences (D)

9:00 AM   82
Investigating the role of Noncanonical NF-kB/Notch signaling in promoting ovarian cancer stem-like cells
Gregory Jordan, Cell and Molecular Biology (D)

9:00 AM   83
CarD-T: An Automated Pipeline for the Nomination and Analysis of Probable Human Carcinogens
Jamey O'Neill, Bioengineering JDP (D)

9:00 AM   84
The Influence of BRaf Regulatory Domains on Membrane Association
Julian Grim, Chemistry JDP (D)

Session L-2

Cultivating a Sustainable Food Future (U/G)
Friday, February 28, 2025 11:00 AM
Montezuma Hall

11:00 AM   77
Complete Water Balance of the Imperial Valley
Erik Lawrence, Environmental Sciences (U)

11:00 AM   78
A Look at CaliBaja Ethnobotany Through a Gastronomic Lens
Justin Shorty, Biology with an Emphasis in Cellular and Molecular Biology (U)

11:00 AM   79
Protein language model-based prediction of potential allergens in Chlorella vulgaris
Sofia Teran, Foods and Nutrition (U)

11:00 AM   80
Nutrient composition and functional properties of microalgae as food ingredients
Corissa Williams, Nutritional Sciences (M)

11:00 AM   81
Expressing Kinases FAM20C and CK2 to Phosphorylate Milk Protein Î±1-Casein via Bacterial Fermentation
Mia Bartolovich, Masters in Chemistry (M)

11:00 AM   82
Understanding Drivers of Dairy Production, Effects of Drought and Farmer Adaptations in Rondônia, Brazil
Elise Piazza, Geography (M)

11:00 AM   83
Phototrophic-Heterotrophic Community Interactions and their Implications for the Construction of Community Metabolic Models
Alannah Harnden, Molecular Biology, Cell and Molecular Biology (M)

Session L-3

Cancer Research (U/G) 1
Friday, February 28, 2025 11:00 AM
Montezuma Hall

11:00 AM   84
Purification and site-directed mutagenesis within the IDH2 enzyme
Darius Hyde, Chemistry with emphasis in Biochemistry (M)

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11:00 AM   85

Role of TWEAK cytokine in determining ovarian cancer cell fate

Harshada Sapre, Cell and Molecular Biology (M)

11:00 AM   86

Sexual Health Perspectives: HPV Vaccine Knowledge and Perceptions Among Pediatric Frontline Clinical Office Staff in California

Olivia Keleman, Master of Public Health - HPBS (M)

11:00 AM   87

A Supervised Machine Learning Approach To Predict Tumor Status Through Telomere Content Variation Analysis

Priyanshi Shah, Bioinformatics and Medical Informatics (M)

11:00 AM   88

Leveraging Large Language Models to Predict Cancer Risk

Surangi Jayasinghe, MS Bioinformatics and Medical Informatics (M)

11:00 AM   89

Utilizing Dihedral Angle Control as a Strategy to Obtain Selective Diarylamine Kinase Inhibitors

Madeline Rougier, Chemistry, emphasis in Biochemistry (U)

11:00 AM   90

Structural Barriers in Cancer Care Within the U.S-Mexico Border

Ana Tolentino, Psychology (U)

Session L-4

Cancer Research (U) 1
Friday, February 28, 2025 1:00 PM
Montezuma Hall

1:00 PM   59

SD PATH HPV Inventory Assessment: Two-Years with Indian Health Center

Andrea Suhyoun, Psychology (U)

1:00 PM   60

Fibroblast autophagy inhibition alters mammary gland development

Bianca Rollbusch, Biology-Cellular and Molecular Biology (U)

1:00 PM   61

Examining the cultural and structural factors that Mr. Chacon faced while living in the rural area of Imperial Valley

Bryan Alexander, Psychology (U)

1:00 PM   62

Development and Implementation of an Academic-Community Partnership to Address the Breast Cancer Survival Disparity Among Black Women in San Diego by Increasing Enrollment in Clinical Trials

Dani Macahilig, Nursing (U)

1:00 PM   63

Development of Notch Reporter Cells to Investigate Ovarian Cancer Stem-like Cells and Chemoresistance

Daniela Cazares, Public Health (U)

1:00 PM   64

Investigating the Role of Heterogeneous Aging in Tumor Development & the Study of Differentially Aged Cell Population Interactions

Darby Dodge, Biology (U)

1:00 PM   65

Assessing the role of obesity in ovarian tumor metastasis

Emily Rodriguez, (U)

Session L-5

Cancer Research (U) 2
Friday, February 28, 2025 1:00 PM
Montezuma Hall

1:00 PM   66

MLH1 deficient cells can confer treatment resistance to wild-type breast cancer cells

Grace Girardot, Cellular and Molecular Biology (U)

1:00 PM   67

Characterizing the Structural and Catalytic Impact of IDH2 Mutations: Insights into Tumor Formation and Cancer Progression

Isabella Alves, Biology (U)

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1:00 PM   68

Role of social determinants of health on parental consent and voluntariness in pediatric cancer clinical trials
Kate Marinchev, Biology (U)

1:00 PM   69

MICAL2 expression promotes invasion and metastasis by cell autonomous and non-cell autonomous mechanisms in Pancreatic Cells
Katherine Simms, Mechanical Engineering with an Emphasis in Bioengineering (U)

1:00 PM   70

Bulk Transcriptomic Analysis Reveals the Effect of Endocrine Disrupting Chemicals on Cancer Gene Networks During Embryonic Development
Kathleen Nguyen, Cell and Molecular Biology (U)

1:00 PM   71

Optimizing expansion microscopy resolution through deconvolution for improved tissue imaging analysis
Larissa Reyes, Biology (U)

1:00 PM   72

Assessing Patient Experiences Post-Cancer Treatment: Health, Quality of Life, and Psychological Impact
Lena Adnan, B.S. Biology with an emphasis in Cellular and Molecular Biology (U)

Session L-6

Cancer Research (G) 2
Friday, February 28, 2025 3:00 PM
Montezuma Hall

3:00 PM   37

Utilizing RNAseq to Investigate Metabolic Gene Regulation of Cancer Cells Expressing Mutant IDH1
Katelyn Yunker, JDP Chemistry (D)

3:00 PM   38

Cooperative roles of RBD and CRD in Raf membrane recruitment and activation via Ras-GTP and lipids
Kesaria Tevdorashvili, Chemistry (D)

3:00 PM   39

ID1-4 proteins Contribution to Cancer Stem-like Cell Maintenance and Ovarian Cancer Recurrence Following Chemotherapy
Megan Keene, SDSU/UCSD Joint Doctoral Program - Cell and Molecular Biology (D)

3:00 PM   40

Exploring the Role of Autophagy in Cancer-Associated Fibroblasts: Implications for Tumor Desmoplasia and Metastasis
Nancy Leon-Rivera, Joint Doctoral Program in Cell and Molecular Biology (SDSU & UCSD) (D)

3:00 PM   41

Exploring the Kinetics, Dynamics, and Structure of Idh2
Nino Mamasakhlisi, Chemistry/Biochemistry (D)

3:00 PM   42

Alternative NF-ÄͺB inhibits MAPK activity to Promote Quiescence and Drug Resistance in Ovarian Cancer
Cecilia Gallo, Cellular and Molecular Biology (M)

3:00 PM   43

The Wnt9a Mimetic: A Review of a Novel Tool for Hematopoietic Stem Cell Signaling and Differentiation
Dareana Cabada, Microbiology (M)

Session L-7

Cancer Research (U) 3
Friday, February 28, 2025 3:00 PM
Montezuma Hall

3:00 PM   44

Voices for Change: Three Case Studies Exploring Limitations in Cancer Care in the Imperial Valley, CA
Linda Diaz, Psychology (U)

3:00 PM   45

Regional differences in precision medicine awareness in a large US-Mexico border county
Lisa Nguyen, Statistics, with emphasis in Data Science (U)

POSTER PRESENTATIONS

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3:00 PM   46

Recombinant Adeno-Associated Virus (AAV) Depletes PARP1 and Other DNA Damage Response Proteins Required for Cell Division

Miriam Garcia, Biology (U)

3:00 PM   47

Novel Actin Interacting Protein - MLH1

Rozet Parinas, Biology - Cell and Molecular (U)

3:00 PM   48

Examining Guideline Concordant Care Among Limited English Proficiency Cancer Patients

Sophia Butler, Biology (U)

Session L-8

Food Insecurity (U/G)
Friday, February 28, 2025 3:00 PM
Montezuma Hall

3:00 PM   49

Assessing the consumer nutrition environment of non-traditional food stores accepting CalFresh/SNAP EBT in the SDSU campus area

Griffin Sparrow, Food and Nutrition (U)

3:00 PM   50

Vital Tidal: An Affordable Meal Replacement to Address Food Insecurity and Nutrient Deficiency in Southern California

Stacey Lehrer, Food science and nutrition (U)

3:00 PM   51

Bringing nutritious food and health literacy to Southeastern San Diego through the Project New Village Peoples Produce Mobile Farmers Market: A process evaluation

Griselda Luna, Nutritional Sciences (M)

3:00 PM   52

Understanding agency partnerships to address food insecurity in San Diego County, CA: a stakeholder mapping approach

Ruthie Grant-Williams, Nutritional Sciences (M)

Exhibits

Friday, February 28, 2025

Sessions J

Each performance/film presentation is allotted 20 minutes followed by a 5-minute question and answer period. Presenters are also allotted 5 minutes for setup. Participants and guests are asked to enter or leave the rooms only between presentations.

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Friday, February 28, 2025
Session J: Exhibits

Session J-1

Visual Arts Exhibit (U) 1
Friday, February 28, 2025 11:00 AM
Montezuma Hall

11:00 AM
Designing for Disability:
Color Coded Buttons for Jonah
Lila Zeichner, Applied Design (U)

Session J-2

Visual Arts Exhibit (U) 2
Friday, February 28, 2025 1:00 PM
Montezuma Hall

1:00 PM
Tactile Geothermal: The Art of Light and Touch
Yewon Shin, Interior Architecture (U)

Session J-3

Visual Arts Exhibit (G) 1
Friday, February 28, 2025 3:00 PM
Montezuma Hall

3:00 PM
Decentering Social Norms:
Neurodivergent Resistance in Art
Mary Gowen, Master of Fine Arts (M)

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S³

Performance / Film

Friday, February 28, 2025

Sessions K

Each performance/film presentation is allotted 20 minutes followed by a 5-minute question and answer period. Presenters are also allotted 5 minutes for setup. Participants and guests are asked to enter or leave the rooms only between presentations.

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Friday, February 28, 2025
Session K: Performance/Film

Session K-1

Performance Arts (U/G) 1
Friday, February 28, 2025 1:00 PM
Montezuma Theatre

1:05 PM
Code Red
Sean Burt, Television, Film, and New Media (U)

1:35 PM
Affected Place: An existential tragicomedy
in one act with a brief epilogue
Alexander Ameen, MA in Theatre Arts (M)

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Online Sessions

Friday, February 28, 2025

Sessions M

Each performance/film presentation is allotted 20 minutes followed by a 5-minute question and answer period. Presenters are also allotted 5 minutes for setup. Participants and guests are asked to enter or leave the rooms only between presentations.

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Friday, February 28, 2025
Session M: Online Sessions

Session M-1

Dual Language and Critical Multilingual Learner Education Oral and Poster Session
Friday, February 28, 2025 3:00 PM
Online

3:10 PM

The Brightness of Education and UDL (Universal Design for Learning) to Better the Academic Experience of Newcomers
Tasnim Alsidnawi, M.A. Teaching (Elementary Education) (M)

3:35 PM

Reality of Parental Involvement in Secondary Education in Mathematics Education In Two Local Schools Serving Minoritized Communities: Charter and Public
Esperanza Ochoa, Mathematics and Science Education Doctorate Program (D)

4:00 PM

The impact of ethnicity and preferred language on parent engagement in parent coaching interventions for toddlers with or at risk of Autism
Wendy Verbyla, M.A. Special Education with Behavior Analysis and Autism Concentration (M)

4:25 PM

Best Second Language Acquisition Practices: An Intersection Between Visual Art and Second Language Development
Leslie Valeria Castillo Lopez, Dual Language Education (M)

Abstracts of Presentations

Session A

SDSU
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Session A-1

Behavioral and Social Sciences (U) 1
Friday, February 28, 2025 9:00 AM
Legacy Suite

9:05 AM

The Efficacy of Joint Experimental Psychological and Philosophical Interventions to Reduce Suicidal Ideation in Populations of People Dealing with Housing Insecurity
Axel Quero, Liberal Studies: Emphasis in Education-Generalist (U)

Due to the alarming state of global and U.S. suicide mortality rates in populations plagued by housing insecurity, cements suicidal ideation as a public health crisis that must be appropriately addressed for our vulnerable housing insecurity populations, its of upmost necessity to engineer an effective, empirical-based, clinical solution(s) through the joint framework of psychology and philosophy to preserve the sanctity of human life. Based on the extensive academic and clinical research regarding evidence-based interventions to reduce suicidal ideation, this research project sought to denote the efficacy of joint, experimental psychological and philosophical interventions to reduce suicidal ideation in targeted population of people suffering from housing insecurity, which specifically refers to the multifaceted application of Safety Planning Intervention(s), Cognitive and Dialectical Behavior Therapy, Rational Emotive Behavior Therapy, and Stoicism. This research project adds unto the body of literature concerning effectual, clinical interventions that can be used to reduce suicidal ideation, amongst vulnerable, unhoused populations through interdisciplinary disciplines of psychiatry and philosophy. Through an in-depth quantitative meta-analysis, data was amassed from 6 peer-reviewed, academic studies that ascertained the effectivity of joint psychological and philosophical interventions (Safety Planning Intervention(s), Cognitive and Dialectical Behavior Therapy, Rational Emotive Behavior Therapy, and Stoicism) through empirical-based assessments, systemic reviews, and meta-analyses of individual participant data enclosed in relevant clinical databases or scholarship. Data was analyzed through JMP and SAS. The outcomes of this research project indicate that a multi-medium (digital and in-person), multifaceted clinical intervention that utilizes joint psychological and philosophical interventions serve to reduce suicidal ideation in at-risk populations, which highlights its potential, clinical applicability in other demographic populations non-related to homelessness. For that very reason, this academic scholarship served to contribute to the on-going body of knowledge pertaining to reducing suicidal ideation in severely at-risk populations, and promotes further investigation in operationalizing a clinical treatment plan for those suffering from suicidal ideation.

9:25 AM

Education: The Influence of Confucianism in China and South Korea
Bernardette Jovana Solares Bolanos, International Security and Conflict Resolution (U)

This paper explores the enduring influence of Confucianism in the modern education systems of China and South Korea. By examining aspects of moral education, standardized testing, and cultural attitudes, this study reveals the similarities and differences in Confucian influences that have shaped each individual system. By integrating moral education into their curricula, both countries reflect Confucian emphasis on self-cultivation and social harmony. However, there exists a gap in emphasis and integration of these teachings. South Korea has a more explicit integration of Confucian values, while China's approach is less cohesive given its history of suppression of Confucianism and prioritization of materials studies. Standardized testing through the Chinese Gaokao and South Korea's Suneung demonstrate the enduring influence of Confucian values of meritocracy and social mobility. While both exams work to exemplify academic excellence, the Suneung's incorporation of Western educational elements, such as active learning, contrasts with the Gaokao which continuously remains heavily rooted in traditional Confucian methods of rote memorization. Cultural attitudes toward education, including parental involvement, social norms, and teacher-student relationships have also been shaped by Confucian ideals. Both countries reflect filial piety and social harmony through the hierarchical relations in teacher-student relationships and intense parental involvement in student education. Through this study it was found that Confucianism continuously exerts significant influence on modern education in China and South Korea. While influences vary, it has remained a powerful force in the shaping of educational practices, cultural attitudes, and societal values.

9:45 AM

How GenZ Undergraduates Define a Good Job
Cassandra Lapham, Sociology (U)

Understanding how Generation Z college students define a 'good job' is critical for educators, career advisors, and employers aiming to prepare and support this generation in the workforce. This study investigates the question: How do undergraduate students conceptualize a good job'? Using Arne Kalleberg's (2011) framework of job quality, which emphasizes both economic and non-economic dimensions, this research explores the priorities and expectations of 182 undergraduate students from an Institution in the United States. A qualitative research design with a grounded theory approach was employed to analyze open-ended survey and interview responses. Students were asked to describe the characteristics of a œgood job, yielding 481 distinct descriptions. The data were categorized into nine key themes, divided into economic (earnings, benefits, job security, career advancement) and non-economic (satisfying work, social workplace dynamics, flexibility, good management, and work

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features) factors.Preliminary findings highlight the growing importance of non-economic factors, which accounted for 67.15% of responses. Satisfying work emerged as the most frequently mentioned attribute (73.6%), emphasizing personal fulfillment, passion, and alignment with values. Economic dimensions, such as earnings (48.4%) and benefits (18.1%), remain relevant but are less dominant. Demographic analysis revealed significant variations: women prioritized work that benefits others, while men focused more on job mastery. Latinx and Black students emphasized flexibility and stability, reflecting potential socioeconomic influences. Additionally, students in service-oriented majors, such as Humanities and Social Sciences, highlighted social impact, while STEM students prioritized passion and workplace dynamics.These findings suggest a shift in workforce expectations, with Generation Z prioritizing meaningful work, flexibility, and supportive environments alongside financial stability. This evolving definition of a 'good job' has significant implications for career development programs, student affairs professionals, and employer recruitment strategies. Programs that address both intrinsic and extrinsic motivations can better support students' transition into fulfilling careers.Future research should explore longitudinal shifts in job preferences and examine how these priorities interact within specific industries. By addressing the diverse needs of this generation, stakeholders can foster environments that align with the values and aspirations of the modern workforce.

10:05 AM

Faith and Feminism: Catholic Nuns in a Patriarchal Religious Institution

Lorena Ford, Political Science (U)

This research investigates the political activism of Catholic nuns, a group often overlooked in discussions about religious and political agency. It highlights the significant role these women have played in advancing gender equality and social justice within the historically patriarchal institution of the Catholic Church. By understanding how their principles inform their advocacy and assessing the effectiveness of their efforts to improve conditions for women, this study aims to amplify the voices of nuns working at the intersections of faith and feminist activism. Using qualitative methods, including textual analysis and interviews, the research sheds light on the contributions of Catholic nuns in regards to domestic and international politics. It challenges dominant narratives that prioritize male religious leaders, and offers a deeper understanding of how religious women act as powerful agents of change for a more inclusive and equitable world.

10:25 AM

Commands, Avoidance, and Resistance:Interactional Challenges Between Police Officers and Civilians

Ekaterina Pavlova, Communication (U)

Power dynamics play a crucial role in the interactions people have every day. This study analyzes a video-recorded

interaction and looks for specific social actions where there is an unequal distribution of power between a police officer and a passenger seated on an airplane. These social actions were captured through a police officer's body-cam video, which was posted to a public platform (YouTube). The Conversation Analytic (CA) methods used to analyze these data rely on close examinations of naturally occurring interactions comprising everyday living to reveal the social organization of collaboratively produced events. In this case study, progressive conflicts arise when the police officer informs the woman that she must leave, but she refuses to do so. Attention is drawn to how authority gets enacted through the talk as the officer attempts to explain why she must leave, makes repeated attempts to accommodate yet coerce the passenger, issues commands, and finally threatens that she will be physically removed if she does not deboard. In response, the woman avoids ownership of alleged wrongdoings, challenges the officer's authority by claiming her right to remain in her seat, and displays resistance to ongoing efforts to remove her from the plane (which does eventually occur). Understanding this particular conflict on an airplane exposes how ordinary tensions between police officers and lay citizens are rooted in the display and rejection/adherence to authority as a series of interactional achievements. These findings have important implications for communication research and the general public: the creation of video-based training materials for law enforcement and airline personnel focusing on how conflicts are managed, compliance is achieved, and interactional strategies are enacted to avoid and resist commands.

10:45 AM

The Contact Zones of Domestic Work in a Historically White Community in Cape Town, South Africa

Kaisly Moreno, Political Science (U)

This project looks at the relationship between domestic workers living in Langa, an underserved neighborhood in South Africa, and the domestic services they provide to the neighboring middle-class suburban community, Pinelands. This research aims to highlight this contact zone and the structural relationship in place between domestic workers who are black and those who employ them who are mostly white. Contact zones can be defined as spaces where people on opposite ends of structural hierarchies come in contact. South Africa has a history of especially unequal contact zones, given its history of apartheid. Looking at domestic service relationships now gives us an insight into how people of different racial and economic standings interact and have social exchanges with each other in a post-apartheid setting. Apartheid in South Africa, despite being diminished 30 years ago, has left lingering systems of racial segregation despite reformation efforts to create this so-called new South Africa. So, in this post-apartheid era, what kind of relationships do we see between these two groups and what are their stories and experiences in the domestic service contact zone? This research project centers on over 100 interviews that were conducted by Professor Maher on two trips, one in 2018 and

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one in April 2024. I have been using existing codes and text searches in the software NVivo to help narrow down which interviews specifically mention contact zones within domestic work. Of the 27 interviews relating to my topic, 14 were from domestic workers' perspective and 13 were from the perspective of the employers. Then, I used qualitative analysis to identify interviews with overlapping themes, created visual representations of the data found within the codes, and created charts that compare different themes in selected interviews. Such tools are essential in helping recognize patterns in the data and point out what kind of attributes/themes interviews may have in common. I initially expected that the dynamic of domestic workers and employers would create a space where there was abuse of power and as a result, resentment from workers, based on personal experience as a child of an immigrant housekeeper. On the contrary, when going through interviews that focus on my topic, there's a pattern where both parties have mutual gratitude and language about being familial with one another. It is important to point out that in some cases where domestic workers are seen as family, employers abuse this and put them in a position where they feel the need to work on the employer's terms and conditions even if it isn't beneficial to them. To fully understand the relationship between interviews and reoccurring themes that relate to my topic, I read literature on domestic service alongside analyzing the interview materials from this dataset. In addition to building on the theory of contact zones, this kind of research and analysis is critical to give historically marginalized communities a chance to share once undocumented and disregarded experiences with a wider audience.

Session A-2

Business, Economics and Public Administration (U/G) 1
Friday, February 28, 2025 9:00 AM
State Suite

9:05 AM

Redevelopment, Divided: Place-Based Disparities in the Implementation of the Rental Assistance Demonstration (RAD) in San Francisco, CA
Charlie Kanelopoulos, Urban Studies (U)

This report assesses the implementation of the Rental Assistance Demonstration (RAD) in San Francisco, California, examining unit quality and resident experiences pre- and post-renovation under a new public housing redevelopment program. Launched by the United States Department of Housing and Urban Development (HUD) in 2012, RAD was created to address the poor condition and backlog of necessary improvements for public housing nationwide through private-public partnerships. Properties under RAD are converted to place-based Section 8 Vouchers, allowing local Public Housing Authorities (PHAs) to transfer ownership and management to private and non-profit companies, in this

way allowing private capital to be used for public housing renovations or redevelopment. As San Francisco was an early adopter of this program in 2014, the necessary amount of data on how buildings" and residents" are faring post-RAD exists to accurately and ethically investigate outcomes. This report uses a mixed-methods approach investigating and integrating both quantitative and qualitative data. Geospatial mapping and descriptive statistics are used to filter, analyze, and visualize resident complaints and resulting building code violations from the 9 family properties originally converted under RAD. These properties include Robert B. Pitts, Holly Courts, Ping Yuen, Westside Courts, Hunters Point East West, Westbrook, Alice Griffith, and Hunter's View. This quantitative data is paired with transcriptions and coding of 21 resident interviews across six RAD properties in San Francisco conducted by Dr. Valerie Stahl, with the support of Taya Ovaitt, MCP. Findings from this analysis reveal disparities in outcomes of RAD on resident experiences across properties at both an individual and neighborhood level. Namely, the four properties located in the Hunters Point Bayview (HPBV) neighborhood experienced worse outcomes when compared to the rest of San Francisco. BVHP is the residence of a majority of San Francisco's Black population. The neighborhood has historically been neglected, originally being designated as the industrial region of San Francisco, largely due to the Hunters Point Shipyard. This site was designated as an active shipyard from 1945 to 1974 as well as a Naval Radiological Defense Laboratory from 1948 to 1960 and has since been deemed an EPA Superfund site. The subjects of complaints made by residents to the city aligned with what interviewees from BVHP shared about their largely negative experiences with their homes and community. Building code violations increased 400% in BVHP post-RAD, a stark contrast when compared to the rest of San Francisco neighborhoods. These complaints were related to unit quality, various residential outages (elevators, heating, etc.), quality of shared areas, and code enforcement. While positive outcomes of RAD do exist in BVHP, San Francisco, and nationwide, this report shows the possibilities for inequities in the implementation of RAD, especially in terms of exacerbating already existing disparities. As RAD is a fairly new program, this report contributes to a crucial foundation of research on the outcomes of RAD necessary for insight into long-term outcomes for future implementation in San Francisco and beyond.

9:25 AM

Inclusion of Generative Artificial Intelligence Policies in Undergraduate Accounting Syllabi: A Systematic Review
Justin Deppiesse, ISCOR and International Business-Chinese (U)

Starting with the release of ChatGPT by OpenAI in November 2022, there has been a notable increase in the quantity and quality of artificial intelligence (AI) applications, leading to greater integration of AI into academic and professional fields. Building on this trend, we examined the extent to which AI has been incorporated into accounting education, given its potential to automate processes and transform the role of accountants

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in organizations.We conducted archival and survey research to explore factors influencing the adoption of AI policies in educational settings. Our sample includes 348 syllabi from undergraduate accounting courses across the fifteen largest universities in Texas, a dataset that we believe to be both unbiased and representative as all Texasan universities are required to make their syllabi publicly available. We found that 22.41% of these syllabi included specific policies addressing AI use. Factors such as university selectivity, size, course type, and professor difficulty ratings significantly influenced the adoption of AI policies. We found that lower university acceptance rates, larger university sizes, specific course types, and higher professor difficulty ratings are associated with a higher inclusion of AI policies in associated course syllabi. These findings have important policy implications, enabling stakeholders to assess the adoption of AI policies in their own institutions and identify opportunities and challenges in expanding AI integration across courses and academic settings.

9:45 AM

Skate Safety on Hilltop Way: An Empirical Approach Toward Commuter Safety on SDSU Campus
Matthew Philbin, Economics & Linguistics (U)

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 develops an empirical framework to analyze skate safety and congestion on college campuses, including a taxonomy of skater braking techniques, and applies it to Hilltop Way. By systematically examining the understudied dynamics between skaters and other commuters, this research hopes to inform policy solutions to improve campus safety and enhance commuter efficiency.

10:05 AM

Effects of hospital access on take-up of SSI/SSDI benefits among persons with disabilities, particularly in rural areas
Sagel Provancher, Economics and Sociology (U)

This research project examines how changes in healthcare access influence enrollment in Social Security Insurance (SSI), Social Security Disability Insurance (SSDI), and Old-Age, Survivors, and Disability Insurance (OASDI). While existing literature largely focuses on the effects of healthcare access on local employment, economic outcomes, and healthcare quality, this study fills a critical gap by investigating the direct impact of hospital closures and openings on SSDI and OASDI participation. Our analysis is at the county level combining hospital opening and closure panel data from Centers for Medicare and Medicaid Services as shocks to healthcare access, combined with Social Security administrative records. Preliminary findings reveal that hospital closures, particularly in rural areas, are associated with increased SSDI participation. These results offer new insights into the relationship between healthcare access and SSDI program take-up. They provide valuable implications for the Social Security Administration (SSA) by informing projections of SSI/SSDI application trends in response to local healthcare shocks, shedding light on racial, ethnic, and rural disparities, and guiding targeted outreach efforts in communities at higher risk of adverse health and economic outcomes following hospital closures.

10:25 AM

Characteristics of U.S. Public Firms Involving Child Labor Abuse
Daniela Peregrino, Sociology and Political Science (U)

This study explores the characteristics of U.S. firms involved in child labor abuse. I first review the background of child labor abuse and its effects on children across the world. I then hand-collect news articles related to child labor abuse for S&P 1,500 companies and identify 56 firms that have been associated with child labor abuse. I find that child labor abuse has increased over time since 2010 and is concentrated in large firms, the Consumer Goods industry, and blue states. Overall, my study provides the initial evidence regarding characteristics of U.S. public firms associated with child labor abuse news.

10:45 AM

Unifying Voices in Crisis: Examining Interagency Coordination and Messaging Strategies to Counter Misinformation
Spencer Marion, Master of Art in Mass Communication (M)

Crisis communication is vital for maintaining public trust, but gaps still exist in understanding how agencies coordinate to deliver consistent messaging during a crisis. This study fills this gap by analyzing interagency communication dynamics and documenting challenges and best practices. Through in-depth interviews with public information officers from dozens of government agencies across diverse sectors such as public health, environmental management, and emergency response during crises like Hurricane Ida and the Red Hill water crisis, the research will explore how agencies align their messaging, overcome institutional barriers, and navigate the spread of misinformation.Results will describe the rich detail of interagency coordination, highlighting challenges faced at the time, opportunities, and recommendations for achieving unified messaging, maintaining public trust, and adherence to governmental guidance. The study provides a conceptual framework for enhancing interagency collaboration and underlines the value of clear, consistent communication during emergencies. The research adds to the broader literature on crisis communication and has implications for practical application, particularly concerning promoting cooperation

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across various agencies in times of crisis.Keywords: Crisis communication, misinformation, interagency coordination, public trust, emergency management

Session A-3

Behavioral and Social Sciences (G) 1
Friday, February 28, 2025 9:00 AM
Lipinsky Suite

9:05 AM

Examining Healthcare Utilization among American Indian and Alaska Native Adults in California

Akanksha Ravi, Public Health with a concentration in Health Promotion and Behavioral Science (M)

Lack of healthcare access and utilization among American Indians and Alaska Natives (AIAN) in California can cause negative health outcomes and low satisfaction with healthcare resources, and can also explain health disparities. More specifically, AIAN individuals in California access healthcare at lower rates than other ethnoracial groups; 15.8% of AIAN individuals in San Diego County did not seek healthcare or delayed getting healthcare in 2023 compared to 11% of non-Hispanic white persons. The objectives of this thesis are to identify factors impacting healthcare utilization among AIAN adults in California. Data from the California Health Interview Survey (CHIS) was used to conduct this project. CHIS is a cross-sectional study which enrolls one randomly selected adult participant from households in California. Participant requirements include being over the age of 18 years old and a resident of California. The data was collected via web based surveys and telephone interviews. The survey included multiple choice and close-ended response options. Some of the measures used in this project included rates of healthcare utilization, rates of telehealth utilization, factors hypothesized to impact telehealth utilization and healthcare accessibility (i.e. income, insurance status, regular source of care). The data analysis is still ongoing including descriptive statistics and multiple logistic regression. However, preliminary results highlight 831 AIAN adults were identified in the data and 32.4% specified they were enrolled in a tribe. Additionally, 133 AIAN adults delayed care and the reasons they delayed care included: could not get appointment, insurance not accepted, insurance did not cover, language understanding problems, transportation problems, hours not convenient, no child care for children at home, forgot or lost referral, did not have time to go, too expensive, or no insurance. Furthermore, 123 people did not have a regular healthcare provider and only 101 used telehealth in the past year. The preliminary results illustrate that healthcare access seems to be an issue in California and additional analyses are needed to determine what factors not included may be influencing these results. The data analysis process is still being conducted and discussion and implications of findings will be expanded in the upcoming months.

9:25 AM

Bosque Urbano De Las Californias: A Transnational Urban Forest In Urban Mediterranean North America

Andres Reyna, Geography (M)

Much effort is being made to increase urban tree density with expectations that doing so will reap multiple social and environmental benefits. However, not enough research is focusing on the strategies that guide the production of urban forests. This project addresses the lack of data on urban forest strategies and how they differentiate among decision makers in border regions. This research aims to examine urban forest strategies by decision makers through semi-structured interviews using the Tijuana-San Diego region as a case study. Interview participants include urban forestry experts found in academic, consulting, environmental, government, maintenance company, non-profit, nursery, and utility roles. This project draws from urban forestry literature topics of geography, culture, urban political ecology, city planning, environmental science, and urban forest building. This research has the potential to help guide urban forest policy by providing data on the production of urban forests to stakeholders.

9:45 AM

Deutsche-Mexicana: The History of German Involvement in the Municipality of Chapala

Arturo Avalos, Anthropology/MA (M)

The history and culture of Mexico are often thought to be the result of a fusion of the cultures of Indigenous Mexico and Spain that began in the 16th century and lasted until the beginning of the 19th century. In reality, Mexico was impacted by numerous European culture groups. In the early years of colonization, European nations who claimed Catholicism were granted access to enter, conduct business, and own land within New Spain as King Charles I of Spain was also Charles V of the Holy Roman Empire (1516-1556). Thus, countries claiming allegiance to the Holy Roman Empire received permission to participate in the colonization of the new territories. This endured until the reign of King Philip II in 1556 who declared that only those Catholics from Spain would be allowed access to these new territories. Despite the restrictions in 1556, many individuals of non-Spanish origin continued to enter and make an impact in New Spain. Further, increased engagement with other European and US cultures resulted after Mexican Independence in 1917 as the country opened itself to many foreign countries who influenced its culture and history. Among the new immigrants to Mexico, German migrants came for a variety of reasons, including hopes of increased wealth through the exploitation of policies presented to them by several of the political leaders of post-Independence Mexico, particularly Porfirio Diaz. Diaz promoted open-door policies that came to be known as the Porfiriato. As most of German migration occurred post-Independence, this project focuses on Germans in Mexico after 1821. This research aims to identify and understand the ways in which Germans have impacted the host country of Mexico, as well as how they formed communities

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that allowed them to develop support networks that extend into the contemporary period. This project looks at the German diaspora living in the Municipality of Chapala in the state of Jalisco and focuses on the historical and modern impacts of this population in the area. To do this, the project utilizes an eclectic collection of documents, memories, and books from various sources, the Archivo HistÃ³rico de Chapala, and life history elicitations and interviews to contextualize and support the data drawn from textual materials, thereby providing a more holistic understanding of the migration and adaption of Germans in Chapala, Jalisco and that reflect the impact of Germans on the history of Mexico as a whole.

10:05 AM
Health Literacy, Status and Access Amongst Low Income Adults Living with Chronic Illness in Rural Unincorporated Communities
Candace Juhala, Master's of Public Health | Health Promotion and Behavioral Science (M)

Introduction: Individuals residing in unincorporated communities (UCs) often encounter significant social and structural barriers when accessing healthcare services. Further, they are more likely to report their health status as lower and possess lower health literacy abilities. This study explores the relationship between health literacy, self-reported health status, and healthcare access for individuals residing in rural UCs along the United States-Mexico border.Methods: Using a descriptive cross-sectional design, data was collected from 223 adults residing in seven distinct UCs located in a single county along the United States-Mexico border. Data included self-reported health history, measures of health status, and healthcare access patterns along with health literacy level assessment.Results: Results indicate significant health literacy disparities based on ethnicity and language, with Hispanic and Spanish-speaking individuals exhibiting lower literacy levels. Furthermore, 89% of participants reported being diagnosed with at least one chronic illness, and those with chronic conditions rated their health as poorer compared to those without. Barriers to healthcare access were common, with 28.8% of participants unable to access needed healthcare services due to factors such as distance to clinics, lack of transportation, and long wait times.Conclusions: This research highlights the pressing need for culturally and linguistically tailored programs and services to address low health literacy needs and improve access to healthcare services, such as mobile clinics and telehealth services. By addressing health literacy deficits and overcoming geographic and financial barriers to care, targeted interventions can reduce health disparities and improve chronic disease management in rural, underserved populations.

10:25 AM
Communicating Foster Care: Reaching Prospective Caregivers Amid Crisis
Charity Edgar, Master of Arts (M)

While new data reflects a decrease in children entering the U.S. foster care system, state programs nationwide remain in crisis as the number of certified homes continue a downward trend. According to Leber and LeCroy (2012), the U.S. foster care system receives minimal media attention despite the mission's importance and relevance nationwide. A literature review of the limited data available points to word-of-mouth as the most effective method for engaging and informing prospective foster parents. Altruistic messages reoccurred in a variety of messaging mediums. This discovery prompted the exploration of targeted messaging to military families, a demographic underrepresented in foster parenting. Further research will incorporate qualitative methods to understand how licensed foster parents learned about the program.Interviews with both civilian and military families will be conducted, with feedback unique to Department of Defense-affiliated participants noted. In a study reviewing opportunities to support uniformed adoptive and foster parents, the Government Accountability Office reported only 2,174 active duty families fostered or sought to adopt in 2019, a fraction of the total force.

Session A-4

Behavioral and Social Sciences (G) 2
Friday, February 28, 2025 9:00 AM
Park Boulevard

9:05 AM
Stars on the Ballot: Exploring the Phenomenon of Celebrity Politics in Mexico
David Mejorada Sesma, Political Science (M)

The intersection of celebrity culture and politics has gained significant traction in Mexico, where public figures increasingly transition into the political realm. This phenomenon is driven by unique cultural and political dynamics, making Mexico a notable arena for celebrity politicians. But why is Mexico a hotbed for celebrity politics? What drives celebrities to pursue political office in Mexico? This study explores the motivations behind celebrity candidacies in Mexico and categorizes them into five distinct types"advocates, party affiliates, spotlight seekers, aspiring statespeople, and political stars. Through a qualitative analysis of case studies featuring prominent figures such as Paolita SuÃ¡rez and Samuel GarcÃa, the study examines how the Mexican political system and party nomination processes facilitate the rise of celebrity politicians. Preliminary findings also suggest that, while celebrity politicians in Mexico can engage the electorate and enhance political

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visibility, their rise also raises concerns about the integrity and effectiveness of governance, challenging traditional notions of political representation. This study contributes to a deeper understanding of the interplay between celebrity culture and political dynamics in Mexico, contextualizing the growing phenomenon of celebrity politicians within a global framework.

9:25 AM

Beyond Borders: Understanding Cross-Cultural Variations in Skin Tone Preferences

Devanshi Upadhyaya, Psychology (M)

Prior research has shown that preferences for lighter skin tones vary across countries, but the factors accounting for these fluctuations remain unclear. This study examines the role of socioeconomic disparities, religious orthodoxy, and cosmopolitanism in shaping skin tone biases. Existing literature suggests that pronounced socioeconomic disparities and high religious orthodoxy may be associated with lighter skin with higher status, influencing opportunities and perpetuating systemic inequities. Conversely, cosmopolitanism is thought to reduce such biases due to greater exposure to diversity. We hypothesized that countries with greater socioeconomic disparities and higher religious orthodoxy would exhibit stronger preferences for lighter skin tones, whereas more cosmopolitan countries would display weaker biases. Using data from Project Implicit for 98 countries with at least 100 participants per country, a standardized index for the three variables, each comprising three indicators, was created. Socioeconomic disparities were measured through education inequality, income inequality, and social mobility (reverse-coded). Religious orthodoxy was assessed using measures of religious exclusivism, preference for religious beliefs over scientific evidence, and governance by religious law. Cosmopolitanism was operationalized through global citizenship, immigration-driven conflicts, and ethnic fractionalization. The results emphasize the significant role of socioeconomic disparities and cosmopolitanism in shaping skin tone biases. Socioeconomic disparities showed a significant negative correlation, indicating that greater inequalities may exacerbate less preferences for lighter skin tones. Cosmopolitanism exhibited a significant negative correlation, supporting that exposure to diversity through globalization, migration, or multiculturalism can reduce these biases. The correlation between religious orthodoxy and skin tone biases was negative but non-significant, highlighting the complexity of its influence. Its role may be less direct compared to socioeconomic factors and cosmopolitanism. Together, these findings underscore the importance of addressing economic inequalities and fostering cosmopolitan values as strategies to mitigate systemic biases tied to skin tone.

9:45 AM

Using Acceptance and Commitment Therapy in the reduction of depression, stress, and anxiety, and increasing value based behaviors with a mother with an autistic child

Emily Shearon, M.A. Special Education with a specialization in autism (M)

The present study examines the effectiveness of using Acceptance and Commitment Therapy (ACT; Hayes, 2011) to reduce depression, stress, and anxiety and increase value based behaviors for a mother with an autistic child. ACT is an evidence based psychotherapy that is used to develop psychological flexibility by using mindfulness and engaging in positive behaviors while experiencing negative emotions and thoughts. In addition, ACT involves the participant to identify values and set goals for the participant to achieve that align with their values. Parents who have an autistic child often experience feelings of despair, increased stress, anger, sadness, denial, and self-blame upon receiving their child's autism diagnosis (De Paz et al., 2018). Ultimately, raising an autistic child impacts the parents' psychological and physical well being. This study used a single-subject multiple baseline across behaviors research design to evaluate the effectiveness of using ACT for a mother with a 4 year old autistic child. Prior to the start of the intervention, the participant completed two questionnaires that assessed her depression, stress, and anxiety levels, and her psychological flexibility. Additionally, the participant identified two values, which are reducing her child's behavior and increasing social outings in the community. The intervention was given for 8 weeks with 2 sessions per week that lasted one hour. During the sessions, data was collected on the mother's ability to use antecedent and consequence strategies for her child, which includes differential reinforcement of other behavior, practicing safety skills with her child, and using distractions in the car to prevent her child's tantrum behavior in the car. Worksheets were given once a week for the participant to complete that focus on mindfulness and coping strategies to use in response to her child's behaviors that occur outside of the sessions. The homework was reviewed during the session. This is an ongoing study, thus, results will be reported at a later date.

10:05 AM

How does separation or divorce of parents affects the incidence of depression in their children?

Estela Jimenez, Sociology (M)

Previous research found an association between divorce and adolescent depression. The focus of this research is to analyze whether an association between depression in youth of an approximate age of 15 and their parents' separation or divorce. It is important to understand whether the separation

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of the children's parents is associated with depression in order to develop and implement appropriate interventions, such as cognitive behavioral therapy and/or medication. Data from Future Families Survey (formerly known as Fragile Families) was used in this investigation. The data was collected from direct interviews of 15-year-old youths, by telephone and in person (2015). While the data did not provide any evidence supporting a relationship between parental divorce and depression in their adolescent children, it does demonstrate a relationship between a change in the cohabitation dynamics between the parent and their partners. These are interesting findings regarding adolescent depression and parent/partner cohabitation dynamics.Overall, more research needs to be done on the incidence of divorce in children's depression.

10:25 AM
Prenatal Cannabidiol (CBD) Exposure Increases Activity and Alters Risk-Taking Behavior
Ilse Fleischer, Psychology (M)

Over the past decade, the perception that cannabidiol (CBD) is safe has increased, particularly among pregnant women. Despite this perception, the safety of CBD use during pregnancy has not been well studied. Research on CBD's effects remains limited due to potential polydrug use, difficulty measuring exposure time and dosing, and differing drug administrations. Animal models may increase our understanding of the safety of CBD use during pregnancy. The current study exposed pregnant Sprague-Dawley rats to CBD or control vehicle once daily from gestational day 5-20. CBD was dissolved in honey and delivered in a cookie dough edible'; controls received an edible' with no CBD. Behavior was examined in the offspring; thus, this study used a 2 (0 mg/kg, 50mg/kg CBD) x 2 (Female, Male) design. On postnatal days 30-34, which is equivalent to late childhood/early adolescence, subjects were tested in an open field activity chamber during their dark cycle for one hour/day. The open field uses infrared beams to track and locate the subject's movement, which is used to measure behaviors indicative of anxiety, exploration, and overall activity levels. Interestingly, prenatal CBD exposure significantly increased locomotor activity (p=.050), and habituation patterns (indicative of a learning process) differed by sex. Locomotor activity was increased in both the periphery and center. Furthermore, females exposed to prenatal CBD tended to spend more time in the center of the chamber (p < .06), indicating increased risk-taking behavior. Thus, these data suggest that prenatal CBD may have adverse effects on the exposed offspring, leading to hyperactivity, increased risk-taking behavior, and possible alterations in learning processes. Despite these adverse effects of prenatal CBD exposure, pregnant women remain vulnerable to the perception that CBD use during pregnancy is safe. These data emphasize a critical need for awareness of the risks associated with the use of CBD during pregnancy, as CBD may alter fetal development and lead to long-term developmental disorders in offspring. Supported by CMCR P64-07-001.

10:45 AM
Weaving Heritage: Dialogues of Cultural Preservation
Irene Gonzalez, Latin American Studies (M)

This thesis explores the relationship between cultural preservation and community identity in a rapidly changing global landscape. The aim of this research is to engage in discussions about cultural preservation, focusing on different methods of safeguarding cultural heritage in Southern California and Oaxaca, Mexico. This is assessed by looking at the various avenues through which cultural knowledge is transmitted, preserved, and created. In this study I use qualitative methodologies to examine museums, conservation practices, community museums in Oaxaca, and everyday spaces like gardens and kitchens as equally important in sustaining connections to ancestral heritage. I use semi-structured interviews with museum directors, conservators, community museum staff, and participants from Indigenous communities in the U.S. and Mexico to provide a deeper understanding of what preserving cultural heritage means for them. The findings of this research demonstrate that ethical stewardship and plant-based conservation methods are achievable and sustainable. It emphasizes the role of community museums in Oaxaca as vital spaces for local residents to preserve their archaeological and cultural heritage while presenting it in ways that reflect their own perspectives and values. Additionally, it recognizes the importance of documenting intangible aspects of culture, like traditional cuisine, language, and plant medicine as part of preserving and maintaining the community's rich cultural identity and ancestral knowledge. The study demonstrates that preserving cultural heritage requires a multidisciplinary approach, emphasizing respect for cultural continuity and identity.

Session A-5

Biological and Agricultural Sciences (U/G) 1
Friday, February 28, 2025 9:00 AM
Pride Suite

9:05 AM
CoalMiner: a random coalescent model generator for fastsimcoal28
Raya Esplin-Stout, Evolutionary Biology (D)

The site frequency spectrum (SFS) has become a cornerstone of evolutionary inference due to its sensitivity to demographic and selective processes across timescales, ease of inference, and ability to encapsulate genomic information as multidimensional histograms. Tools such as fastsimcoal28 and dadi have leveraged SFS for model-based evolutionary history estimation, enabling computationally efficient and accurate demographic analyses. However, these tools are limited by the

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need for user-specified models, often constraining researchers to test only a handful of evolutionary scenarios informed by prior biological knowledge.To address this limitation, we introduceCoalMiner, a companion software designed to generate thousands of evolutionary models with minimal user input.CoalMinertakes simple user-defined parameters (e.g., population numbers, sample sizes, mutation rates, and migration rates) and produces randomized demographic models formatted forfastsimcoal28. These models include divergence, admixture, bottlenecks, and migration events, and are structured to maintain chronological consistency. CoalMinerautomates the creation of input files, overcoming constraints in model generation, enabling broader exploration of potential topologies, and leading to more accurate results.We demonstrate the utility ofCoalMinerby testing it on well-charac-terizedHomo sapiensandPan troglodytesdatasets. Randomly generated topologies consistently identified best-fitting models that closely approximated the true demographic histories of these groups. By facilitating the generation and testing of a vast array of models,CoalMinerenhances the precision and scope of demographic inference, paving the way for more accurate and comprehensive evolutionary studies.

9:25 AM

Investigating the Nuclear Pore Complex Localization Domain of Megator in Drosophila

Tristan McDonnell, B.S. Biology, Emphasis in Cellular and Molecular Biology (U)

Megator or MTOR is a 262 kD component of the Drosophila melanogaster nuclear pore complex (NPC). It has been implicated in nuclear architecture as a polymeric component of the nuclear and cytoskeletal matrices as well as in interactions with transcriptional regulator proteins. While it is known that Megator localizes to the inner nuclear basket section of the NPC, little is understood about how its function is specifically linked to its localization at the nuclear pore. We hypothesized that MTOR contains a pore complex localization domain located near the N-terminus that is responsible for its role as a nuclear scaffold component. To explore how MTOR anchors itself to the NPC and to map its NPC-targeting domain, we expressed truncated protein constructs alongside the full-length MTOR in Drosophila S2 cells and assessed their localization relative to the nuclear pore complex. Using confocal microscopy on cells transfected with these deletion constructs, we were able to determine a fragment of MTOR that is likely responsible for localization to the nucleoplasmic subcomplex of the NPC. We are currently further refining this putative NPC-targeting domain through generating additional deletion constructs of MTOR. Furthermore, we identified several atypical nuclear phenotypes resulting from the ectopic expression of the intermediate deletion constructs. These findings provide a valuable foundation for further characterization of Megator's functional role as a nuclear pore component and as an intranuclear moderator of transcription and nuclear architecture.

9:45 AM

Deciphering the Polyploid Ks Histogram with Forward Time Simulations

Tamsen Dunn, Evolutionary Biology JDP (D)

Multiple rounds of whole-genome duplication (WGD) followed by diploidization have occurred throughout the evolutionary history of flowering plants (angiosperms). Much work has been done to model the genomic consequences and evolutionary significance of WGD. While researchers have historically modeled polyploids as either allopolyploids or autopolyploids, the variety of natural polyploids span a continuum of differentiation across multiple parameters, such as the extent of polysomic vs. disomic inheritance, and the degree of genetic differentiation between the ancestral lineages. Here we present a forward-time polyploid genome evolution simulator called SpecKS. SpecKS models polyploid speciation as originating from a 2D continuum, whose dimensions account for both the level of genetic differentiation between the ancestral parental genomes, as well the time lag between ancestral speciation and their subsequent reunion in the derived polyploid. Using extensive simulations, we demonstrate that changes in initial conditions along either dimension of the 2D continuum deterministically affect the shape of the Ks histogram. Our findings indicate that the error in the common method of estimating WGD time from the Ks histogram peak scales with the degree of allopolyploidy, and we present an alternative, accurate estimation method that is independent of the degree of allopolyploidy. We use SpecKS to derive tests that infer both the lag time between parental divergence and WGD time, and the diversity of the ancestral species, from an input Ks histogram. Lastly, we outline future plans for SpecKS, and describe its use in the community.

10:05 AM

Drivers of Neuronal Phenotypes in Alzheimers Disease

Rosemary Annunziata, M.S. Molecular Biology (M)

Alzheimer's disease (AD) is a progressive neurological disorder. Aging is its major risk factor, with 95% of cases being sporadic and 2"5% genetically linked. Traditional animal and post-mortem human studies face limitations in modeling human aging and disease progression. The discovery of Yamanaka factors enabled the reprogramming of mature cells into induced pluripotent stem cells (iPSCs), which can be differentiated into any type of human cell, including brain cells. As such, it has revolutionized regenerative medicine. However, the iPSC-intermediate erases donor age, limiting their relevance in age-related disease research. To address this, an optimized lentiviral system was developed in our laboratory to directly convert patient dermal fibroblasts into induced neurons (iNs), bypassing the pluripotent stage to retain donor age. Fibroblasts exposed to neuronal conversion media for 21 days and then sorted using fluorescence-ac-tivated cell sorting, produce neurons that capture the

<div style="writing-mode: vertical-rl">ABSTRACTS</div>

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donor age and that are reflective of the adult human brain, which makes them a valuable model for studying neuronal age-related diseases. Transcriptomic analysis revealed iNs resemble excitatory neurons from post-mortem AD brains, with a 58% overlap in differential gene expression. Notably, RUNX1, a gene implicated in development and cancer, was overexpressed in AD, suggesting an involvement in neuronal disease pathways. We are currently using our iN model to uncover the role of RUNX1 in neuronal dysfunction. We are generating iNs, from AD and healthy aged-matched subjects, where we will manipulate RUNX1 expression using genetic strategies, i.e. shRNA or CRISPR interference, to study the impact of this gene on the AD-associated neuronal phenotype. Our innovative model will shed light on possible new drivers of neuronal dysfunctions and offer a data platform to be explored for translational research into age-related neurodegenerative diseases.

10:25 AM

The Diet, Activity, and Habitat Use of Moor Macaques (Macaca maura) Living in A Human-Modified Forest in South Sulawesi, Indonesia

Vanessa Morgan, Anthropology (M)

Around the world, human activities have drastically changed the landscape. As a result, humans and wildlife are increasingly having to compete for space and resources. Behavioral flexibility determines the extent to which primates can adapt to habitat alteration and degradation. Many primates adjust to human-induced environmental change by incorporating non-native species and cultivated foods into their diet. Because these food resources may be unevenly distributed within their habitat, primates may prefer or avoid different habitat types within their home range. Moor macaques (Macaca maura) occupy a range of habitat types; however, most of what we know about this species comes from groups living in protected karst forests. Very little is known about how moor macaques respond to habitat alteration and degradation outside of protected areas. This project seeks to fill this gap in knowledge by studying moor macaques in unprotected forests, such as the Hutan Pendidikan, in South Sulawesi, Indonesia. This state-owned forest has extensive modification, with patches of secondary forest, introduced non-native Pinus merkusii, human settlements, and agricultural land. Our research examines the habitat use, behavior, and diet of one group of moor macaques (Group Tokka) living in the Hutan Pendidikan. We investigated this group's behavioral activities across the following four habitat types in the Hutan Pendidikan: mixed pine forest, dominant pine forest, native secondary forest, and agricultural land. We conducted instantaneous group scans every 30 minutes during which we collected information on group demographics, behavioral activities, and habitat type use. We collected a total of 597 scans from August to November 2024. Feeding and foraging accounted for most behavioral records (30.3%), followed by movement (28.6%), rest and self-grom

(29.1%), social activities (8.2%), and vigilance behavior (3.9%). In 60.3% of behavioral records, Group Tokka was observed in mixed pines, 30.9% in secondary forests, 5.9% in dominant pine forests, and 1.9% in agricultural land. Feeding and foraging records were the lowest in the dominant pine forest (20%) and highest in agricultural land (35%). The majority of Tokka's diet comprised of fruit (60.4%), followed by insects (24%), seeds (8.7%), and leaves (3.2%). Native tree species, such as Ficus sp. and Garcinia sp., accounted for 89.7% of feeding and foraging records, with non-native tree species (such as Pinus merkusii) and cultivated foods accounting for 10.3% of their diet. These results indicate that although moor macaques appear to prefer native food species, they exhibit dietary flexibility by consuming non-native and cultivated foods. Moreover, our findings suggest that despite the modification and degradation in Hutan Pendidikan, it still has conservation value in that it provides essential habitat for the Endangered moor macaque.

10:45 AM

Determining the presence of a potential novel pathogen in coast live oak (Quercus agrifolia)

Vince Rivas, Biology, Ecology Program Area (M)

Coast live oak (Quercus agrifolia) serves as a keystone species in California, supporting thousands of fauna with biological resources (e.g., food and shelter) and indirect benefits to cohabiting plant species through their interactions with soil communities. These trees provide crucial environmental services to their ecosystems like carbon sequestration, erosion control, and the promotion of groundwater infiltration. Coast live oaks occur throughout much of San Diego County, where they comprise sensitive habitat, especially in protected habitat preserves set aside in response to human development. Unfortunately, these vital trees are vulnerable to numerous biological threats, such as harmful pathogens that cause disease outbreaks. With increasing climate change, novel diseases continue to spread into new areas around the world. Signs and symptoms of new pathogens are not always obvious, but the presence of black acorns in coast live oak tree canopies in parts of San Diego County indicates the potential presence of a new disease. Goals: This study seeks to 1) determine the spatial distribution of symptomatic, black acorns throughout San Diego County, 2) describe and compare the microbial community assemblage between symptomatic and asymptomatic trees, and 3) determine if pathogens from acorns can be transmitted to seedlings through soil, and if this pathogen causes any negative performance or symptoms. Methods: In order to achieve objective 1, I sampled twelve sites throughout the County to assess coast live oak trees for the presence of symptomatic, black acorns. For objective 2, I have collected infested acorns from various sites and will perform DNA extraction and PCR using specific primers to target conserved regions: internal transcribed spacer (ITS) for fungi and 16S rRNA for bacteria. This region will be sequenced and matched against a library for pathogen identification at

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the genetic level. For objective 3, I will be germinating acorns with inoculum from symptomatic and asymptomatic acorn samples that were collected within samples areas. Preliminary results: objective 1 has been addressed with morphological assessments and the acorn material needed for objectives 2 and 3 has been collected.

Session A-6

Engineering and Computer Science (G) 1
Friday, February 28, 2025 9:00 AM
Metztli

9:05 AM

Preliminary Computational Explorations of Spinal Segments under Biomechanics Loading Conditions
Carlos Ortega Castro, MS Bioengineering (M)

Anterior lumbar interbody fusion (ALIF) is a widely used surgical technique for treating degenerative disc disease. While traditional titanium implants offer structural support, they can lead to stress shielding, hindering bone ingrowth and limiting long-term fusion. These limitations can negatively impact patient outcomes, including reduced range of motion and impaired quality of life. We recently developed a novel printable polymer composite incorporating bone growth factors and antimicrobial agents to address these challenges. This innovative material is designed to mimic the mechanical properties of native bone, promoting optimal bone-implant integration and reducing the risk of infection. Finite element analysis (FEA) is employed to simulate the complex biomechanical loading conditions experienced by the lumbar spine during various activities. These simulations will be based on a detailed anatomical model, incorporating realistic tissue properties and physiological loading scenarios. The FEA results will inform the design and optimization of the polymer composite cage, ensuring that it can withstand the mechanical demands of the spine while promoting bone regeneration. By combining advanced materials science, bioengineering, and computational modeling, this research aims to revolutionize ALIF surgery. The proposed polymer composite cage offers a promising solution to the limitations of traditional metal implants, ultimately leading to improved patient outcomes and enhanced quality of life.

9:25 AM

Investigation of Fire Behavior in Simulated Microgravity Conditions using a Narrow Channel Apparatus
David Fredriksson, Masters of Science in Mechanical Engineering (M)

We are exploring combustion and flame spread under microgravity conditions like those seen on the international space station (ISS) and other space bound vehicles. The overall goal of the research is to better understand and quantify how fire behaves under these conditions for the purpose of fire safety. This research is sponsored by a NASA grant, and has been an ongoing research area in Dr. Miller's lab, spanning multiple theses from different students. My research is mainly experimental, and focuses on using a device called the narrow channel apparatus (NCA). The NCA is a long, narrow channel with a small gap height (~5 mm) between the ceiling and floor of the inside of the chamber. The NCA aims to simulate microgravity conditions by suppressing the buoyant forces due to gravity on the flame. I am focused on burningPMMA samples of varying thickness under different oxygen concentrations and pressure levels in the chamber. Some of the quantities we are interested in obtaining from these tests are flame spread rate and sample surface temperatures in front of the flame. Flame spread rates are obtained using visible wavelength cameras to record the flame through a window on the top lid of the chamber. Sample temperatures can be obtained through a couple different methods: embedded thermocouples in the surface, and infrared imaging. Embedding thermocouples, while fairly reliable and accurate, is a time consuming and costly process, which is why we are trying to use infrared imaging as an alternative. The use of an infrared camera for our purposes is unfortunately not trivial, and we are required to look through a heated quartz window on the top of the chamber to see the sample, which also requires the use of a specific bandpass filter in the camera in an attempt to block emissions from the quartz.

9:45 AM

Properties of Cellulose Acetate Extracted from Littered Cigarette Filters
Eric Wilkinson, Master of Science in Mechanical Engineering (M)

One of the most prevalent ecological problems is the impact of litter on waterways, with discarded cigarette filters (comprising cellulose acetate (CA) fibers and various chemical additives) making up 30 " 40% of all littered items. While cellulose acetate has a wide range of applications, the properties of CA formulations specific to cigarette filter fibers remain under-investigated. This research aims to comprehensively characterize CA cigarette filter fibers, identifying the mechanical, thermomechanical, and physicochemical properties and explicating the process-structure-property interrelationships, environmental stability, and degradation behavior. Fourier transform infrared spectroscopy was used to determine the degree of substitution (DS), demonstrating a higher DS (correlated with longer environmental degradation time) in the filters (DS $\approx$ 2.53) compared to the control powder (DS $\approx$ 2.28), with little difference between unsmoked and smoked conditions (DS $\approx$ 2.53 and 2.51, respectively). The trilobal morphology of the filter fibers and the physical changes undergone during smoking (yellowing, entrapment of ash, etc.) were ascertained using optical and scanning electron microscopy. To assess the degradation temperature (Td), a thermogravimetric analysis was carried out that also identified the activation energy (184"186 kJ/mol) and the thermal endurance (12"19 trillion years). Pyrolysis analysis showed

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the presence of trapped moisture and volatiles, evidenced by weight losses at 125 and 190 Â°C, and a change in Td (370.1 Â± 0.8 Â°C, 363.9 Â± 0.9 Â°C, and 375.8 Â± 0.9 Â°C for unsmoked filters, smoked filters, and CA powder, respectively). Differential scanning calorimetry assessed the glass transition temperature (176.3 Â± 0.7 Â°C, 177.0 Â± 0.8 Â°C, and 170.8 Â± 1.7 Â°C, respectively), melting temperature, and enthalpy of fusion (7.9 Â± 1.2 J/g, 8.2 Â± 0.8 J/g, and 15.0 Â± 0.3 J/g, respectively). The quasi-static, long-term, and dynamic responses were tested by dynamic mechanical analysis, evaluating the storage and loss moduli and the creep response. The moduli were fitted by a modified Mahieux-Reifsnider model, illustrating the bond strength distribution as a function of the smoking condition. The dynamic mechanical response exhibited little change before and after smoking, with a slight increase in loss modulus (31 MPa â†' 41 MPa) and a slight decrease in Weibull coefficient (3.12 â†' 2.76) after smoking, characteristic of higher inter-fiber friction. The outcomes of this research include a comprehensive characterization of the mechanical, thermomechanical, and physicochemical properties of unsmoked and smoked cigarette filters, elucidating their degradation and stability.

10:05 AM

PD-SAC: Priority-Driven and Status-Aware Chain Scheduling for Weakly-Hard Real-Time Tasks

Hyunhee Kwak, Computer Science (M)

In resource-constrained autonomous systems such as self-driving vehicles, multiple cause-effect chains involving sensing, processing, and actuation must operate seamlessly, as delays in end-to-end latency within these chains can significantly degrade system performance. Weakly-hard real-time systems provide flexible scheduling for applications that can tolerate occasional deadline misses while maintaining a certain level of Quality of Service (QoS). However, the end-to-end latency of chains with weakly-hard tasks remains challenging to analyze due to the complexity arising from the uncertainty of how skipped jobs within individual tasks impact the overall end-to-end latency of the systems. In this paper, we introduce priority-driven status-aware chain scheduling, a novel chain-based scheduling approach for weakly-hard real-time tasks. The proposed scheduler reduces end-to-end latency by activating task executions based on chain configurations and criticalities of chains. We also develop an analytical framework to evaluate end-to-end latency with supporting various deadline-miss handling schemes and chain period configurations to improve practical applicability. Experimental results show our approach outperforms prior work, achieving up to a 94% reduction in end-to-end latency compared to prior chain-unaware scheduling approaches and 32% improvement over the state-of-the-art chain-based scheduler. Furthermore, we implemented our scheduler on Linux running on Raspberry Pi platforms with an acceptably small overhead.

10:25 AM

Mitigating online advertisement fraud with differential privacy framework.

Kartiki Pande, Management Information System (M)

This presentation explores the challenges of online advertising fraud and introduces Differential Privacy as a solution to protect data integrity and user trust. We explore how fraudulent activities, such as affiliate link hijacking, exploit weaknesses in advertising systems, harming businesses, publishers, and consumers alike. This discussion aims to provide researchers, students, and industry professionals with a deeper understanding of the role privacy-preserving technologies play in combating ad fraud and fostering a more transparent digital advertising landscape.

10:45 AM

Glassy carbon BioFETS: Employing transistor technology for bio-analyte detection

Katie Naretto, Bioengineering-Biomechanics (M)

Transistors are a fundamental aspect of modern day technology and are found in most digital applications. Transistors have two main functions, acting as either a switch or a signal amplifier. Harnessing their ability to amplify signals make them a favorable technology when designing biosensors. The specific type of transistor used will be a BioFET, a type of field-effect transistor employed in biological applications. This type of biosensor can be fabricated by using negative photolithography to pattern out electrodes and then undergo pyrolysis to create glassy carbon electrodes. Glassy carbon is a favorable material as it is very biocompatible, has high tensile and compressive strengths, high conductivity, and is inexpensive to produce. These probes will have the ability to be used in several applications, including deep brain stimulation as well as bio-analyte detection. The objective is to design and fabricate a probe that incorporates several glassy carbon electrodes that will have the ability to detect various bio-analytes. In this case, the target bio-analyte is troponin, a protein that can indicate signs of cardiac injury. These probes will consist of an array of transistors that are functionalized to detect troponin and can be electrochemically characterized to prove validity.

(U) = Undergraduate ; (M) = Masters ; (D) = Doctoral

Session A-7

Humanities, History, Literature, & Philosophy (G) 1
Friday, February 28, 2025 9:00 AM
Aztlan

9:05 AM

Swallowing and spitting out the red pill:
young men, vulnerability, and radicalization
pathways in the manosphere
Ifairi clarke, Mass Communication (M)

Botto, M., & GottzÃ©n, L. (2024). Swallowing and spitting out the red pill: young men, vulnerability, and radicalization pathways in the manosphere.Journal of Gender Studies,33(5), 596"608.https://doi.org/10.1080/09589236.2023.2260318 The manosphere, an online network of misogynist communities, has emerged as an influential space for young men's engagement with extremist ideologies rooted in œred pill beliefs. Despite its growing visibility, little research examines why young men join and leave such spaces. This study addresses this gap by analyzing 30 narratives from a Reddit community for former œredpillerss. Using qualitative methods, the research identifies vulnerability stemming from relationship failures, body image issues, and pressures of heteronormative masculinity as a key factor in radicalization. Findings reveal that while red pill ideology offers young men a sense of identity and community, it exacerbates their vulnerability and marginalization. Departures from the manosphere often stem from personal dissonance with red pill logic or adverse mental health effects. These insights emphasize the need to address underlying gendered vulnerabilities to disrupt pathways into misogynist extremism and foster progressive masculinities. Keywords:manosphere, red pill, masculinity, radicalization, vulnerability.

9:25 AM

Musical Theatre As Means To Queer Thriving:
A Strange Loop by Michael R. Jackson and Taylor
Macs 24-Decade History of Popular Music
Karen Diaz de Regules, Theatre Arts (M)

Scholars in the field of psychology acknowledge that trauma is a problem present in, but not exclusive to, the Queer community.On a personal, structural, and collective level, LGBTQ+ lives have been shaped by oppressive social policies that have resulted in an internalized negative perception of self that affects the quality of live of these individuals. People who have an internalized negative self-perception are most likely to maintain that perception until something or someone external to them intervenes. I argue that musical theater works like A Strange Loop by Michael R. Jackson and œTaylor Mac's 24-Decade History of Popular Music have the capacity to intervene in the trauma experience of audience members through Queer dramaturgies that align with recovery frameworks. I support my analysis with critical works from theatre and psychology scholars, as well as reviews and interviews regarding the scripts and performances. Both works offer complex representations of LGBTQ+ lives and acknowledge traumatic experiences and emotional pain associated with Queer identities. Both A Strange Loop by Michael R. Jackson and œTaylor Mac's 24-Decade History of Popular Music   challenge the Western structure of Musical form, as well as the existing associations with the Gospel and American popular music. In addition to this, both works re-contextualize these structures through a Queer lens, and empower the audience through the ending.

9:45 AM

The Advocacy of Repatriation and its Economic
Impact on the Museum Industry.
Leeann Jones, History (M)

Museums and collectors have long contested repatriating stolen or otherwise questionably obtained artifacts, despite the required legal provenance required by the numerous laws put into place to protect these pieces from looting. From antiquity to the modern day, the discourse on repatriation has left scholars with the recurring question of whether repatriation has a negative economic impact on museums that relinquish objects. Museum directors like James Cuno1 argue for the concept of œglobal education and add to the discourse on the possible motives for various large institutions' lack of repatriated objects within the modern era. UNESCO's 1970s convention and the enactment of NAGPRA (1990) allowed countries and cultures a platform to have their requests heard by these larger institutions. However, due to the lack of physical enforcement of the policies, repatriation has only truly begun within the last 10 years, as social media and public outcry about these stolen possessions have shone a spotlight on the issue. This presentation tracks two objects from Classical antiquity " œOrpheus and the Sirens and the Euphronios Krater " and how they came into possession of museums, following their journeys through repatriation and placement in their country of origin's museum. 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? As well as an analysis of the economic impact of both museums and countries of origin, taking into account the œloan or œtrade concept within the act of repatriation. This research offers an understanding of the economic impacts of repatriation from both the repatriating museum's view and from the perspective of the country from which the object originally came, alongside an elucidation of the process by which preservationists today attempt to secure these stolen items back to their countries of origin. Cuno, James. œCulture War: The Case Against Repatriating Museum Artifacts. Foreign Affairs 93, no. 6 : 119"29. http://www.jstor.org/stable/24483927.

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10:05 AM

Podcasts and their Influence on Black Identity

Malia Henry, Mass Communication and Digital Media (M)

This study explores how Black male-hosted podcasts influence perceptions of identity, masculinity and gender norms within the Black community. Since 2016, male-hosted podcasts"referred to as podcast bros in social media discourse"have created spaces to discuss these topics. These platforms have gained massive followings and sparked widespread debates. While these platforms encourage dialogue, they risk promoting manosphere ideologies, including anti-feminist sentiment. Using participation theory, transmediality, and mainstreaming theory, this research investigates how podcast discussions about masculinity manifests within social media conversations. It also explores how these narratives shape perceptions of self-identity, gender roles and romantic relationship standards in the Black community. By examining how listeners engage with and interpret podcast content, this study addresses gaps in literature regarding Black masculinity and digital media. Findings aim to reveal how podcasts reinforce, reflect or challenge societal norms. Ultimately, the research contributes to evolving definitions of Black masculinity and identity discourse on social media.

10:25 AM

Come and Get These Memories: Motown Records, Detroit & the American Dream in the Postwar Era

Maximus Miesner, History (M)

This research addresses Motown Record's role in shaping Detroit's culture from 1963-1966 and what this in turn reflects about major American cities in the postwar era. Furthermore, it argues that Motown mirrors the ethos within Detroit of individuals seeking the American Dream through compromise, collaboration, and resolve, which is thereby representative of the nation at large. Two sub-claims support the argument that Motown reflects the local and national view of the American Dream. First, that a combination of camaraderie, desire for self-preservation and ingenuity in music lie at the heart of Motown personnel and the culture of Detroit. Secondly, the productive and compositional qualities of Motown discography from 1963-1966 represent a similar dynamic in the nation as people with different visions of the American Dream worked together with the shared intent of securing it according to their own personal dreams.In analyzing the historiographical trends within roughly the last thirty years, this research situates itself within both discussions of Motown and Detroit by synthesizing the constitutive features of the label and city to demonstrate their broader reach into the scope of national attitudes in major urban centers. Furthermore, the American Dream is the central throughline which connects Motown to both Detroit and the U.S. while this element is peripheral in other historiographical works, focusing primarily on musical or urban themes.Utilizing oral histories on the Motown experience, studying the label's musicological components which permitted its success

and supplementing it with institutional, local, and national documentation, this research uses hermeneutic theory to underscore how these interconnected elements help clarify the workings between both micro and macro perspectives of the American Dream in postwar cities.

10:45 AM

The Struggle for Equality In American History

Nakai Contreras, Political Science (M)

The United States was founded on the enlightenment ideals of republicanism in opposition to the ancien regime era of imperial governments operating under natural hierarchies and mercantile capitalism.The American revolution set mankind on a new democratic footing; the Declaration of Independence established that all men are created equal and endowed with inalienable rights derived from natural law and reason. The progressive origins of the founding and second revolution of America have been hijacked and obfuscated in quite purposeful and strategic campaigns to avoid any possibility of class consciousness in the American working class. The struggle for equality in the historical American experience is derived from the progressive ideal of the Enlightenment; the universal subject of emancipation which is best understood in the perspective of the last great bourgeois philosopher, Abraham Lincoln, who believed equality represented a standard maxim for an equal and free society that is to be constantly approximated, expanded, and which I contend consequently seeks to eliminate all social inequalities as soon as circumstances permit (Abraham Lincoln's Speech on the Dred Scott Decision -- Courtesy of The Freeman Institute...). Therefore, the struggle for equality in the American experience, since its inception in 1776, has been consequently firmly rooted in the history of the most lasting and objective fundamental social division, class. The lasting influence of the revolutionary ideals of 1776 provided the foundational theoretical basis for the Civil War. The revolutionary legacy of this struggle for equality in the Bourgeois American revolution and Civil War, culminated in the major political transitions from the ancient regimes of imperial hereditary monarchies to a newly enlightened Bourgeois Republican democracy; and from the system of merchant capitalism defined by slavery to industrial capitalism defined by wage labor. The result of these revolutionary struggles for equality, cemented in the history of class struggle, have set the stage in America for the next revolutionary struggle in the name of equality; the struggle of the propertyless against the propertied, in a war against wage labor and the current exploitative social relations to the means of production.

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Session A-8

Health Nutrition and Clinical Sciences (G) 1
Friday, February 28, 2025 9:00 AM
Mata'yuum

9:05 AM

Prenatal Health Care Provider Survey

Destiny Akins, Nutritional Sciences (M)

Introduction: Maternal and infant mortality rates are a prominent health issue in the United States. Women of color, specifically African-American women, are disproportionately affected by this rate. African-American women are 3 to 4 times more likely to die a pregnancy-related death than White women.1 A cause of this disparity is due to internal biases within healthcare providers leading to lower quality of care. Many women of color report experiencing mistreatment, such as inappropriate tone of voice and refusal of assistance while receiving prenatal care.2 The purpose of this study is to quantify implicit racial bias in prenatal healthcare providers and explore potential strategies to reduce racial bias in prenatal healthcare settings and improve patient-provider communication.Methods:The IRB approved this cross-sectional survey in August 2024. National recruitment began in August 2024 and is currently ongoing. Prenatal health care providers (HCPs) are asked to participate in a ~20-minute online survey distributed via Qualtrics. The survey includes questions about 1) participant demographics, 2) an Implicit Association Test (IAT; racial), 3) 2 questions related to their experiences and perceptions of racial bias in their prenatal care setting, and 4) 3 questions assessing preferred interventions to reduce implicit racial bias and/or improve patient-provider communication. Participants receive a $25 Tango electronic gift card upon survey completion. As data collection is ongoing, the results presented in this abstract are limited to items 1, 3, and 4 as described above. The IAT will be analyzed after all data has been collected.Results:Ten participants have completed the survey; six females and four males. The participants identified their healthcare specialty, including family medicine physician (N=1), maternal-fetal medicine specialist (N=1), nurse practitioner (N=1), obstetricians (N=2), licensed clinical social worker (N=1), and registered nurses (N=4). Participants reported their race as Middle Eastern (N=1), Asian American (N=2), African American (N=4), and Caucasian (N=3) and most were non-hispanic ethnicity (N=9/10). Half of the participants indicated that 45-60% of their patient population identifies as a racial or ethnic minority. When asked if they have witnessed/been aware of instances where pregnant patients received different levels of care based on their race, ethnicity, or cultural background in medical settings, all participants selected either œagree or œstrongly agree. Additionally, most participants (N=9/10) stated they received training on cultural competency and sensitivity in healthcare settings. However, some participants (N=4) stated they felt uncomfortable/conflicted about providing culturally sensitive care to pregnant patients because of their race, ethnicity, or cultural background. Discussion:Preliminary results show that while the majority of participants received some kind of training on cultural competency and sensitivity in healthcare settings, several were still uncomfortable providing culturally sensitive care. More research is needed to determine the efficacy of current implicit bias training in prenatal care settings to improve the quality of care and subsequently birth outcomes.References:Collier, A. Y., & Molina, R. L. (2019). Maternal Mortality in the United States: Updates on Trends, Causes, and Solutions. NeoReviews, 20(10), e561"e574. https://doi.org/10.1542/neo.20-10-e561Vedam, S., Stoll, K., Taiwo, T. K., Rubashkin, N., Cheyney, M., Strauss, N., McLemore, M., Cadena, M., Nethery, E., Rushton, E., Schummers, L., Declercq, E., & GVtM-US Steering Council (2019). The Giving Voice to Mothers study: inequity and mistreatment during pregnancy and childbirth in the United States. Reproductive health, 16(1), 77. https://doi.org/10.1186/s12978-019-0729-2

9:25 AM

Impact of Fresh Watermelon Consumption on Sexual and Mental Health in Overweight Adults

Emily Ager, Nutritional Sciences (M)

Fresh Watermelon Consumption Effects on Sexual and Mental Health in Overweight AdultsEmily Ager1, Annie De Los Santos1, Bermet Sydykova1, Eryn Bollish1, Brian Nyguen1, MichaelaRenfro1, Shirin Hooshmand1, Mark Kern1, Changqi Liu1 and Mee Young Hong 11 School of Exercise and Nutritional Sciences, San Diego State University, San Diego, CA 92182Objectives:Psychological factors like anxiety and depression can influence sexual dysfunction. Citrulline, a compound found in watermelon, is known to enhance blood flow and improve erectile function by increasing nitric oxide levels and has emerged as a promising therapeutic approach for sexual dysfunction. This study assessed the effects of fresh watermelon consumption on sexual health and mental health, in overweight, sexually active adults, after a 4-week intervention. Methods:This 4-week crossover clinical trial enrolled 32 participants (16 men, 16 women), aged 18-50 years, with a BMI between 25-40 kg/m². Participants consumed 330g of fresh watermelon (100 kcal) of isocaloric control, low-fat cookies for 4 weeks, with a 4-week washout period between interventions. Mental and sexual health were evaluated before and after each intervention using questionnaires (FSFI, MSFI, IIEF, STAI-6, GAD-7, PHQ-9, MFQ, and MHQoL). Levels of sex hormones, including Estradiol, Testosterone, and Sex Hormone Binding Globulin, were evaluated.Results:Sexual health questionnaires (MSFI, FSFI, IIEF) showed no significant differences between the watermelon and cookie interventions. However, a significant decrease in anxiety, indicated by the STAI-6, 30 minutes post-consumption, regardless of the snack (P = 0.001). There

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was a trend suggesting decreased anxiety via STAI-6 with watermelon consumption compared to cookies (P = 0.056). The PHQ-9 indicated an increasing trend in depression with cookie consumption, particularly in females (P = 0.074). MHQoL scores significantly decreased in females (P = 0.041) following the cookie intervention. Testosterone levels showed an increasing trend in males after watermelon consumption (P = 0.094), and estradiol levels significantly increased in females after 4 weeks of watermelon consumption (P = 0.041).Conclusions:Estradiol levels significantly increased in females, and testosterone showed an increasing trend in males with watermelon consumption, although no significant improvements were observed in the sexual health questionnaires. These findings suggest that fresh watermelon consumption may have a positive impact on mental health and sexual health. Further research is needed to explore the mechanism underlying these effects.Funding Sources:This study was supported by the National Watermelon Promotion Board (DTD 11-03-23).

9:45 AM

Assessing Healthcare Access Among Residents in Rural Eastern San Diego County: A Qualitative Study

Loretta Sosa Ortiz, Master of Public Health-Health Promotion and Behavioral Science (M)

Purpose: Rural populations in the U.S. face a host of health disparities when compared to urban populations. This is rooted in a multitude of environmental and social risk factors that limit access to health care such as medications, clinical services, and preventive care. To further contextualize health disparities impacting rural populations, it is critical to understand the barriers inhibiting healthcare access. This qualitative study aims (1) to elucidate the barriers faced by residents of rural Eastern San Diego County in receiving healthcare services and (2) to describe gaps in healthcare experienced by residents of rural Eastern San Diego County.Methods: Semi-structured interviews (n=24) were conducted to probe discussions focused on barriers to healthcare access among rural Eastern San Diego County residents. Transcripts were coded independently by three coders using conventional content analysis techniques.Results: The following themes were constructed: 1) geographical isolation and lack of reliable transportation delay healthcare access, 1.1) federal and state programs inadequately address the transportation needs of rural community members, hindering their access to primary care visits, medications, etc., and 2) the financial stress of paying for basic needs (i.e room and board) takes precedence over accessing healthcare. Conclusions: Transportation, structural, and financial obstacles limit rural Eastern San Diego County residents in accessing healthcare services. The results of this study highlight the need to develop a community-clinic linkage intervention leveraging an affordable and localized mobile clinic to address the healthcare needs of rural Eastern San Diego County residents.

10:05 AM

Exploring the Availability of and Access to Mental Health Services Amongst Indigenous Communities in Oaxaca

Maya Valdez, Public Health/Latin American Studies (M)

This preliminary research in Oaxaca offered valuable insights into alcohol use behavior, mental health services, and the impact of migration on family dynamics. Key observations and conversations highlighted critical themes such as encounters in Oaxaca City which suggested the presence of substance use and mental health programs, while time in Ixpantepec Nieves revealed community-led restrictions on public alcohol consumption and shifting generational norms regarding women's drinking habits. Discussions with community members illuminated the traditional role of grandmothers as family counselors and the communal grieving processes, both of which have been disrupted by migration and changes in family structures.Further, conversations with maguey farmers and household food preparers in Sola de Vega showed the emotional toll of migration, with individuals expressing resentment toward estranged family members and sharing stories of isolation and sobriety. These observations highlighted the lack of mental health services in rural areas, contrasting with greater availability in urban centers like Oaxaca City. These findings make way for possible future research that could deepen the understanding of how the shift in family dynamics due to migration impacts mental health and coping mechanisms.

10:25 AM

Between Violence and Resilience: Depression and Anxiety in Pregnant and Postpartum Asylum-Seekers at the U.S.-Mexico Border

Samantha Sidline, Master of Social Work (M)

Migrants arriving at the United States-Mexico border are increasingly families of women and children seeking asylum in the United States (U.S.). Asylum-seekers in Tijuana face long wait times and precarious conditions, risking their health and safety while waiting to enter the U.S. Studies show asylum-seekers experience high levels of trauma both before and during migration. Unaddressed trauma and adverse experiences can result in myriad health conditions, impacting intergenerational lifetime health and well-being of mothers and their children. Border policy and migration populations are ever-evolving, as are the experiences of community agencies and asylum-seeking women interacting with the border system. More research is needed to understand their lived experiences on both sides of the border and how to meet their mental health needs to support overall health and family well-being. This analysis aimed to 1) examine pregnant and postpartum asylum-seekers' lived migration journeys as they seek safety in the U.S.; 2) describe how pregnant and postpartum asylum-seekers' lived experiences and associated socio-structural stressors are expressed in mental health

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problems, including symptoms of anxiety and depression; and 3) identify pre-existing asylum-seeker and community strengths that support survival and well-being in these precarious socio-structural conditions. Utilizing the community resilience framework, we thematically analyzed 39 interviews with asylum-seeking women in Tijuana and San Diego between July 2022 and April 2023. Asylum-seeking women from Mexico, Central America, and Haiti described socio-structural stressors like lack of financial resources and discrimination. Preliminary findings highlight the impact of these stressors on symptoms of depression and anxiety, as well as the resiliency of pregnant and postpartum asylum-seekers. Recommendations for policy and practice include removing policies that restrict the right to seek asylum at the U.S.-Mexico border, as well as creating community partnerships across intervention and support programs to reinforce community-level resilience in the region.

10:45 AM

Over-the-Counter Hearing Aid Management and Technology Familiarity

Chris Rodriguez, JDP Audiology (D)

Objectives: Over-the-counter (OTC) hearing aids (HAs) were recently introduced by the US Food and Drug Administration in an attempt to improve access to hearing aids. This study investigates the extent to which older adults' self-reported technology familiarity is associated with their ability to assemble and manage OTC hearing aids in the short term. Design: Study procedures took place during one visit lasting approximately 2 hours at San Diego State University. Participants completed surveys, including a validated question on technology familiarity: How comfortable are you using your cell phone? Responses ranged from 'not at all' to 'extremely' on a five-point scale. For analysis, responses were categorized as familiar ('extremely') or less familiar (all others). Participants also performed an OTC HA management task involving app download, pairing HAs, changing wax guards, and inserting HAs. Observers rated performance on a 4-point Likert scale, with scores averaged to indicate OTC HA skills (higher scores = better skills). Linear regression modeled the relationship between technology familiarity and OTC HA skills, including an interaction term with HA experience. Regression analysis was repeated, stratified by HA experience.Results: Eighty three participants completed the study (mean age = 71 years, SD = 7.6; 45% female). Twenty eight (34%) were experienced HA users. More than half of participants (63%) were less familiar with technology. The relationship between technology experience and OTC HA skills was significant (B = - 0.031, p = 0.017). When testing the interaction between technology familiarity and HA experience on the outcome of interest, we observed a small but significant relationship (B = -0.016, p = 0.015). After stratifying the analysis by HA experience, we found that better technology familiarity significantly predicted better OTC HA skills among new HA users (B = -0.044, p = 0.005), but not among experienced HA users (B = -0.004, p =

0.869).Conclusions: Results suggest that individuals who are comfortable with technology had better performance self-fitting OTC HAs. Providing additional resources, such as instructional manuals, and hearing healthcare support, could be beneficial for consumers with less technical familiarity. This is particularly important given the direct-to-consumer retail model that defines OTC hearing aids.

Session A-9

Engineering and Computer Science (U/G) 1
Friday, February 28, 2025 9:00 AM
Visionary Suite

9:05 AM

Benchtop Models of Patient-Specific Cardiovascular Flow Dynamics

Britton Mennie, Biomechanical Engineering (U)

Left Ventricular Assist Devices (LVADs) are mechanical pumps surgically implanted into the heart, redirecting blood flow from the left ventricle to the aorta. LVADs provide an alternative to heart transplant for heart failure patients, but they have a high stroke risk. Blood clots form in regions of blood stasis, which are highly dependent on the geometry and fluid mechanics of each patient. The aim of this study is to recreate the patient-specific (PS) flow dynamics in a benchtop model and assess the risk of thrombus (blood clot) formation and stroke.In a collaboration with Houston Methodist Hospital, segmented CT scans of heart geometries and conditions were provided from heart failure patients and used to reconstruct the PS aorta and left ventricle, which are assembled into a mock circulatory loop. PS aorta is 3D-printed from a transparent resin and attached to a soft dip-molded silicone left ventricle and a HeartMate3 LVAD (Abbott Laboratories). Pressures in the aorta and LV were recorded, along with flow rate in the LVAD, aorta and branches of the aortic arch at 200 Hz using LabChart software.For the first PS model, target values for hemodynamics were established based on the medical records: heart rate of 70-80 beats per minute, mean aortic pressure (MAP) of 89 mmHg and severely depressed cardiac function. At a LVAD speed of 5000 rpm, cardiac output was 2.77 L/min and increased to 2.88 L/min at a speed of 5200 rpm. Two different heartbeat waveforms were tested and the results shown in Table 1.Flow visualization will be conducted for these conditions and several flow biomarkers analyzed that are associated with stroke risk. Based on these results for several patients, an evaluation of the accuracy of these biomarkers for predicting stroke will be conducted. This tool has the potential to enable the prediction of high-risk conditions for specific LVAD patients and a testbed for evaluating mitigating strategies such as LVAD speed modulation.

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9:25 AM

Evaluating the Degradation of Pharmaceuticals due to Anammox Bacteria

Shiloh Bolden, Environmental Engineering (U)

Pharmaceuticals have been designated as contaminants of emerging concern due to their persistence in the environment and their potential to promote the growth of harmful antibiotic-resistant bacteria. In particular, rural farming communities containing livestock have been shown to release significant amounts of antibodies into the environment. Because of this, anaerobic ammonium-oxidizing bacteria (anammox) show promise as a treatment method in these communities due to their ability to remove nitrogen from wastewater effectively. This is particularly relevant for wastewater containing both high nitrogen concentrations from fertilizers and high nitrogen-containing pharmaceutical concentrations. In this study, we analyzed the impact of exposing anammox to a synthetic wastewater mixture containing caffeine, carbamazepine, sulfamethoxazole, and trimethoprim. These compounds were introduced at concentrations 100 times higher than typically observed in wastewater and were incubated with the bacteria for 84 hours mixed at 100 rpm and 35°C. After incubation, the mixture significantly inhibited nitrogen removal efficiency by 50%. Ultimately, trimethoprim experienced the greatest removal of 19%±5%, while sulfamethoxazole degraded 0%. Additionally, both caffeine and carbamazepine experienced moderate removals of 13%±7% and 15%±10%. Within the triplicate containing killed biomass, caffeine, carbamazepine, sulfamethoxazole, and trimethoprim, had removals of 7%±4%, 5%±9%, 0%, and 12%±7%. This suggests that more work must be done to understand the role that microbial activity plays into the removal of these pharmaceuticals because we found that a portion of the removal was attributed to physical sorption to the added biomass. Moving forward, the DNA used for the experiments will be sequenced to further understand how the microbial community changed in response to their exposure to pharmaceuticals. With this study, we found that the cost-effective and environmentally friendly anammox bacteria shows some resistance to shocks of commonly found pharmaceuticals at 100 times their naturally occurring concentrations in wastewater and can potentially help degrade them. Despite this, their low removal rates indicate that anammox alone can not be used as a treatment for these pharmaceuticals and must be supplemented by other processes.

9:45 AM

BALANCE: Bitrate-Adaptive Limit-Aware Netcast Content Enhancement Utilizing QUBO and Quantum Annealing

Michael Kelley, Astronomy (U)

In an era of increasing data cap constraints,optimizing video streaming quality while adhering to user-defined data caps remains a significant challenge. Thispaper introduces Bitrate-Adaptive Limit-Aware NetcastContent Enhancement (BALANCE), a novel Quantum framework aimed at addressing this issue. BALANCEintelligently pre-selects video segments based on visual complexity and anticipated data consumption, utilizing theVideo Multimethod Assessment Fusion (VMAF) metric to enhance Quality of Experience (QoE). We compare our method against traditional bitrate ladders used in Adap-tive Bitrate (ABR) streaming, demonstrating a notable improvement in QoE under equivalent data constraints.We compare the Slack variable approach with the DynamicPenalization Approach (DPA) by framing the bitrate allo-cation problem through Quadratic Unconstrained BinaryOptimization (QUBO) to effectively enforce data limits.Our results indicate that the DPA consistently outperforms the Slack Variable Method, delivering more valid and optimal solutions as data limits increase. This new quantum approach significantly enhances streaming satisfaction for users with limited data plans.

10:05 AM

Offloading Localization and Perception Tasks for Resource-Constrained Autonomous Racing Vehicles

Pascal Reich, Computer Science (U)

Autonomous vehicles must process critical tasks, such as perception and localization, with minimal latency to ensure safety, accuracy, and stability. In autonomous racing, these requirements are even more stringent, as the primary objective is to minimize navigation time through intricate tracks and dynamic obstacles. In scaled autonomous racing, such as F1 Tenth vehicles, limited computational resources often necessitate trade-offs between accuracy and responsiveness. This work demonstrates that the end-to-end latency in the localization pipeline, specifically with Adaptive Monte Carlo Localization (AMCL), directly affects waypoint selection and cross-track error, impacting overall racing performance. To address these challenges, we propose an offloading technique that transfers latency-critical and resource-intensive tasks to external servers. Experimental results show that this approach significantly reduces the end-to-end latency of the localization pipeline as well as onboard CPU utilization, thereby enhancing path-tracking accuracy and lowering the energy consumption of the racing vehicle. Furthermore, we validate that our offloading technique applies to other pipelines, such as perception, reducing the reaction time for obstacle recognition.

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10:25 AM

Exploration of Bioelectronic Device for Epileptic Seizure Management using Glassy Carbon Electrodes

Paulette Suro, Mechanical Engineering with Emphasis in Bioengineering (U)

Epilepsy is a chronic neurological disorder characterized by recurrent seizures, resulting from abnormal electrical activity in the brain. A critical factor in the onset of seizures is the imbalance of neurotransmitters, particularly glutamate, an excitatory neurotransmitter, and lactate, a metabolic byproduct. Elevated levels of both glutamate and lactate have been linked to heightened neuronal excitability and increased seizure susceptibility. The vagus nerve, a crucial component of the parasympathetic nervous system, plays an essential role in regulating brain activity and offers a potential therapeutic pathway for neuromodulation in epilepsy treatment. Vagus nerve stimulation (VNS) has proven effective in reducing seizure frequency, but current VNS methods cannot respond in real-time to dynamic physiological changes. To address this limitation, we are developing a novel closed-loop device that integrates neurochemical feedback to modulate VNS, potentially providing a more precise and responsive treatment for epilepsy. This presentation focuses on the development of a novel, implantable device that cuffs around the vagus nerve to provide targeted, responsive stimulation for epilepsy management. The device aims to use bio-analyte sensing to monitor glutamate, and lactate level fluctuations, enabling a closed-loop system to predict and prevent seizures. The device integrates glassy carbon electrodes for precise, biocompatible sensing, and its compact design is achieved using micro-electromechanical systems (MEMS) fabrication. This will create a thin, flexible structure that cuffs around the nerve while maintaining functionality and durability. This device represents a significant step forward in personalized epilepsy treatment. Combining real-time bio-analyte sensing with stimulation would create a closed-loop system to improve patient outcomes by addressing seizures at their onset, minimizing side effects, and enhancing the quality of life for individuals with epilepsy.

10:45 AM

Pollution dynamics in the Tijuana River Estuary during continuous, multi-year cross-border contaminated river flow

Alexandra Grant, Civil Engineering, Environmental (M)

The continual discharge of millions of gallons per day of polluted water from Tijuana, Mexico to the Tijuana River Estuary (TJRE) in San Diego, CA, USA has resulted as a consequence of Tijuana's inundated and aging wastewater infrastructure. Such conditions pose health threats to the adjacent community of Imperial Beach, have led to extreme degradation of the TJRE ecosystem, and have forced beach closures. Bacteria and viruses found in human waste are of specific pathogenic concern to human health. Real time monitoring of estuary and coastal waters for bacteria concentrations and other pollutants within San Diego and Tijuana's shared river basin is integral to alerting surrounding communities to exposure risks, to treating or removing the pollutant sources, and to facilitating transboundary cooperation. San Diego State University's Wastewater Innovation and Reuse Lab (WIRLab) and Biggs Watershed Science Lab have been monitoring water quality in the TJRE since 2021 with remote sensing stations, grab sampling campaigns, and analyses of satellite imagery. Our remote sensing stations are equipped with Manta sondes that measure CDOM, Tryptophan, chlorophyll, pH, HDO, turbidity, specific conductivity, temperature, and depth. For my thesis research, I have led nine sampling campaigns where we have sampled and analyzed water from two to 13 locations throughout the estuary per event, along with influent wastewater samples from the International Boundary Water Commission (IBWC) Treatment Plant. Our lab analyses on these grab samples included quantifying total coliforms, e. coli, enterococcus, fluorescence (CDOM and Tryptophan), DOC, TDN, pH, conductivity, salinity, TDS, turbidity, COD, and ion and anion concentrations. For one of the events, we also analyzed the river water for PFAS compounds, finding high concentrations for various species. The next phase of this research will include in-depth data analysis to calculate yearly pollutant loads to the ocean for the constituents measured, along with determinations of the percent wastewater in the river. Regulators and health professionals could compare this data to known health and environmental regulations. Further, advocates for decreasing pollution in the TJRE could cite our study in their appeals for improvements and funding.

Abstracts of Presentations

Session B

SDSU | San Diego State University

(U) = Undergraduate ; (M) = Masters ; (D) = Doctoral

ABSTRACTS

Session B-1

Behavioral and Social Sciences (U/G) 1
Friday, February 28, 2025 11:00 AM
State Suite

11:05 AM

Impacts of Lithium Extraction in the Imperial Valley
Cristina Gutierrez Plaza, Social Science (U)

The Imperial Valley has an abundance of lithium which has become crucial to power electronics and as a sustainable energy source. This region already suffers from an array of health and environmental issues, raising concerns that lithium extraction will worsen them. There has been a disconcerting lack of research and transparency regarding its impact, prompting opposition from social justice groups in the valley. Project advocates have promised that economic benefits will trickle down to communities, but this has not been the case in Imperial Valley's long history of resource extraction (hydraulic power, solar, or geothermal). Like typical extractive industries, they have benefited a small, already-entrenched elite over the health and well-being of ecologies and communities. The extraction method used requires lithium plants to piggy-back on existing geothermal plants near the Salton Sea, which has never been done before. Concerns of the environmental and social impacts from locals and indigenous communities have been ignored and the county has yet to provide crucial updates. Regarding the current regional water crisis, the Imperial Irrigation District, which holds in trust the largest and most senior water rights to the Colorado River, has also been opaque regarding plans for the copious use of water needed for extraction. Water consumption and quality have been major topics regarding this project but they have been ignored as the project continues to be fast-tracked. An extensive research report on the environmental and social impacts that this project entails needs to be conducted before moving forward. Community concerns should not be ignored but instead used for a collaborative approach to mitigate these issues.

11:25 AM

Gender Stereotype Through the Lens of the Bilingual Brain: An ERP Study
Maria Christina Huerta-Avila, Psychology (U)

Our globalized world has led to a more diversified, bilingual, and multicultural human society. This study investigates an aspect of culture, gender stereotypes, and how they may be influenced in a bilingual landscape. Grammatical gender is a linguistic feature that assigns gender to non-biological concepts (E.G. in Spanish the word FORK is masculine: EL TENEDOR). For the study of gender stereotypes an interesting manipulation is the agreement between grammatical gender and biological gender: e.g. a stereotypical female role, œNURSE having no grammatical gender marker in English, in Spanish, can have either a feminine marker, A, ENFERMERA (matching the stereotypical biological gender role) or a masculine marker, O, ENFERMERO (conflicting with the stereotypical biological

gender role). Our Spanish/English bilingual population at SDSU was selected as a starting point to study linguistic variance in gender stereotypes.This investigation had two distinct studies: one to establish norms for the gender stereotypes of stimuli and a subsequent electrophysiological study based on a study with monolingual Italian speakers. For the norming study, words from the original Italian study (Pesciarelli et al., 2019) were translated into English and Spanish. English monolingual speakers filled out an online questionnaire and were asked to rate on a seven-point Likert scale, the stereotypicality of roles (such as NURSE or MECHANIC) ranging from more feminine to more masculine, or neutral.The subsequent electrophysiological study, using event-related potential (ERP) methodology, uses the selected normed stimuli to explore the priming of English target pronouns (HE or SHE) by masculine or feminine stereotyped items, or neutral (non- stereotyped) items. The items are presented in English, however, in Spanish, half of the gendered stereotyped items are grammatically marked for gender and half are not. English monolinguals will be compared with Spanish/English bilinguals to observe any gender stereotype priming differences between the two groups. The Italian study observed differential ERP priming patterns between gender stereotype primes that matched the gender of the SHE/HE target pronouns (e.g. nurse/SHE) and gender stereotype primes that conflicted with the target pronouns (e.g. nurse/HE). Here, differences observed could suggest that a bilingual's grammatically gendered language plays a role in gender stereotypes.

11:45 AM

The Impacts of a Mother-Daughter Health Program on Latina Mothers and Daughters Social-Emotional Behaviors: Findings from a Single-arm Pilot Study
Mia Quintana, Psychology (U)

Background/Purpose:Research on Latinx dyadic relationships show the positive influence of parental involvement on children's health behaviors, with both family communication and mothers' parenting strategies (e.g. role-modeling, monitoring and reinforcement) influencing children's physical activity (PA). Despite this, there are limited mother-daughter intervention programs that promote wellbeing among Latinas. Conmigo is a 12-session mother-daughter program for preadolescent Latinas that aims to increase PA and other well-being outcomes by targeting family functioning and PA skill building. This research explores the impact of Conmigo on family-level variables (e.g. mother-daughter communication, parenting) and on daughters' social-emotional outcomes (e.g. mental health, self-esteem).Methods: The current sample includes 38 Latina mothers and 38 Latina preadolescent girls aged 7-12. Participants were recruited within select schools in San Diego, CA. Surveys were administered both pre- and post-program using metrics of the Parent Adolescent Communication Scale (PACS) for communication, PA Parenting Practices (PAPP) for mothers' support of daughters' PA, and the Parenting for Eating and Activity Scale (PEAS) for parenting strategies as reported by both mothers and daughters. Daughters also completed the Patient Health Questionnaire for Adolescents

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(PHQ-A) measuring mental health and the Rosenberg Self-Esteem scale.Planned Analysis: Research assistants entered and coded data in Qualtrics and dependent sample t-tests will assess changes in each variable from baseline to post-program. It is hypothesized that participating in Conmigo will be associated with reports of improved mental health, self-esteem, and family functioning.Implications: Results will provide insight into the degree to which dyadic involvement in wellness programs may be associated with changes in Latina mothers' parenting strategies, mother-daughter communication, and daughters' social-emotional health. This research will offer a unique perspective on dyadic well-being programs for pre-adolescent Latinas.

12:05 PM
The Role of Township Tourism in Shaping Identity and Social Realities in Langa, Cape Town, South Africa
Senait Hagos, Sociology (U)

This project examines the evolution of township tourism and its direct impact on shaping the identities and perceptions of residents in Cape Town, South Africa. Established during the apartheid era, Langa was a racially segregated township for Black South Africans. Its geographic isolation and lack of infrastructure have restricted residents' mobility, creating a stark contrast between their reality and the rest of the city. The social inequality between townships like Langa and the rest of Cape Town has fueled the growth of township tourism, where tourists seek an authentic travel experience by visiting impoverished areas. Today, Langa is known as a contact zone, where tourists and residents from diverse backgrounds interact. This research examines how social exchanges between tour guides and tourists impact the narratives and social realities of Langa residents. Key questions include: Is there a focus on poverty and hardship? Do residents feel these tours are mutually beneficial?Based on over 100 interviews conducted by Kristen Maher since 2018, with follow-ups in 2024, this study includes residents from both Pinelands and Langa. Using NVivo qualitative analysis software, I created nine tourism-related codes and focused on interviews from Langa. These interviews involved local residents, tour guides, and community businesses. I also conducted a word frequency analysis to identify terms like 'visitors' and 'tourists,' exploring patterns in locals' feelings about township tourism.I hypothesized that many Langa residents would be frustrated by township tourism and the commercialization of their community. However, the findings revealed a range of opinions. Some tour guides and residents expressed appreciation for the economic opportunities and the chance to share their culture. Others described the tours as exploitative, noting that many are led by non-locals. Despite these differences, all agreed on the need for a reciprocal exchange between tourists and the community, whether through supporting local businesses, volunteering, or donating to local nonprofits.Moving forward, I plan to address the ethical implications of township tourism by examining Cape Town's tourism department operations and propose an initiative that gives Langa residents greater control over township tourism.

12:25 PM
A qualitative analysis of menstrual hygiene practices and stigma among adolescent girls in Ibadan, Nigeria
Yuna Ysabelle Ong, Public Health (U)

INTRODUCTION: Menstrual hygiene management (MHM) is a critical component of public health influencing girls' health, education, and overall well-being. In low- and middle-income countries, including Nigeria, sociocultural norms, limited access to sanitary products, and inadequate water, sanitation, and hygiene facilities often create challenges for effective MHM. These barriers can lead to physical discomfort, absenteeism from school, and negative psychosocial outcomes, exacerbating gender inequalities. Despite its importance, there is limited qualitative research exploring the lived experiences, perceptions, and coping mechanisms of adolescent girls in Nigeria regarding menstrual hygiene. This study aims to fill this gap by examining menstrual hygiene practices, barriers, and cultural influences faced by adolescent girls in Ibadan, Nigerian.METHODSStudy data were drawn from one-on-one semi-structured interviews conducted in English or Yoruba (n=38) with adolescent girls ages 15-19 years old from low-income districts in Ibadan, Nigeria. Participants were recruited in October 2023 through screening and consent processes, with parental consent for minors. Interviews focused on menstrual health challenges, economic vulnerability, and relationships with male partners. Analysis was conducted using QInsights, an advanced natural language processing tool that assists in identifying key themes, patterns and quotes from textual data.RESULTSParticipants' mean age was 16 years. Findings showed that participants faced challenges in accessing needed menstrual hygiene products and limited choice in type of product used due to financial constraints. Participants also lacked information about menstruation, leaving gaps in understanding what was happening to their bodies. Participants reported feeling uncomfortable asking for help to better manage their period in regards to obtaining menstrual products, information or advice. Participants were uncomfortable asking for help from a boyfriend, father or other male figure because of the stigma associated with male figures knowing that a girl is menstruating.DISCUSSIONOur findings suggest that stigma and cultural norms play a crucial role in limiting open conversations about menstrual hygiene, leading to poorer outcomes for adolescent girls' menstrual health and well-being. Future research should focus on the intersectionality of stigma in menstrual hygiene management, exploring its impact on marginalized groups and the effectiveness of culturally tailored education programs for both men and women.

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12:45 PM

Early Childhood Sleep Disturbances Predicting Internalizing and Externalizing Problems Among Children In Foster Care

Nikki Lane, Child Development with a concentration in Early Childhood Mental Health (LPCC) (M)

Background Sleep is a critical component of early development, influencing emotional regulation, cognitive growth, and behavioral outcomes. Children exposed to early adversity often experience sleep disruptions, which may exacerbate risks for behavioral challenges. While research suggests a relationship between sleep disturbances in early childhood and later symptoms of psychopathology, the exact patterns of this relationship are not well understood, particularly in children exposed to early adversity. Therefore, this study examines how sleep disturbances in early childhood may predict behavioral problems over time for children in foster care.Methods Participants were 78 caregiver-child dyads in foster care. Assessments occurred at two time points: when children were approximately 27 months old (SD = 6.73) and 48 months (SD = 8.7). The majority of children (60%) and caregivers (51%) identified as Black, with others identifying as White, Hispanic, Biracial, or other people of color. Sleep disturbances were calculated based on caregiver-reported data over three days and two nights (e.g., hours slept, nighttime awakenings, and nap durations). Internalizing and externalizing problems were assessed via the Child Behavior Checklist (CBCL) at both time points (Achenbach, 2000).Results Multiple regression analyses showed that sleep disturbances at 27 months significantly predicted internalizing behaviors at 48 months, controlling for internalizing problems at 27 months (F(2,75)=49.16, p<.001, R²=.567). Children who slept less during early childhood had significantly higher levels of internalizing problems at 48 months (B=-1.30, p<.001), controlling for internalizing problems at 27 months (B=0.80, p<.001). A similar pattern was found for externalizing problems, with lower levels of sleep at 27 months significantly predicting higher externalizing problems at 48 months (F(2,75)=45.48, p<.001, R²=.548; B=-1.26, p=.014), controlling for externalizing problems at 27 months (B=0.68, p<.001). Conclusions Findings suggest that sleep disturbances in early childhood may have a lasting impact on emotional and behavioral development, even after accounting for prior difficulties. These results emphasize the importance of early screening and interventions targeting sleep problems to support children's developmental trajectories, particularly for children exposed to early adversity.

Session B-2

Visual or Creative Arts (U/G) 1
Friday, February 28, 2025 11:00 AM
Lipinsky Suite

11:05 AM

Faith, Justice, and Morality: A Study of Christianity & amp; Law and Order: SVU

Ines Laimeche, Sociology (U)

Law and Order: SVU plays a significant role in a wider cultural discussion about sexual violence, gender-based violence, and policing. The purpose of this research project was to critically analyze how victims of sexual abuse in Christian communities are portrayed on the show, how the show depicts its main characters' relationship to faith and religion, and if real-world cultural events like the #MeToo movement had an effect on the show. To conduct this research, ten episodes from the series were collected: five released before the #MeToo movement took place in October 2017, and five after, specifically focusing on sexual violence within Christian communities. A critical thematic analysis of each episode was then performed. This analysis demonstrated that Law and Order: SVU depicts how religion can be used as a tool to manipulate and harm others. I also discuss how the show makes a subtextual implication that religion is a moral framework for seeing the world that characters of the show struggle with in their interactions with others and within their own sense of morality. SVU's complex portrayal of women and their role in systems of violence is also explored, as well as the fictional depiction of police officers.

11:25 AM

Oklahoma! to The Outsiders: Tools for Teaching Country and Americana Singing in Musical Theatre

Nole Jones, MFA Musical Theatre (M)

Country and Americana music and American musical theatre have been intertwined with one another since the two genres came into existence in the early 20th century, and country music continues to be a staple of musical theatre scores. Musical theatre singers frequently encounter country styles in both classic standard repertoire and in major new works, and there is considerable demand in the industry for singing actors who can authentically and expressively execute a wide variety of commercial music sounds. Voice teachers and coaches working with musical theatre singers therefore need vocabulary, technical exercises, and other tools specific to the genre in order to help students gain proficiency in this style. This presentation will offer an overview of the author's graduate research on this topic, which draws on the author's professional experience as a voice teacher in collegiate musical theatre programs and as a singer of country, gospel, and Americana styles, as well as on extensive listening analysis of vocal performance practice in commercial country and country

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musicals. It explores the stylistic roots of country music and the history of the genre's use in musical theatre scores, and makes pedagogical recommendations for voice teachers and other practitioners about topics including listening and emulation as teaching tools, the vocal mirroring of instrumental sounds, registrational norms, country dialect, and œtwang. It also describes some of the most common country vocal stylisms including slides, scoops, fall-offs, vocal fry, cries, yodels, and licks, and offers listening examples and vocal exercises that can be used to develop familiarity coordination with these sounds.

11:45 AM

In My Ears and In My Eyes: Hauntology and Post War Dreams in Penny Lane

Andrew Ginzel, Critical Studies in Music MA (M)

In the Beatles' song 'Penny Lane' (1966), songwriter Paul McCartney paints an idyllic portrait of a utopian Liverpool populated by whimsical characters and vibrant imagery living 'beneath the blue suburban skies.' Beneath its cheerful surface, however, lies a critique of postwar Britain, where the collective 'Post-War Dream'"a vision of peace, equality, and social reform after World War II"remained unfulfilled. Rather than reflecting Liverpool's destruction from the Nazi Blitz attacks or postwar recovery struggles, the lyrics present an idealized city of class and social harmony. By drawing on childhood memories and crafting this imaginary Liverpool, the song underscores the tension between nostalgic longing and a society grappling with persistent inequalities and disillusionment. This research applies hauntology, a framework that explores the persistent presence of the past in contemporary culture, particularly how cultural artifacts are 'haunted' by unrealized futures and lingering aspirations. Traditionally applied to contemporary media, hauntology is extended here to mid-20th-century entertainment, using lyrical, musical, and historical analysis to reveal how McCartney's nostalgic portrayal critiques the unfulfilled postwar ideals and thesocietal struggles that followed. Through this analysis, the research demonstrates how 'Penny Lane' captures the tension between the utopian aspirations of the postwar period and the lived realities of a Britain still grappling with those unresolved issues. The study shows how hauntology, as a framework, can reveal the ways in which popular music not only critiques past societal ideals but also embodies the ongoing struggles of a society that has yet to realize its dreams.

12:05 PM

In the Shadow of a Giant: Gay Resonances in the AIDS-Era Musical Into the Woods

Anthony Methvin, MFA Musical Theatre (M)

Stephen Sondheim and James Lapine's AIDS-era musicalInto the Woodsis a show that has a deep resonance for the gay community. After a lifetime of translating texts not intended to tell my story so that they could speak to my queer experience, I look atInto the Woodsthrough a specifically gay lens, exploring the impact, rather than the intention, of the authors. Because of the work's fairy tale structure and smart writing, it invites reinterpretation that uncover deeply human complexities within

the fable. I explore the show within the context of its debut in 1987 New York City, when the AIDS crisis was at its apex and the gay community was in need of work that could provide a prism for them to reflect their experiences through during the crisis, allowing them to process their emotions without being a direct reflection of the trauma of their daily lives. By exploring components of the narrative, including the two act structure, which parallels gay life in NYC pre- and post-AIDS divided by the destructive Giant's descent down the beanstalk, I want to give a fresh perspective on this classic work in the musical theatre canon. Though Sondheim himself has asserted that the show is not an AIDS parable, by extrapolating meaning specific to a gay audience at the time, the paper encourages LGBTQIA+ folks to find pieces of themselves in the larger timeline of the art that moves them and build their capacity for empathy through this kind of queer cultural translation.

12:25 PM

Utilizing Emotional Intelligence in the Acting Practice:Case Study Wicked

Courtney Corey-Armstrong, MFA Musical Theatre (M)

Abstract:This presentation explores the integration of emotional intelligence into acting, providing a framework for actors to enhance preparation, specificity, and authenticity. Emotional intelligence, defined by psychologists John D. Mayer and Peter Salovey as the ability to reason with emotions to guide actions, offers actors tools to navigate their characters' emotional journeys. Drawing on Robert Plutchik's psychoevolutionary theory of emotions and the Yale Center for Emotional Intelligence's RULER approach, this study introduces practical methods to analyze, label, and express emotions effectively. The application of these principles to the acclaimed Broadway musical Wicked, by Stephen Schwartz and Winnie Holzman, illustrates how understanding emotions' adaptive functions informs nuanced character work. Insights from the author's experience as a cast member of Wicked enrich the discussion, linking theory to practice. By examining emotions as patterned, evolutionary responses and incorporating actionable strategies, actors can connect more deeply with their characters and audiences. This approach modernizes the acting process, fostering self-awareness and empathy while offering performers a healthier, human-centered craft.

12:45 PM

Crusading the Canon: The Jazz Crusaders and the Issue of Fusion within the Jazz Canon

Dylan Soto, Jazz Studies (M)

In the canon of jazz history, very little is spoken about The Jazz Crusaders, a popular group that became well known for their unique blend of jazz and R&B styles. This phenomenon is not unique to the Crusaders; musicians associated with the so-called œfusion movement of the 1970s are routinely ignored or derided by jazz critics and entirely absent in most academic discourse. In his article œConstructing the Jazz Tradition: Jazz Historiography, scholar Scott Deveaux posits that many believe fusion artists violate the œessence of the jazz

tradition by embracing commercialism and adopting stylistic traits of popular music. This apparent dichotomy between their immense popularity and their poor critical reception makes The Crusaders an ideal case study for examining the historical and theoretical relationship between fusion and the jazz canon. For this project, I intend to analyze key fusion recordings by The Crusaders, emphasizing points of structural and stylistic divergence from musical qualities that the jazz academy deems aesthetically valuable. This study also raises important questions about the concept, formulation, and perpetuation of canons in music and other art forms, including the typical criteria utilized in determining the inclusion or exclusion of particular artists or works. By examining academic canonization as a cultural practice, I hope to reveal the complex challenges and problems of classifying selected modes of creative expression as high art.

Session B-3

Biological and Agricultural Sciences (U) 1
Friday, February 28, 2025 11:00 AM
Legacy Suite

11:05 AM

Impact of Extracellular Matrix Stiffness Variation on Cardiac Fibroblast Activation

Alpher Aspiras, Cell and Molecular Biology (U)

The mechanical properties of the extracellular matrix (ECM) play a crucial role in regulating cell behavior and tissue function. This study investigates the stiffness of 2D polyacrylamide hydrogels, serving as ECM models, influences the activation of cardiac fibroblasts and ECM protein formation. While it is documented that increased ECM stiffness promotes fibroblast activation in vitro, as measured by alpha-Smooth Muscle Actin (â°SMA) stress fiber assembly and ECM protein secretion and assembly, the relationship between stiffness ranges and activation levels remains unclear. We hypothesize that a fold change of 4 or more in hydrogel stiffness from physiological ranges, mimicking pathological tissue, will enhance fibroblast activation, evidenced by elevated ECM protein production. To test this, polyacrylamide hydrogels with five distinct stiffness levels mimicking healthy tissue to fibrotic tissue stiffness were prepared and characterized using Atomic Force Microscopy (AFM). Stem cell-derived cardiac fibroblasts were cultured on hydrogels for 48 hours. Activation was quantified through immunofluorescent staining analysis of ECM and activated fibroblast proteins (fibronectin, Î±-smooth muscle actin, vimentin). Results revealed an unexpected trend in Î±SMA fluorescence intensity across varying levels of ECM stiffness, although a slight increase in cell area was noted as stiffness increased. Importantly, Î±SMA was present in all tested conditions, indicating that fibroblast activation occurs irrespective of ECM stiffness variations. These findings underscore hydrogel stiffness in modulating cellular responses, providing insights into in vitro tissue engineering

and understanding the mechanism of fibrosis. By elucidating how mechanical cues influence fibroblast behavior, we can design biomaterials for regenerative medicine and therapeutic approaches to manage fibrosis. This study highlights the importance of tuning of hydrogel properties to investigate pathological cell functions.

11:25 AM

Black Carbon Trends and Environmental Inequities in Imperial County: A Seasonal Analysis

Alyssa Garcia, Public Health (U)

Imperial County, California is an area that suffers from extremely poor air quality. The cities of Brawley, Calexico, and El Centro are all in the National Ambient Air Quality Standard (NAAQS) nonattainment area (EPA, 2024). To better understand the seasonal differences in black carbon (BC) concentrations that Imperial County experiences, we conducted two separate field studies in May and October of 2024. Summer field sampling was conducted from 5/21/2024 to 5/27/2024 and Fall field sampling was from 10/17/2024 to 10/23/2024. The objective of this study was to determine if there is a significant difference in BC concentrations between seasons. To conduct our field studies we used the microAeth to measure BC concentrations at different chosen œhot spots in Calexico as well as around the clock at a stationary location. Mean BC concentration in the stationary location was higher in the fall measuring at 0.493 Âµg/mÂ³, compared to the summer measuring at 0.314 Âµg/mÂ³. Mean BC concentrations varied by each hotspot, but showed an overall higher concentration of BC in the summer as opposed to fall. Various factors contribute to Imperial County's poor air quality, including heavy border traffic, industrial and agricultural operations as well as regulated and unregulated burnings. Different cities in Imperial also suffer at disproportionate rates than others. Calexico, the city that borders Mexico and is home to two different ports of entry, faces much stronger impacts of pollution than Imperial and El Centro, cities that are 17 and 13 miles away from the border respectively. While all of Imperial Valley is impacted by the massive dirt lots, swift winds and burning fossil fuels of big diesel trucks, Calexico also feels the impact of unregulated burnings and other sources from Mexicali. Our study highlights the need for more air quality protections in order to protect the health of this community.

11:45 AM

Microhabitat Use of Red Diamond Rattlesnakes (Crotalus ruber) In Southern California Coastal Sage Scrub

Ella Horvath, Environmental Sciences (U)

Coastal sage scrub (CSS) is one of California's most threatened native vegetation communities, but continues to support a diversity of wildlife. Increased human activity has led to the degradation of CSS through urban and agricultural development, habitat fragmentation, and the increased prevalence of invasive species. Ongoing climate change will

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likely compound the impacts associated with human activity. This degradation can have detrimental impacts on many species, including the Red Diamond Rattlesnake (Crotalus ruber). C. ruber is an important predator of small mammal species in CSS communities that was historically widespread and abundant within southwestern California and upper Baja California, but has since been extirpated from much of its historical range. A more detailed analysis of its microhabitat preferences may help us understand why C. ruber persists in some areas but not others. Conducting a microhabitat study presents the opportunity to quantify the extent to which C. ruber is associated with particular vegetation or other features, which can help to fill in gaps of knowledge surrounding the species as a means of preventing further extirpation. The results of this study will facilitate the development of suitable conservation strategies for species that rely on intact patches of coastal sage scrub.

12:05 PM

Developing a Bioassay to Assess the Ability of Squamate Reptiles to Detect Volatile Semiochemicals

Harshita Vallabhaneni, Biology, Emphasis in Zoology (U)

Key social behaviors of many animals are mediated by chemosensory cues. However, chemically-mediated behaviors can be notoriously difficult to quantify due to both the complexity of chemical cues produced by living organisms and the lack of clear visual indicators of chemosensory function. Squamate reptiles (lizards and snakes) in particular are highly reliant on chemical cues, and several lineages have evolved a highly derived vomeronasal chemosensory system integrated with the tongue. In these reptiles, which includes all species of snakes, tongue-flicking is associated with heightened chemosensory function, allowing researchers to use this behavior as a visual indicator of chemosensory interest. Our goal was to use the tongue-flick response to develop a general bioassay for chemosensory discrimination based on a habituation-dishabituation paradigm. Such a bioassay would be central to developing a further understanding of the complex interactions between skin microbiomes and the production of semiochemicals used by conspecifics to mediate social interactions. In this pilot study, we used a captive colony of Prairie Rattlesnakes (Crotalus viridis) and Gopher Snakes (Pituophis catenifer) to determine if Prairie Rattlesnakes could discriminate between airborne volatile chemical cues from conspecific or heterospecific individuals. Test snakes were held in plastic containers attached to a pull-through airflow system that allowed us to pull air into the test snake chamber from one of two scent donors. To run a trial, the test snake was habituated to the scent of one donor through multiple exposures, and then exposed to the other donor during a dishabituation trial. We used the increase in tongue flick rates during dishabituation scent exposures to determine if snakes could discriminate between olfactory cues from scent donors. We found that Prairie Rattlesnakes are able to differentiate between the two types of scent donors

based on airborne chemical cues, indicating that this bioassay represents a promising tool for a research program focused on determining how skin microbiomes mediate the production of semiochemicals that mediate key species-typical behaviors.

12:25 PM

Seasonal Variation of Ambient Particulate Matter Air Pollution Concentration In Calexico, Imperial County

Jessa Mae Guanga, Public Health (U)

Particulate matter (PM) is a widely recognized air pollutant that contributes to many adverse health effects. However, Particulate matter concentrations and exposure patterns are influenced by seasonal variations. To understand this concept, we have conducted field air sampling in Imperial County, Calexico during two time periods: 5/21/2024 to 05/26/2024 for warmer season and 10/18/2024 to 10/21/2024 for cooler season. In our sampling efforts, we incorporated both mobile and stationary types of sampling. The study objective was to analyze and compare the ambient mass concentrations of PM10, PM2.5, and the number concentration of PM1 between cooler and warmer seasons in Imperial County. The devices utilized for this study were TSI DustTrak DRX which measures PM10 and PM2.5 mass concentrations and the TSI Condensation Particle Counter (CPC) for PM1 number concentrations. Our findings display that mobile sampling displayed higher ambient mass concentrations during the warmer season with a daily average PM2.5 of 33 µg/m3, PM10 of 58 µg/m3, and average PM1 number concentrations of 30,711 #/cm3. However, Stationary sampling measured higher ambient mass concentrations during the cooler season with a daily average PM2.5 of 25.3 µg/m3, PM10 of 59 µg/m3, and average PM1 number concentrations of 10,350 #/cm3. In conclusion, higher mobile readings of PM2.5 and PM10 during the warmer season and higher stationary readings during the cooler season identify that particulate matter is influenced not only by cross-border air pollution, but varies throughout seasons as well.

12:45 PM

Impact of sHSP 23 Overexpression on Striated Muscle Function in a Drosophila Progressive Myopathy Model

Rebecca Blum, Biology (U)

Inclusion body myopathy type 3 (IBM-3) is an autosomal dominant disease that results from a missense mutation on the myosin heavy 2a gene. The disease is progressive and presents as a number of symptoms including muscle weakness, muscle atrophy (thinning), stiffness after periods of rest, fatigue, and restriction of movement in some areas in adult patients. The Bernstein lab created a Drosophila model of the disease in order to study the effects of manipulating certain proteins on muscle function. In homozygous IBM-3 flies, electron microscopy images showed severe structural damage in indirect flight muscle beginning at the pupal stage and worsening with age. The images revealed inclusions which are areas where protein aggregates accumulate and clump together. In heterozygous

ABSTRACTS

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IBM-3 flies, the muscle was better maintained but still had some structural damage including displaced Z-lines and gaps in myofilaments. The protein that I focused on was small heat shock protein 23 (sHSP 23). According to i-TRAQ proteomics data conducted on the insoluble fractions (where inclusions are located) of dissected indirect flight muscle in homozygous flies, sHSP 23 levels were shown to be decreased 3.77 fold in young flies and 2.06 fold in old flies compared to the wild type control. In general, small heat shock proteins prevent the irreversible formation of aggregates by maintaining the 3D structure of unfolding proteins until larger heat shock proteins can fully refold them. I therefore studied whether overexpressing sHSP 23 in heterozygous flies with the IBM-3 mutation would worsen or improve muscle function as the flies aged. I used flight testing as a method to observe muscle function in flies that had aged for two days, one week, and four weeks. My flight testing data revealed that there was no significant difference in flight ability between the experimental line and the control line at two days and seven days. However, the experimental line did have significantly better flight ability than the control line at four weeks. This indicated that, although overexpressing sHSP 23 did not necessarily improve muscle function as the flies age, it could have had an impact in the later stages of the flies' lives. In order to visualize the muscle structure, I used the Keyence fluorescence microscope to capture images of the indirect flight muscle of flies that were aged for four weeks. I hypothesized that there would be some small structural damage in the control line's myofilaments when compared to the experimental line due to the significant difference in flight ability. However, the magnification of the Keyence scope wasn't powerful enough to visualize any small defects that may have been present. I am planning on continuing this project and using transmission electron microscopy to better visualize any structural damage that could be present in heterozygous IBM-3 flies aged for four weeks.

Session B-4

Physical and Mathematical Sciences (U) 1
Friday, February 28, 2025 11:00 AM
Visionary Suite

11:05 AM
Dynamic Schlieren Imaging Using a Pulsed LED
Faith Poutoa, Physics (U)

We have constructed a Schlieren imaging system which uses a pulsed LED to synchronize the light source to the dynamic refractive index changes. In this system, a point source LED broadly illuminates a parabolic mirror which then refocuses the light onto a razor blade aperture. A video camera immediately behind the aperture reconstructs the image. When disturbances near the mirror surface slightly modify the index of refraction and redirect the wavefront, the camera is able to see these interactions in real time. Synchronization of the pulsed LED and the disturbance (for instance, sound waves) allows the camera

to capture dynamic distortions in a static image, making this system suitable for both instructional demonstrations and laboratory experiments.

11:25 AM
Structural insights of isocitrate dehydrogenase 1 derived from the É'-10 helix
Josselyn Jacobo, Cellular & Molecular Biology and Psychology (U)

The metabolic enzyme known as isocitrate dehydrogenase 1 (IDH1) catalyzes a conventional reaction in humans which converts D-isocitrate (D-ICT) to É'-ketoglutarate (É'-KG). Mutated forms of IDH1, specifically within residue R132, gain the ability to catalyze a neomorphic reaction which produces an oncometabolite known as D-2-hydroxyglutarate (D2HG). IDH1 contains a dynamic subdomain known as the É'-10 helix which adopts a helical structure when bound to substrate, and is retained as a flexible loop in the absence of substrate. In IDH2, a closely related paralog, this conformational change is not observed and the É'-10 helix is retained as a helix regardless of the presence of substrate. Despite this structural difference, the primary structure between these two paralogs in the É'-10 helix domain differs in only three amino acids. Using site-directed mutagenesis, a mutated version of IDH1 that contains two of these three amino acids from the IDH2 sequence was generated. This mutant is referred to as IDH1 S280I/V281L. The kinetic activity of IDH1 S280I/V281L was assessed using spectroscopy to investigate the effect of these mutations on the catalytic activity of this enzyme with varying concentrations of substrate. This study showed that the two mutations did not hinder the ability of IDH1 S280I/V281L to catalyze the conversion of ICT to É'-KG. In order to fully investigate the residues responsible for the differences observed in the É'-10 helix between IDH1 and IDH2, future experiments are needed to understand the catalytic ability and structure of IDH1 using various combinations of the amino acids present in the É'-10 helix of IDH2. Understanding the structural and catalytic differences in the É'-10 regulatory region between IDH1 and IDH2 is a key step in understanding the overall molecular mechanism by which IDH1 is implicated as a driver of cancer.

11:45 AM
Creating and Analyzing Imperfections in Quantum Materials: A Look into Advanced Manufacturing Techniques
Mary Becker, Physics (U)

Hexagonal boron nitride (hBN) has emerged as a promising testbed for quantum photonics applications, particularly due to its ability to host single-photon emitters (SPEs) at room temperature. This research focuses on large-area growth, engineering of defects in chemical vapor deposition (CVD) grown hBN thin films on dielectric substrates, aiming to advance scalable quantum photonic technologies. CVD grown hBN thin films offer a more scalable alternative to mechanical exfoliated films, potentially allowing for large-scale integration

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of SPEs with photonic devices. Our approach involves direct synthesis of hBN films on dielectric substrates, providing immediate optical accessibility for defect characterization. Optical characterization techniques, such as confocal Raman and micro-photoluminescence spectroscopies, are employed to optimize growth conditions and conduct optical studies, with photoluminescence mapping of large-area hBN films providing spatial defect identification. The ability to directly grow and characterize optically active defects in hBN thin films paves the way for developing integrated quantum photonic devices.

12:05 PM

Physics-Informed Deep Neural Networks for Layer Identification of 2D Materials

Miche Maral, Physics, B.S. (U)

Accurate identification of the number of layers in transition metal dichalcogenides (TMDs) and hexagonal boron nitride (hBN) is essential for device fabrication, as the photoluminescence quantum yield in 2D materials is layer-dependent. However, identifying multiple layers in micron-area exfoliated flakes and few-layered samples from large-area chemical vapor deposition is time-consuming and challenging. The optical contrast of a 2D flake non-linearly correlates with the number of layers present. In this study, we employ deep-learning convolutional neural networks to uncover this correlation. We leverage Meta's open-source Segment Anything Model (SAM), trained on human vision, to analyze magnified images of 2D materials. Initial masks of bulk, few-layer, and monolayer structures are created and subsequently refined by iteratively running SAM on these masks. To gain insight into the underlying optical physics, we develop a physics-informed variational autoencoder (VAE), trained using a hybrid approach of supervised classification loss and unsupervised loss based on Fresnel equations. The models are provided with image embeddings and trained to predict layer detection and distribution. Our automated approach demonstrates robust accuracy in layer identification across diverse 2D materials, offering a scalable solution for rapid characterization of quantum device components.

12:25 PM

Balancing condensed matter on top of a hill: a quantum realization of the inverted pendulum

Roberto Marquez, Applied Mathematics/Aerospace Engineering (U)

In classical mechanics, the inverted pendulum is an iconic system whose upside-down unstable equilibrium can be completely stabilized through a suitable external periodic forcing. The control of the inverted pendulum can be observed in nature, including our own standing upright biomechanics. In this work, we study a quantum mechanical analog of the inverted pendulum that can be realized in a Bose-Einstein condensate (BEC). BECs, the coldest form of matter, correspond to coherent blobs of matter that are synchronized at the quantum level (like a laser light is composed of

coherent photons). These so-called bright soliton (BS) structures correspond to sturdy localized packets of atoms. Experimentally, BECs are confined and manipulated by external potentials. In particular, we create a potential hump (hill) over which the BS freely 'rolls down'. When the BS sits exactly at the top of the hill, it is at an unstable equilibrium tantamount to the classical inverted pendulum. By introducing a horizontal periodic motion of the external potential hump, we are able to stabilize the BS around this unstable equilibrium similar to the stabilization of the classical inverted pendulum. Through numerical simulations, we obtain regions of the external potential periodic forcing (like amplitude and frequency) where the BS can be stabilized. Throughout a wide region of parameters, the response of the BS is characterized by the superposition of two periodic waves around the equilibrium. We also study the mass leakage experienced by the BS that the potential hump 'shaves off' as it oscillates under it. Minimizing this mass leakage is important to be able to consider the long-term dynamics of the stabilized BS oscillations before the BS mass is lost to the background.

12:45 PM

Illustris Cosmological Simulation Uses GRB No Host Problem to Shed Light on Gravitational Wave Locations

Rodney Speight Jr., Physics (U)

Gravitational waves are ripples in the fabric of spacetime caused by the universe's most violent cosmic events. As a result, they have become an essential tool for Astronomers by offering unique insights into these cataclysmic phenomena that otherwise cannot be observed directly. In order to gain a grander scope of where these signals originate, this study aims to address the Gamma Ray Burst (GRB) 'No Host' Problem using the Illustris cosmological simulation. GRBs, known for their extreme luminosity and energetic emissions, are categorized into long and short bursts, with short GRBs resulting from neutron star mergers, which are significant sources of gravitational waves. The GRB 'No Host' Problem is the observation that some GRBs appear without detectable host galaxies, challenging the understanding of their origins in stellar evolution sites. This research employs the Illustris simulation to investigate the density profiles of galaxies and model GRB afterglows in realistic environments, linking the density of the host galaxy environments to the detectability of GRBs. This ultimately will shed light on the locations of these comics events, but most importantly the completeness of our observations. The study will refine the search for gravitational waves by improving the understanding of GRB locations and event rates, thereby enhancing our ability to detect and interpret these cosmic events, and contributing to the broader field of Astrophysics.

ABSTRACTS

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Session B-5

Behavioral and Social Sciences (G) 3
Friday, February 28, 2025 11:00 AM
Park Boulevard

11:05 AM

Media Literacy in the United States Armed Forces
Jacob Sugg, Journalism and Mass Communication (M)

Media literacy is an established area of research in mass communication, but there is limited exploration of how media literacy impacts demographic groups outside of student samples. No study has explored the long-term effects of media literacy training on United States military service members. This study applies a mixed-method approach, providing quantitative and qualitative insight into how armed forces service members' media literacy impacts their ability to detect fake news and their willingness to share it with others. The study surveys military personnel to determine the average media literacy level within the armed forces and how it impacts their media consumption habits. Researchers then interview service members to explore more in-depth questions about how various aspects of military culture affect their perception of media and information consumption. This study explores a largely untouched demographic within media literacy research.

11:25 AM

Using High-Resolution Remote Sensing Images and Deep Learning Algorithms for Identifying Homeless Encampments Distribution in San Diego
Jiachen Wang, Geographical Information Science (M)

My research focuses on detecting and analyzing the distribution of homeless tents in San Diego using deep learning and geographic analysis. Faster R-CNN is applied to high-resolution remote sensing imagery for tent detection, with the model undergoing transfer learning through pre-training on a relevant dataset and fine-tuning on manually labeled homeless tent images. The trained model is then applied to areas of interest, producing maps with detected tents marked by bounding boxes.Detected tents are converted into geographic feature points for hotspot analysis to identify areas with higher concentrations. Sociodemographic data from the American Community Survey (ACS) is integrated with tent distribution data to explore relationships between tent density and variables such as poverty rate, unemployment rate, rent burden ratio, and racial composition through regression analysis. This workflow provides insights into the spatial patterns and social factors influencing homelessness.

11:45 AM

Executive Functioning in Young Children in Foster Care and Children Living with their Biological Parents
Lucyann Atkins, Master's of Science in Early Childhood and Family Clinical Counseling (M)

BackgroundEarly childhood is a critical period for developing executive functioning (EXF) skills, such as working memory, cognitive flexibility, and self-regulation. Children exposed to early adversity, such as trauma/neglect, may face heightened risks to EXF development. This study examines the development of EXF in children in foster care and children living with their biological parents, and explores the influence of race/ethnicity in both groups.MethodsParticipants included 159 dyads (106 foster, 53 biological). Caregivers reported the race/ethnicity of children as Black (41%), White (38%), and other people of color (21%). EXF was assessed when children were approximately 48 months (M=49.0, SD=8.7) using the Dimensional Card Change Sort (DCCS) task for preschoolers (Beck et al., 2011; Carlson, 2005).ResultsA significant difference in EXF scores at 48 months was observed between children in foster care and children living with their biological parents (t(157)=-2.50, p=0.014). Children in foster care exhibited lower EXF scores (M=23.28, SD=14.46) compared to children living with their biological parents (M=30.11, SD=19.38).For children living with their biological parents, race was significantly associated with EXF scores at 48 months (F(3,49)=20.70, p<.001). Post-hoc tests showed that Black children had significantly lower EXF scores (M=19.54, SD=17.13) compared to White children (M=33.67, SD=18.89) and other children of color (M=33.31, SD=19.99). No significant associations between race and EXF scores were observed for the foster care group. ConclusionsFoster care children showed significantly lower EXF scores than children living with their biological parents, indicating lasting impacts of early adversity. Race/ethnicity did not significantly influence EXF scores in the foster care group, but racial disparities were observed in the group of children living with their biological parents. These findings highlight the need for interventions addressing both immediate effects of adversity and broader socioeconomic and racial inequities.

12:05 PM

Inadvertent Effects from Media Portrayals of Human Trafficking on Society
Manuel Mata, Mass Communication and Media Studies (M)

Abstract: Human trafficking is a complex issue in society that is oversimplified in news coverage and sensationalized in entertainment. Media framing of human trafficking influences how the public perceives the broader issue of human trafficking, misrepresenting prevalent forms of the issue by focusing on glamorized examples. News coverage and entertainment media portray sex trafficking of young females as the common form that human trafficking takes, romanticizing narratives

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of victims in need of rescue. Human trafficking is prevalent in other forms, like labor trafficking, that have larger impacts on daily lives. The misrepresentation of the scope of human trafficking, influenced by media portrayals and amplification of stereotypes, has immense consequences. Research on human trafficking connects how misrepresentations in mass media impact public perspectives and subsequently misdirect policy efforts to address the issue. These findings emphasize the need for diverse representations of human trafficking to accurately address the broad issue.Keywords: human trafficking, media portrayals, news media, framing, public perceptions.

12:25 PM

Exploring the Role of Spiritual Health in Quality of Life Flourishing and Depressive Symptoms Among Latina Churchgoers

Maria Arantes, Psychology (M)

Background:Spiritual health is often regarded as a protective factor for mental health and a driver of well-being in the Latino community. However, greater religiosity among Latinos has also been linked to poorer engagement with mental health services. This study aimed to examine the association between spiritual well-being and depressive symptoms as well as the relationship between spiritual well-being and quality of life flourishing, hypothesizing a negative correlation between spiritual well-being and depressive symptoms and a positive correlation between spiritual well-being and flourishing in Latinos.Methods:The study included baseline data from 350 Latina women enrolled in a randomized controlled trial promoting physical activity in churches across San Diego County. Spiritual health was assessed using the Spiritual Well-Being Scale (SWBS), depressive symptoms with the Patient Health Questionnaire-8 (PHQ-8), and flourishing with the The Flourishing Scale. Regression analyses evaluated the relationships among these variables.Results:The study included women aged 18"66 years (M = 49.49) with an average of 27.77 years of residence in the United States. Spiritual health was positively associated with age (r = 0.153, p < 0.01). Depressive symptoms showed a positive correlation with years in the U.S. (r = 0.172, p < 0.01). Spiritual health showed no significant association with depressive symptoms (r = -0.002, Î² = -0.002, p = 0.484). However, spiritual health was positively associated with flourishing (r = 0.317, Î² = 0.317, p < 0.001). ConclusionThese findings challenged the hypothesis that spiritual well-being is negatively associated with depressive symptoms but confirmed its positive correlation with life satisfaction, as underscored by flourishing. Spiritual health may provide a framework for understanding positive dimensions of well-being (flourishing) and offer protective benefits through community belonging and a sense of purpose. However, spiritual health alone was not significantly associated with mental health. The results suggest a call to action for churches to incorporate spiritual health into comprehensive interventions that address both clinical symptoms of depression and quality of life flourishing. The results also suggested that longer

residence in the U.S. might be linked to increased depressive symptoms, potentially reflecting associations with the psychological impact of acculturation. Given the cross-sectional nature of the research, these findings highlight the importance of developing holistic approaches while recognizing the need for further investigation into causal relationships.

12:45 PM

Agent-based modeling of passenger behavior, case study of San Diego International Airport

Matthew Velasco, Geography (Geographic Information Sciences) (M)

Airport operations are complex systems requiring staff allocation to the varying demands of passenger movement. Understanding how passengers behave helps airport authorities improve services, revenues, and facility expansions. To address this difficulty, the study integrates San Diego International Airport's flight/checkpoint dataset with AnyLogic's agent-based modeling program to study passenger behavior.

Session B-6

Biological and Agricultural Sciences (G) 1
Friday, February 28, 2025 11:00 AM
Pride Suite

11:05 AM

Reconstructing viral phylodynamics of human-associated pathogen agents surrounding the COVID-19 pandemic

Zoe Holzer, Computational Science - Data Science Emphasis (M)

During the COVID-19 pandemic, our social network changed in an effort to mitigate the spread of SARS-CoV-2. While there are many studies evaluating the true affect of these changes on the population dynamics of SARS-CoV-2, studies looking at the affect of social network changes on other virus populations are much sparser, and none of them have attempted to use phylogenetic methods. We hypothesize that host social network changes during the COVID-19 pandemic affected the population dynamics of other viruses, and especially contact transmissible viruses such as influenza and respiratory syncytial virus. We looked for signatures of these changes using Bayesian phylogenetic-based approaches to infer effective population size and effective reproduction number. Our results showed visual signatures of a dip in these parameters coinciding with the early stages of the 2020 pandemic in some virus strains. While looking for initial signatures of population dynamic changes, we also investigate the spurious nature of methodological features such as the temporal distribution of sample size when using these approaches.

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11:25 AM

Application of Genomics Reveals Key Timepoints in the Evolution of Domesticated Hops

Alex McElwee-Adame, Evolutionary Biology Joint Doctoral Program with UCR (D)

Humulus lupulus L., commonly known as hops, is an agricultural crop grown worldwide and is well known for its pharmacological, commercial, and most importantly brewing applications. For hundreds of years, hops have undergone intense artificial selection resulting in 250 cultivated varieties being developed worldwide. Each of these cultivars display differences in key characteristics such as bitter acid concentrations, flavor and aroma profiles, growth, and pathogen/pest resistances. Previous studies have individually explored differences between cultivars, aiming to identify markers that can quickly and cost-effectively differentiate between cultivars. However, little is known about their evolutionary history. Our study aims to explore the global population structure and domestication history of 98 different hops cultivars. Contrary to previous studies, our study revealed that worldwide hop cultivars cluster into four primary subpopulations; Central European, English, and American ancestry populations as previously reported, and one new group, the Nobles, revealing further substructure amongst Central European cultivars. Modeling the evolutionary history of domesticated hops reveals an early divergence of the common ancestors of modern US cultivars around 2800 years ago, and more recent divergences with gene flow across English, Central European, and Noble cultivars, reconciled with key events in human history and migrations.

11:45 AM

Animal metamorphosis requires bacteria and the innate immune system

Emily Darin, Molecular Biology (D)

Diverse animals across the tree of life undergo the life-history transition of metamorphosis in response to bacteria. Although immunity has been implicated in this metamorphosis in response to bacteria, no functional connection has yet been demonstrated between immunity and metamorphosis. We investigated a host-microbe interaction involving a marine tubeworm, Hydroides elegans, that undergoes metamorphosis in response to Pseudoalteromonas luteoviolacea, a meta-morphosis-inducing marine bacterium. By creating a novel marine bacteria mediated RNA interference approach, we show that Myeloid Differentiation Factor 88 (MyD88), a critical immune adaptor for Toll-Like Receptor (TLR) and interleukin (IL) pathways, is necessary for the stimulation of metamorphosis in response to bacteria. In addition to a developmental role, we show that MyD88 is necessary during exposure to the bacterial pathogen Pseudomonas aeruginosa, showing that Hydroides utilizes immunity during both development and infection. These results provide the first functional characterization of the innate immune system involved in an animal's metamorphosis.

12:05 PM

An Immunological Wildfire: Trichomonas vaginalis Sparks Pyroptosis in Ectocervical Cells

Johann Tailor, SDSU/UCSD JDP in Cell and Molecular Biology (D)

Trichomonas vaginalis (Tv) causes the most common non-viral sexually transmitted infection called trichomoniasis. Increased inflammation upon Tv infection is predicted to contribute to detrimental health outcomes such as pregnancy complications and cervical cancer. We hypothesize that Tv damages ectocervical epithelial cells (Ect1) via pyroptosis, a pro-inflammatory cell death that occurs after activation of inflammasome signaling. Inflammasome signaling leads to caspase-1 cleavage of the Interleukin-1β (IL-1β) cytokine. Caspase-1 then drives pyroptosis via the gasdermin D protein (GSDMD) processing, which generates a gasdermin N-terminal fragment (GSDMD-NT). GSDMD-NT oligomerization forms pores on the cell membrane, prompting cytokine release and cellular rupture. To assess if Tv triggers pyroptosis in ectocervical cells, we infected Ect1 cells and probed for gasdermin D processing via western blot. Tv-infection led to GSDMD-NT fragment generation in a parasite-burden manner. We also tested whether Tv infection led to quick release of the cytosolic enzyme lactate dehydrogenase (LDH) as it is another hallmark of pyroptosis, and found a statistically significant increase in LDH release from Tv-infected Ect1 cells compared to the uninfected cells within 4 hours of infection. We also tested whether this lytic cell death was accompanied by secretion of IL-1β via ELISA. We found a statistically significant increase in IL-1β secretion from Tv-infected cells compared to the uninfected cells. To further delineate the role of GSDMD-mediated pyroptosis during infection, we generated GSDMD knockout cells using CRISPR/Cas9 technology. We observed a striking 25% reduction in LDH release and a 53% reduction in IL-1β release upon Tv infection of GSDMD knockout cells compared to wildtype cells. Lastly, we sought to identify novel proteins released via GSDMD pores during Tv-mediated pyroptosis using quantitative mass spectrometry. Proteomics analysis of the cell supernatants collected 4 hours after Tv infection of wildtype vs GSDMD KO cells revealed 13 proteins highly enriched in wildtype cell supernatant compared to GSDMD KO cells. We also validated the differential release of key proteins via western blot analysis. Collectively, our data suggests Tv triggers pyroptosis in Ect1 cells and highlights the pivotal role of GSDMD-NT pores in releasing inflammatory proteins during parasitic infection.

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12:25 PM

A Novel Drosophila Z-disc Protein,CG42319, Essential for Myofibril Organization in Indirect Flight Muscles: Implications for Human Muscle Function

Ebru Robinson, Molecular Biology (D)

Z-discs, fundamental elements of muscle structure, play a pivotal role in muscle contraction. Identifying the components of the Z-disc is crucial for obtaining a comprehensive understanding of myofibril assembly and its functional mechanisms. Although the complete structure and functions of mature Z-discs remain partially understood, it is known that they require multiple proteins for assembly and maintenance. The Drosophila geneCG42319 (Uchmaz), identified as an ortholog of human PDZ LIM genes, is predicted to reside within the Z-disc structure and serves as the central focus of our study. Importantly, mutations in human orthologs (PLIM2) of this gene have been associated with severe muscle dysfunction and structural abnormalities observed in muscular dystrophies and myofibrillar myopathy (MFM), a group of heterogeneous chronic neuromuscular disorders. We aim to determine if the Uchmaz protein is essential for muscle contraction, the interaction between Z-disc proteins in flight muscles, and the maintenance of normal sarcomere structure. To investigate the function of the Uchmaz gene, we generated several knockout mutant alleles using CRISPR/Cas9 gene editing technology, aiming to uncover the gene's underlying mechanisms. Our initial findings reveal that these mutant alleles significantly disrupt the expression and structure of alpha-actinin and other Z-disc proteins, leading to muscle dysfunction in the indirect flight muscles (IFM) of Drosophila. This research holds the potential to advance our understanding of the PDZ domain protein Uchmaz and its significance in the field of muscle biology.

Session B-7

Humanities, History, Literature, & Philosophy (U) 1
Friday, February 28, 2025 11:00 AM
Aztlan

11:05 AM

Mauds Mad: How the Stress of Neurodivergence and Gender Roles Shaped L.M. Montgomerys Life and Work

Amanda Dean, History (U)

This research seeks to examine the possibility that Lucy Maud Montgomery, author of Anne of Green Gables may have suffered from symptoms of Autism Spectrum Disorder. New developments in neuroscience and autism awareness have revealed gaps in research and treatment in women. To address the inadequacy of traditional diagnostic tools, the GQ-ASC Scale was developed by Claire M. Brown et al, 2020. Using textual analysis of Montgomery's journals (1882-1942), and novels through framework of the GQ-ASC Scale, Montgomery's stress can be reexamined and the ways it shaped her life and writing can be better understood.Historians have long been in agreement that Montgomery had experienced chronic stress, culminating in an early death. However, they are in disagreement over the cause. By isolating a point of change, the years between the publishing of Anne of Green Gables to the beginning of her work on Emily of New Moon (1911-1921) it becomes clear there were three major changes. Firstly, her literary success brought her into traditionally male spaces where she was forced to endure years of legal battles in order to protect her work. Secondly, the Great War brought unprecedented uncertainty, and tragedy. Thirdly, she began her new roles of wife and mother in a new home, moving from Prince Edward Island to Ontario.By applying Brown et al's diagnostic criteria, (in categories of imagination and play, camouflaging, sensory sensitivities, socializing and interests) symptoms that may seem unrelated begin to form a broader picture. Through the use of disability theory and gender theory, intersectionality provides a method of analyzing the ways the two interact. In addition, self-fashioning theory provides depth by viewing the ways Montgomery recognized and adapted to what she felt was expected for her. Through investigating how external cultural, social, religious and family expectations filtered through Montgomery's internalized expectations, this research reveals the ways patriarchal societies simultaneously benefit from women's labor while dismissing signs of distress.

11:25 AM

Winning Hearts and Minds but Losing the War in Iraq: Government Lies, Intelligence Failure, and Privatization of Military

Andrea Albanese-Fishel, History (U)

This research addresses how the government, lack of intelligence, and the operation of privatized military contractors from 2003-2008 lost the war in Iraq in the al-Anbar province, specifically in the city of al-Fallujah. It argues that the governmental lie perpetuated an aggressive invasion of Iraq with disregard for what the intelligence was showing and a lack of understanding and knowledge of the political and social structure of the Iraqi people. The introduction of federal contractors as military supplements in the theater had catastrophic consequences for the people of Iraq and the United States armed forces. While the War on Terror rhetoric was manipulating the American people, the government intended to invade countries and fight an ideology. Eleven years of warfighting in OperationIraqi Freedom, and still, there are terrorists among the civilians and deserts in Iraq. In analyzing the historiographical trends of American warfare, this research rethinks the idea of fighting an ideology and the psychological makeup of a terrorist group while trying to understand why the American government functioned as it did. The American military failure was not their fault

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as intelligence and communication were lacking, and the government was calling the ground missions and setting the Rules of Engagement, not the commanders in the field. Utilizing oral histories of veterans (including my interviews with members of my immediate family) and government officials from 2003-2008, I analyze the lack of intelligence communication, the cultural and political structure on the ground, and the reality of fighting an ideology. The real-life experiences will be supplemented with declassified documents from the Department of Defense, The State Department, military-specific records, and the Congressional Committee hearings and meeting archives.This research seeks to deepen our understanding of America's influence in the global world and bring potential healing for veterans and their families.

11:45 AM

Reclaiming Personhood Through Participatory Art: An Analysis of Yoko Ono and Adrian Piper's Works
Angelica Castillo, Art with an Emphasis in Art History (U)

In her 1965 performance Cut Piece, Yoko Ono invited audience members to come up on stage, cut off pieces of her clothing with a pair of scissors, and take the fabric with them. While the performance elicited varying levels of participation, reaction, and rejection, the audience became increasingly bolder and more excited as it progressed, cutting larger pieces of clothing and ultimately displaying aggression. In 1970, Adrian Piper performed Catalysis III, in which she wore a long-sleeved shirt covered in wet, sticky paint with a sign that read, œWet Paint. As she walked through midtown Manhattan, passersby gave her suspicious and uneasy stares, forced into the role of bystanders. This interaction challenged their implicit biases and assumptions about societal norms that govern how Black women are expected to present themselves in public spaces. Ono's Cut Piece (1965) and Piper's Catalysis III (1970) exemplify the post-1960s participatory art movement, in which artists reimagined art as a collaborative and transformative act that invites viewers to become part of the artwork. In these participatory performances, the two artists employ"or perhaps objectify"their bodies as mediums to deliberately provoke discomfort and aggression in the viewer. In my presentation, I compare the two works to explore how both artists strategically objectify their bodies in and through participatory art, transforming the objectification of the body into a form of resistance. In œOrnamentalism: A Feminist Theory for the Yellow Woman,' Anne Anlin Cheng defines ornamentalism as œthe forging of the sense of person-ness through artificial and prosthetic extension. Drawing on Cheng's notion of ornamentalism, my presentation examines how Ono and Piper navigate the politics of race and gender in the construction of personhood. I argue that their participatory performances use their bodies to critique and subvert dominant social narratives about race, gender, and identity and offer new ways of thinking about personhood for women of color.

12:05 PM

Spring Valley Gun Emplacement and its Place in San Diego's World War Two History
Ethan Guernsey, Anthropology (U)

San Diego was important during the Second World War because of its heavy investment in coastal defenses and the military. The United States joined the major world conflict when the empire of Japan attacked Pearl Harbor in December 1941. At the time, the US's understanding of the war and attempts to prepare for a new large-scale conflict were not as sophisticated as the rest of the world's main powers. US preparation for the war was sudden, as it rushed to create stronger home front defenses of important ports such as San Diego. With its location close to the border of Mexico and its valuable bay that could hold naval vessels, San Diego housed different military bases and training centers that, if compromised, would wound the US's military. Dictionary Hill and the surrounding area of Spring Valley possessed a military and civilian presence that assisted in the defenses of this valuable city. Spring Valley, composed mainly of farmland amongst hills, did not require as many defenses, but the high points of East County would have had value in spotting aircraft overhead. A recently unearthed gun emplacement on top of Dictionary Hill, would not have been as common as the harbor defenses on the coast, but would have aided military or civilian populations in either spotting aircraft or defending the nearby area by attempting to bring down enemy airplanes. The presence of the military in the eastern portions of San Diego County wasn't as common as the main military installations on the coast, but the military understood the value of the area as a defense against enemy aircraft in the case of a bombing campaign. The Dictionary Hill gun emplacement connects to the story of San Diego and its importance to California's defense during the Second World War, especially with a fear of Japanese forces' invasion of the US mainland. This paper will address how an inland gun emplacement site assisted with the city's defenses and how the civilian population contributed to the wartime effort in Eastern San Diego?

12:25 PM

Inaugurating a New Form of Sovereignty: Haitians, the Haitian Revolution, and International Law
Ethan Pellegrini, History and Politics Science (U)

This work bridges the gap between the role of the Haitian revolutionaries and their declaration of sovereignty during and after the Haitian Revolution and the role of the imperial international community. The central argument is that the Haitian Revolution and the revolutionaries reconceptualized the very essence and notions of sovereignty under international law, although they were unable to fully exercise these norms and win lasting recognition. This argument is buttressed by examining the revolutionaries' declaration of sovereignty, adding their voices into conversations as to who can declare and have observed sovereignty.Through a historiographical examination, the current

ABSTRACTS

(U)=Undergraduate; (M)=Masters; (D)=Doctoral

research concerning this topic emerges; but with limitations that fail to analyze, to the same breadth, the role of the revolutionaries and their declaration of independence, relating to the definition of sovereignty. Moreover, the current scholarship has great discourse on what sovereignty should mean, its importance of it, and the connecting implications of the international community, on sovereignty and the Haitian Revolution.In analyzing primary letters, declarations, correspondences, and reports, from various authors, including the revolutionaries themselves, as well as from government officials, from the United States, Great Britain, and France, a post-colonial lens is applied to this topic. Applying a post-colonial lens adds agency and situates the revolutionaries at the center of their narrative. These revolutionaries attempted to reconceptualize the language of sovereignty established by imperial powers and international law to oppress them into an instrument of liberation, only to encounter the counterrevolutionary responses of celebrated revolutionaries' like Thomas Jefferson and Lafayette.

12:45 PM

Women in Ancient Africa

Jada Reed, Urban Studies: Cultures and Societies (U)

This paper will explore the changing of gender roles within Ancient African Civilizations.The African-World Antecedent Methodology (AWAM) will be used to look at the effects of these changes and how they came about in the first place. Exploring how these roles are the same and different in ancient Kemet and Kush. It examines how these roles were shaped in multiple areas such as social and familial roles, the role women played in the economy, the ways in which women in political power interacted, as well as the culture of everyday women in Ancient Africa. This study highlights the role of Women in ancient Africa, with an emphasis on the lived experiences of everyday women. This paper will serve as a way of showcasing the autonomy and significance of women in Ancient African history while looking at their changing positionality.

Session B-8

Physical and Mathematical Sciences (U/G) 1
Friday, February 28, 2025 11:00 AM
Mata'yuum

11:05 AM

From Bacteria to Biomaterials: Leveraging Bacterial Surface Display for the Synthesis of Spider Silk Fibers
Mariam Slewa, Biology (U)

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 lyphilized to dryness and then rehydrated with guanidine hydrochloride. The resulting viscous solution was extruded into a coagulation bath. This method successfully 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 medical applications, such as wound healing, tissue regeneration, and the creation of biocompatible scaffolds.

11:25 AM

Breaking Wind: The Role of Galactic-Scale Gas Flows in Regulating Galaxy Growth
Andrew Pitts, Astronomy (M)

Early galaxy formation simulations which modeled the mass-evolution of galaxies over cosmic time overpredicted the number of massive galaxies in the universe. To remedy this, theorists adopted feedback theory', by which physical processes regulate the accumulation of material in a galaxy. These processes are considered 'ejective', as they displace energy from the stars in a galaxy and accelerate gas outside of the galactic disk. Observations confirm that galactic-scale gas outflows occur in all types of star-forming galaxies; however, the specific mechanisms that launch these winds remain unclear. Theorized wind-launching mechanisms include active galactic nuclei, supernovae, and radiation pressure from massive stars. Each mechanism is expected to exhibit specific signatures, for instance, stellar-driven winds are hypothesized to scale with the star formation rate (SFR). While gas outflows are ubiquitous, the evidence for such correlations is not. Many previous studies report weak correlation between wind velocities and star formation rates, leaving our understanding of the mechanisms dominating the regulation of galaxy growth poorly understood. However, factors like galaxy orientation, spatial resolution, and spectral resolution may obscure the ability to identify these relationships. To address this, we use highly spatially resolved observations of star formation main sequence galaxies to investigate the incidence rates and properties of flowing gas in an effort to constrain the mechanisms which drive galactic-scale winds in typical disk galaxies. We use observations from the Multi Unit Spectroscopic Explorer of 25 nearby star-forming galaxies to measure the velocities and morphology of cold (T $\leq$ 1000 K), foreground gas traced by neutral sodium absorption on ~ 50 " 100 parsec scales. We plan to conduct a comprehensive study of the correlation between wind and host properties within our sample. We will assess dependence of spatial resolution in identifying correlations by implementing various binning methods, and use a robust kinematic modeling tool to interpret our velocity results.

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11:45 AM

Small-Scale Morphological Properties of the Cool Gaseous Disk-Halo Interface: Initial Constraints using the Flexible Parametric Model CloudFlex

Nissia Indradjaja, Astronomy M.S. (M)

Star formation in galaxies is fueled by a reservoir of gas that flows through a galaxy's halo, a region which extends far past the galaxy's main component. This cycling of gas is intimately connected to physical processes in the disk-halo interface, a region where feedback mechanisms move gas through the disk and halo. The interface is thought to contain diffuse cool material (104 K) that coexists with and moves through hot material (106 K). Given the presence of cool material in the halo, studying the interface's cool phase is particularly important to understand how gas is cycled. While the physics of this coexistence is not well understood, simulations offer predictions for the mass and size distributions of cool gaseous structures that allow them to coexist in the hot medium.These predictions can now be tested due to advancements in observational studies. In particular, we draw on measurements of CaII absorption, a common tracer of cool material at temperatures less than 103 K, toward multiple background stars in the Milky Way halo. We test these predictions using CloudFlex, an open-source Python package for modeling the small-scale structure of cool gas. We model these structures as cylindrical complexes of cloudlets, with properties such as total complex mass and radial size being based on user-specified parameters. We use CloudFlex to predict line profiles of CaII. Initial analyses of these profiles show that CaII detection incidence is correlated with minimum cloudlet mass, cloudlet density, total complex mass, and the complex's radial size. We produce a grid of models to determine the parameter set that best reproduces the observed CaII detection incidence. Our results suggest that cool gaseous structures could have total masses between 104 to 107 solar masses, minimum cloudlet masses from 0.1 to 1000 solar masses, cloudlet densities from 0.001 to 0.1 cm-3, and radial sizes from 0.5 to 2.2 kpc. A refined exploration of the parameter space is planned, which will yield unique and valuable constraints on the small-scale structure of cool disk-halo material and enhance our understanding of star formation.

12:05 PM

Direct and Indirect Excitons in hBN encapsulated Moire Superlattices

Ryan Palmares, Physics MS (M)

The growing interest in quantum technologies has created a platform needed to fabricate high quality, single photon emitters.Moiré superlattices display exciton trapping at high symmetry points within the moiré potential, making them ideal for single photon emission sites. By controlling the twist angle between the two 2-dimensional materials, you may adjust the electronic band structure between these interlayer excitons. In this work, we investigate direct and indirect excitons located within our Type II semiconductor moiré material. Using Photoluminescence (PL) spectroscopy, we can measure the PL peaks of these interlayer excitons along with how they change throughout high symmetry points within the superlattice. We also see PL peaks that are not present within the individual layers, showing that these are present only within these stacked twisted monolayers. By studying the PL spectrum at these exciton sites, we hope to gain insight on how these slightly mismatched planes of atoms interact within the moiré superlattice, along with how their electronic, optical and phonon dispersion properties change throughout the moiré potential.

12:25 PM

Tunable Size Control in the Photochemical Self Assembly of Silver Nanoparticles

Joseph Charlonis, Chemistry (D)

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 of photochemically grown large silver nanoparticles (>50 nanometers), these tend to be produced via growth on already existing silver nanoparticle seeds. We've discovered that there seems to be a simple path to photochemically nucleate and grow uniform silver nanoparticles up to 100 nanometers without the need for seeds in one pot. Our present work indicates that with careful control of the pH, reagent concentrations and trace amounts of a transition metal initiator, we can control the reaction kinetics and final size of these nanoparticles.Using UV-Visible spectroscopy, nuclear magnetic resonance, dynamic light scattering, and transmission electron microscopy we have carried out a detailed kinetic and mechanistic study, with an emphasis on the initial steps from the nucleation of clusters, through Ostwald ripening and how these play into the final fate of the particles.

12:45 PM

Ultrasensitive Detection of Biomarkers Associated with Chronic Traumatic Encephalopathy via Nonlinear Multi Photon Wave-Mixing Laser Spectroscopy

Nino Shatirishvili, Chemistry (D)

Chronic Traumatic Encephalopathy (CTE) is a progressive and irreversible neurodegenerative disorder linked to repeated traumatic brain injuries, commonly seen in contact sports athletes, military personnel, and others exposed to repetitive head impacts. CTE is characterized by the buildup of tau protein, along with other biomarkers such as CCL11 and S100B, which are associated with inflammation and neural damage. Early detection of these biomarkers is critical for diagnosing CTE before irreversible cognitive and behavioral symptoms set in. However, current diagnostic methods, such as post-mortem examinations or invasive cerebrospinal fluid analysis, are limited in their applicability for early intervention and monitoring. Nonlinear optical techniques, such as four-wave mixing (FWM) spectroscopy, offer a promising solution due to their enhanced sensitivity, label-free detection

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capabilities, and minimal sample requirements. FWM is a phase- sensitive, third-order nonlinear process that allows for the detection of weak molecular signals by generating coherent signals in the presence of an analyte. When integrated with capillary electrophoresis and microfluidic systems, FWM offers the ability to detect trace amounts of biomarkers in biological fluids with high precision.This combination of technologies provides an opportunity to overcome the limitations of current methods by enabling real-time, sensitive detection of CTE biomarkers in small sample volumes, without the need for complex and time-consuming labeling steps. The motivation for this research lies in the urgent need to develop novel, non-invasive diagnostic tools that can detect CTE at earlier stages, facilitating timely intervention and improving the management of traumatic brain injury-related diseases. By leveraging the unique advantages of laser wave-mixing spectroscopy, this study aims to advance the field of neurodegenerative disease diagnostics and pave the way for improved clinical tools in the detection of CTE biomarkers.

Session B-9

Education (U/G) 1
Friday, February 28, 2025 11:00 AM
Metztli

11:05 AM

Am I Being Served?: A Critical Autoethnography by a Latina Transfer Student at a Hispanic Serving Institution
Amy Zarate, English (U)

While SDSU is a Hispanic Serving Institution (HSI), the question remains how well SDSU is serving' its Latinx students, particularly Latina transfer students. Latinas represent 56.6% of incoming Latinx transfer students enrolled in fall 2024"a critical mass at SDSU. Latina transfer students have a 22.7% graduation rate after three years, demonstrating a sizable equity gap compared to all transfer student populations at SDSU. This study focuses on the Latina transfer experience; it provides the groundwork methodology of incorporating Latinx student voices and experiences for future assessment and re-evaluation of transfer student success programs from SDSU. As a first-generation Latina commuter transfer student, I used critical autoethnography to explore, reflect, and critique my lived experience to understand how SDSU can foster Latinx transfer student belonging and success at SDSU (Navarro Martell, 2021). I considered gathering narratives from my peers for this study, but instead chose to begin reflecting through critical autoethnography. Data included analysis of 20 artifacts gathered between 2023 and 2024 from personal journal entries, academic essays, and media. Theoretical framework for the codebook and analysis were guided by Rendón's (1994) New Model of Learning and Student Development and Yosso's (2005) Community Cultural Wealth Model. Through analytic memos and deductive coding, I identified moments

of invalidation or validation from faculty, peers, and family that support or hinder transfer student success. Preliminary analysis reinforced the importance of transfer students to (1) see representation from instructors and faculty (2) access to mentorship from faculty that represents and understand underrepresented students' background (3) find friendships/community with peers that share the same perspectives (4) have access to programs or organizations that will help with professional, personal, and academic advancement. As SDSU continues to strengthen its identity as an HSI, narratives like mine provide insights to the challenges transfer students experience. Overall, this study not only validates my feelings and experiences of being a Latina transfer student at SDSU, but provides insights to SDSU's academic and outreach departments in the re-evaluation of transfer student success initiatives and programs to support Latina transfer students and incoming Latinx transfer students as a whole.

11:25 AM

A Photovoice Collaborative Autoethnography: Exploring Transfronterizx College Students Intersections of Gender and Sense of Belonging at the Imperial Valley-Mexicali Borderlands
Neyda Hernandez, Liberal Studies (U)

Since Spring 2024, the Transborder Scholars Program (TSP) at the Transborder Scholars Thriving Institute has provided Transfronterizx undergraduate students at San Diego State University-Imperial Valley (SDSU-IV) with empowering research opportunities. Students explore their sense of belonging at the Imperial Valley-Mexicali borderlands through photovoice, collaborative autoethnography, and pláticas methodologies, contributing to bridging the gap in the literature on Transfronterizx students in higher education, particularly in the rural Imperial Valley-Mexicali border region. As part of Transborder Scholars, we present the findings of our photovoice collaborative autoethnography study titled 'Soy de Aquí y Soy de Allá: Exploring Transfronterizx College Students' Sense of Belonging & Intersections of Gender at the Imperial Valley-Mexicali Border Region.' This study aims to illustrate the complexities of transborder identity development by exploring our sense of belonging within higher education, our communities, and our families in the Imperial Valley-Mexicali Borderlands.Our collaborative findings reveal that, as transborder students, we belong to both sides, which forms our sense of belonging. Our roots can be on one side without any border barriers. Although we belong to both sides, when our needs are not met, we lose our sense of belonging. This invalidation leads to feelings of isolation as we navigate our academic trajectories and transborder lives. At the same time, our language is (in)validated in education. We speak English, Spanish, Spanglish, and a mix of these languages in spaces like Transborder Scholars, yet in the broader university, we find ourselves in English-only spaces.Additionally, our findings reveal that insecurity and machismo remain problems today on both sides of the border. Unfortunately, we, and women in our lives still face more limitations due to these issues, and

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for some of us going out alone can sometimes be dangerous due to femicide and other dangers at the borderlands. We believe that insecurity and machismo are challenges we can change and overcome. We can improve society by instilling education and values in future generations, together, through our work and research, amplifying and validating our needs in our pursuit of higher education. As a multi-site Transfronterizx research community, Transborder Scholars offers a space of inclusion, cultural validation, and multigenerational mentorship for Transfronterizx students at SDSU-IV. Transborder Scholars has provided us with a platform through this study to develop as scholars and benefit from mentorship opportunities with the Founding Director, Dra. Vannessa FalcÃ³n Orta.

11:45 AM

The Influence of AI on Education in Spain Compared to the United States

Shreya Patil, Accounting (U)

The impact of AI has been a major topic of conversation in all industries. Many professionals and students are worried that their jobs would be replaced by AI. I chose this topic because of how prevalent conversations about AI have been in my life and in the workforce in recent years. In my previous internship, they held multiple division-wide conferences discussing the impact of AI, how it would affect certain roles, whether it's a threat or a resource, and how the company could implement it. In school we discuss which professions would be most impacted by the implementation of AI and pick our majors and careers based on those conversations. This topic would allow me to see whether students worldwide are affected by AI as much as they are in the United States and what they plan on doing about it. I realized that by understanding and speaking with professors, I can gain insight into how they view AI to help understand the future of education.

12:05 PM

Evaluating undergraduate students Perceptions of the Magnitude of Variation (PMoV) across biological phenomena

Cecylia Quintero, Evolution Biology (M)

Understanding student perceptions of evolution remains a challenge, particularly regarding the plausibility of evolutionary theory and the role of biological variation. This study introduces and evaluates a novel instrument designed to measure students' perceptions of the magnitude of biological variation (PMoV) across different phenomena. The instrument evaluates perceptions of variation at different biological scales (eg.,DNA, protein, phenotype) and across multiple taxa (eg., plants, animals, humans). The instrument was administered to undergraduate non-majors (N=263) to explore its effectiveness in assessing PMoV and its relationship to biological phenomena. Utilizing Rasch analysis we were able to determine that students perceived the greatest amount of DNA variation in animals and the least in plants. The PMoV fulfilled the criteria of robust measurement. We report that the analysis of a unidimensional model with the biological phenomena

independent of another was supported. Additionally, the multidimensional Rasch model showed a better fit than the unidimensional model, suggesting that perceptions of variation are influenced by the specific biological phenomena. These findings highlight the importance of considering how students' understanding of biological variation in the contextualization of biological phenomena might impact their acceptance of evolutionary theory and provide a foundation for further investigation into this relationship.

12:25 PM

Evading Race in HSIs: How Anti-DEI Legislation Affects HSI STEM Servingness

Daniela Hernandez, Postsecondary Educational Leadership and Student Affairs (M)

Recent research has examined what it means to be a Hispanic-Serving Institution (HSI), with federal and state policies shaping how HSIs serve Latinx STEM students (Casellas Connors, 2021). HSIs, enrolling at least 25% Latinx FTE undergraduate students, are eligible for federal grants through Title V (HSI) and Title III-Part F (HSI-STEM) of the Higher Education Act, including direct implications for STEM servingness. With funding, HSIs have the responsibility to ensure high-quality education for Latinx students increasing their STEM representation (Garcia et al., 2019; Ro et al., 2024). Using servingness frameworks, we examined how HSIs intentionally serve Latinx STEM students (Garcia et al., 2019; Ro et al., 2024). STEM servingness is essential for student success, uplifting their lived experiences, understanding their intersectional identities, and resisting dominant individualistic norms that hinder STEM progress (Denton et al., 2020; RincÃ³n et al., 2020; Ro et al., 2024). Our project focuses on the external dimensions of servingness, underscoring the effects of anti-DEI legislation. State policies, like Diversity, Equity, and Inclusion (DEI) initiatives impact the intentional implementation of STEM servingness in HSIs (Casellas Connors, 2021). Collaboratively, state-policy (macro-level) and institutional-level (meso-level) DEI plans intersect the identity of Latinx students through racial equity (Casellas Connors, 2021). Unfortunately, states across the nation have increasingly proposed and/or passed legislation restricting DEI initiatives. Without the infrastructure of DEI in HSIs, servingness is limited because we are unable to validate the unique experiences of Latinx students in ways that adequately support their STEM success (Ro et al., 2024). Our literature review, comprising about 20 articles from Google Scholar and OneSearch, used keywords such as HSIs, Anti-DEI, DEI, Servingness, STEM, Title V & III, and policy. Organized in Zotero and thematically coded in NVivo, preliminary findings from the literature emphasize the importance of DEI and the constraints anti-DEI legislation places on STEM servingness. Anti-DEI legislation limits efforts to validate and discuss student identities within curriculum and institutional spaces through the dismantling of multiple centers, curricula, and resources, as has already been done in Texas and Florida (‹‹Gretzinger et al., 2024). Our presentation will further discuss how anti-DEI legislation affects HSI STEM servingness.

ABSTRACTS

(U)=Undergraduate; (M)=Masters; (D)=Doctoral

12:45 PM

Move Analysis on Candidate Statements

Liliana Reyes, Linguistics (M)

This study examines the rhetorical structure of political candidate statements, an example of promotional literature, using move and step analysis to investigate their key features. Move and step analysis is a methodology in genre analysis, which aims to identify the rhetorical functions (moves) and strategies (steps) that writers employ to achieve their communicative goals. Genre analysis helps uncover the underlying structures and strategies of specific types of texts, offering insights into how texts are crafted to meet their purposes, and the results of genre analyses can be used to teach novices to produce examples of genres. Genre analysis has been widely employed in academic and professional contexts, in the study of genres such as lab reports (Parkinson, 2017), letters of application (Henry & Roseberry, 2001), and promotional genres like sales promotion letters (Bhatia, 1993). This study employs the genre analysis framework discussed in Hyon (2017) and Samraj (2014) to identify the moves that convey the rhetorical functions in a genre and their constituent steps. Analyzing 13 candidate statements from a 2024 Voter Information pamphlet, the study identified seven rhetorical moves and their constituent steps. To evaluate the effectiveness, and frequency of the seven identified rhetorical functions within this genre, candidate statements were categorized based on election outcomes. Winning candidates' statements were analyzed separately from those of losing candidates to determine the moves that appeared in successful statements. The 'Professional Experience' and 'Influential Message' moves emerged as the most prominent rhetorical moves, frequently appearing in winning candidate statements. The analysis also highlights the nonlinear structure of candidate statements, where moves do not follow a fixed order, and the variability in rhetorical strategies, reflecting diverse approaches in addressing voters. These findings offer practical implications for political communication, persuasive writing, and teaching English for Specific Purposes (ESP). Although limited by sample size, the study provides a foundation for exploring promotional genres and their applications in political and professional discourse.

Abstracts of Presentations

Session C

SDSU | **San Diego State University**

(U)=Undergraduate; (M)=Masters; (D)=Doctoral

Session C-1

Behavioral and Social Sciences (G) 4
Friday, February 28, 2025 1:00 PM
Metztli

1:05 PM

Neural and behavioral indices of central executive dysfunction in people with fibromyalgia

Yasmin Epir, M.A. Psychology (Concentration in Behavioral and Cognitive Neuroscience) (M)

Fibromyalgia (FM) is a chronic pain condition characterized by widespread musculoskeletal pain, which is frequently accompanied with fatigue, cognitive impairments, insomnia, and other symptoms. It has no clear causative peripheral pathology, making it challenging to diagnose and treat this centralized pain disorder. Executive function impairments are common in chronic pain, implicating deficits of cognitive control and top-down functioning more broadly. Cognitive control refers to the capacity to suppress an automatic reaction to prioritize goal-directed, non-habitual responses, enhancing adaptive decision-making.This study examined task performance and the neural underpinnings of cognitive control in 28 people diagnosed with FM and 28 control (CONT) participants (42.3 Â± 16.9 years of age). The two groups were matched on demographic variables and cognitive capacity. After a neuropsychological evaluation, participants engaged in a modified Stroop color-word interference task that elicited a low or high level of cognitive conflict by presenting words in fonts that were congruent or incongruent with their meaning (e.g., œRED written in red or blue, respectively). Electroencephalography (EEG) signals were recorded during the task and analyzed in the time-frequency domain in theta band (4-7 Hz), which is highly sensitive to cognitive control engagement. To examine the relative timing of the cognitive control recruitment, the EEG data were also analyzed in the time domain as event-related potentials (ERPs). The people with FM maintained equivalent performance accuracy as the CONT group but at the cost of longer reaction times, especially on high-conflict trials. Event-related theta activity was lower in the FM group compared to the CONT participants, which was particularly notable during high cognitive conflict. In the people with FM, lower event-related theta was associated with longer reaction times, more severe pain-related dysfunction, higher depression scores, and lower cognitive capacity. ERP analysis indicated a slower engagement of cognitive control in people with FM.Taken together, these results suggest dysregulated neural mechanisms underlying cognitive control and are aligned with neuroimaging evidence suggesting dysfunctional top-down neuromodulation relevant to chronic pain. The study provides insight into the neural indices that may assist with diagnostic, prognostic, and treatment-monitoring purposes and help the development of targeted therapies.

1:25 PM

Development of a faith-based organization leader workshop to support the implementation of an evidence based physical activity program

Jackelyne Garcia-Villegas, Joint Doctoral Program in Clinical Psychology (D)

Background: Faith-based organizations (FBOs) provide an ideal setting for physical activity (PA) interventions due to their strong community connections, established trust among members, and robust social support networks. FBO leaders, including pastors, administrative personnel, and ministry directors, play a pivotal role in facilitating the implementation and sustainment of evidence-based interventions (EBIs) within these settings. However, engaging FBO leaders in the implementation process is often challenging due to limited time, competing priorities, and varying levels of capacity. This study aimed to develop a leadership workshop curriculum designed to enhance FBO leaders' support and improve the implementation of PA interventions within their organizations.Methods: The study used the Implementation Mapping framework to develop a FBO leadership workshop curriculum within the Faith in Action project, an evidence-based intervention designed to increase PA levels among churchgoing Latinas. The curriculum development included (1) conducting a needs assessment through post-intervention interviews with Faith in Action FBO leaders and focus groups with promotoras; (2) identifying implementation outcomes and performance objectives, identifying determinants, and creating matrices of change objectives; (3) selecting theoretical methods and implementation strategies; (4) creating implementation protocols and materials; and (5) planning for implementation evaluation.Results: (1) Findings from our focus groups and interviews suggest that FBO leaders need support to overcome time constraints and competing priorities in order to effectively engage in EBIs. (2) Focus group results provided insights into key implementation outcomes (e.g., engaging church leaders), performance objectives (e.g., identifying resources), and the determinants influencing these objectives. Change objectives were then mapped to the corresponding performance objectives and determinants. (3) Community-engaged methods emphasized empowerment, power-sharing, and leveraging community strengths and resources to guide workshop content and delivery.(4) The study team developed workshop sessions that provided leaders with information on PA and program implementation strategies. The sessions included discussions to identify church-specific barriers and facilitators, along with the development of personalized goals tailored to each leader's capacity and the unique needs of their community. The workshop curriculum is delivered in both English and Spanish and co-facilitated by project PI and coordinator. (5) Implementation outcomes will be evaluated by examining program fidelity and participant engagement. The hypothesized outcomes of the workshop include enhanced leader engagement and leadership support, as well as potentially increased alignment between innovation and values,

(U) = Undergraduate ; (M) = Masters ; (D) = Doctoral

which are expected to serve as mechanisms for longer-term implementation outcomes.Conclusion: This study provides a roadmap for developing FBO leader workshop programs and highlights the potential for such workshops to improve implementation outcomes and intervention effectiveness. It also demonstrates how Implementation Mapping and community-engaged approaches can bridge the gap between research and practice within faith communities. By empowering FBO leaders and fostering meaningful partnerships, this process contributes to advancing the implementation of EBIs in real-world settings.

1:45 PM

From the Chair to Care: How Trust Creates Pathways to Mental Health Conversations and Help-Seeking Behaviors Between African American Men and Trauma-Informed Barbers as Neighborhood Healers

John W. Edwards, III, Social Work - Direct Practice (M)

African American (AA) men face unique barriers to mental health care, including systemic racism, stigmatization of vulnerability, and distrust of traditional medical systems. Barbershops, long established as cultural sanctuaries within AA communities, serve as spaces for authentic dialogue, emotional expression, and resilience-building. This study, œFrom the Chair to Care, investigates how trust cultivated between AA men and trauma-informed barbers facilitates mental health conversations and help-seeking behaviors, positioning barbers as neighborhood healers and advocates.Utilizing secondary data analysis from a 2023 study of 60 AA males aged 18"35, this research examines the interplay between trust, mental health engagement, and cultural relevance. Key findings reveal that barbershops act as transformative sites where trust dismantles stigma, fosters psychological openness, and bridges systemic gaps in care. High-trust barber-client relationships are shown to significantly enhance comfort in discussing mental health, validating the role of trauma-informed barbering as a culturally resonant mental health intervention.This work reframes the barber's chair as a pivotal entry point for mental health promotion, challenging traditional paradigms of care and offering a model for addressing mental health disparities in Black communities. The findings underscore the need for culturally competent frameworks that prioritize relational safety and community-driven advocacy. By illuminating the role of trust within barbershop spaces, this study contributes to the reimagining of mental health engagement and equity for African American men.

Session C-2

Engineering and Computer Science (G) 2
Friday, February 28, 2025 1:00 PM
Legacy Suite

1:05 PM

Continuous Microfluidic Electroporation for Enhancing Gene Expression Modification through Efficient mRNA Delivery

Samantha Omer, Bioengineering (M)

The use of embryonic stem cells derived from unborn fetuses has been a topic of ethical controversy raising significant societal and moral concerns. This study offers a novel alternative by utilizing synthetic mRNA encoded with the Yamanaka factors to reprogram somatic cells into induced pluripotent stem cells (iPSCs), offering significant advancements over traditional methods that rely on embryonic sources. Electroporation (EP) is a widely used technique to enhance cell permeability for intracellular delivery of various cargos, including mRNA. This study explores continuous microfluidic EP for efficient delivery of mRNA to modify gene expression outcomes. The proposed miniaturization of the EP process improves cargo delivery and reduces cell death by eliminating harmful byproducts. Miniaturization enables larger electric fields with lower applied voltages. The device fabrication involves photolithography, soft lithography, and pyrolysis. Glassy carbon electrodes are used for their cost-effectiveness and biocompatibility. Biocompatible polydimethylsiloxane (PDMS) channels are used for their transparency using serpentine channels upstream and downstream the EP zone for cell rotation and mixing. Additionally, there is an intersection where a buffer is introduced above and below the cell-containing stream to maintain laminar flow through the EP zone. The device's functionality will be analyzed using microbeads, pH indicators, and fluorescent dyes to validate flow dynamics and EP efficiency. To illustrate the efficacy of the curvy serpentine areas used as passive micromixers, a 2D transient computational fluid dynamics (CFD) simulation was conducted in COMSOL. Three types of channels were simulated: two curved serpentine micromixers at different curve angles and a circular unbalanced split & recombine micromixer. Mixing was modeled through the channels to show how the device enhances mixing between mRNA and electroporated cells by overcoming laminar flow, inducing turbulence. Additionally, once all the initial tests are done, the device will be tested with cells and a fluorescently tagged vector, verified through flow cytometry. This research explores techniques for preventing cell lysis, flow dynamics, and EP efficiency, offering a promising route for intracellular delivery and gene expression modification, with potential applications in regenerative medicine and cellular reprogramming.

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1:25 PM

Investigation of a Glassy Carbon BioFET for the Detection of Analytes: Case of Glucose

Sara Herrera, Bioengineering (M)

Bio-analytes are molecules in the human body that can be detected and analyzed in clinical settings, providing insights into physiological processes. Glucose is an example of an analyte, which must be continuously monitored by diabetic patients to maintain stable blood sugar levels. To achieve reliable glucose monitoring, sensor design must enhance signal strength while maintaining specificity towards the target analyte. This research focuses on a biosensor field effect transistor (BioFET), which offers real-time signal amplification. The study focuses on the use of glassy carbon (GC) for its biocompatibility and electrochemical stability, while optimizing surface functionalization for glucose oxidase (GOx) immobilization. Molecular dynamics (MD) simulations are employed to investigate the chemical interactions between different functional groups and GC. Sensor fabrication employs microfabrication processes such as photolithography, pyrolysis, dry etching, and wet etching. Sensor functionality and sensitivity are evaluated using electrochemical techniques such as cyclic voltammetry (CV), electrochemical impedance spectroscopy (EIS), and transconductance evaluation. By optimizing the electrode's surface functionalization, this research aims to detect signals that correlate with the presence and concentration of glucose with a low Limit of Detection (LOD). The findings will provide insight into how the functionalization of carbon-based surfaces, in combination with BioFET technology, increases the sensitivity of monitoring devices, ultimately contributing to the development of highly accurate biosensors.

1:45 PM

Impact Efficacy of Additively Manufactured Sandwich Structures

Sean Eckstein, Mechanical Engineering (M)

Sandwich structures (fiber-reinforced composite skins and foam cores) are ubiquitous in defense, aerospace, and sports applications due to their superior specific properties, e.g., improved stiffness-to-weight ratio. The mechanics of sandwich structures attracted assiduous research under a broad range of operating and loading conditions, including a wide range of strain rates. However, introducing additive manufacturing (3D printing) of composite skins and considering novel core polymeric materials necessitate the exploration of the process-property interrelationship with emphasis on impact loading scenarios, given their strain rate sensitivity. Therefore, the overarching objective of the research leading to this presentation is to discuss the effect of processing conditions on the impact efficacy of additively manufactured sandwich structures. The approach hinges on the physical demonstration of 3D printed skins using an advanced robotic platform capable of realizing continuous carbon fiber polymer matrix composite materials as a function of a broad range of geometries and stacking sequences. The 3D-printed skins are adhered to polyurea foam cores with superior impact efficacy under a wide range of strain rates. The assembled sandwich structures are subject to low-velocity impacts from a drop carriage system. The sandwich samples are rested on an equipped pedestal while the deformation is captured using a high-speed camera to resolve the full-field strains using digital image correlation. The analysis is performed as a function of the impactor and pedestal geometry. The impact data is synthesized to assess the impact efficacy while elucidating the failure modes. The outcomes of this research progress this novel class of materials towards certification and qualification for mission-critical applications.

2:05 PM

Exploring the Potential of Vagus Nerve Stimulation for Type 2 Diabetes Management in Mice

Smruthi Jaishankar Iyer, Bioengineering (M)

The vagus nerve is the longest and one of the most important nerves of the parasympathetic nervous system that innervates most of the organs in the human body. This nerve plays a crucial role in regulating various body functions such as maintaining homeostasis, heart rate, production of hormones such as insulin etc,. Therefore, in theory, vagus nerve stimulation (VNS) has a potential for treating a range of chronic inflammatory diseases, including Type 2 Diabetes. VNS has gained increasing attention in recent years as an alternative to traditional pharmacological treatments, especially in cases where patients develop resistance to medications or experience significant adverse side effects. Vagus Nerve Stimulation (VNS) involves the delivery of low-frequency electrical currents to the nerve within safe limits to achieve precise and targeted therapeutic effects such as, particularly for the treatment of diabetes by increasing the production of insulin in case of hyperglycemia or triggering the production of glucagon in case of hypoglycemia. A key component of the VNS system is the flexible microelectrode with a locking mechanism, which interfaces the stimulation apparatus to the mouse vagus nerve by wrapping around it. This microelectrode is produced using a precise microfabrication technique known as photolithography. The design incorporates biocompatible, highly conductive carbonaceous materials such as glassy carbon and metals such as platinum, and titanium to ensure safe and effective current delivery. Prior to in-vivo testing, in-vitro electrochemical techniques, including Cyclic Voltammetry and Electrochemical Impedance Spectroscopy, were used to assess the electrode's performance in a simulated biological environment.

2:25 PM

Characterizing Seismic Damage and Crack Patterns in Reinforced Concrete Slabs

Taylor Auerbach, Civil Engineering (M)

Reinforced concrete (RC) slabs are critical structural components in buildings, yet they remain vulnerable to seismic forces that can compromise their integrity. This study focuses on understanding seismic damage in RC slabs through analytical considerations and a comprehensive review of design codes and equations.The research evaluates the predictive capacity of existing code-based equations in estimating crack

(U) = Undergraduate ; (M) = Masters ; (D) = Doctoral

widths, highlighting areas where existing provisions may inadequately address the complexities of seismic damage.By analyzing theoretical formulations for slab behavior under lateral seismic loads, the study seeks to refine the understanding of critical parameters influencing cracks and damage. The implications of various design assumptions, such as material properties and slab design, are examined to improve the accuracy and reliability of code-based predictions. Ultimately, this research supports the advancement of safer, more resilient building structures in seismically active regions.

2:45 PM

Preliminary Results of Novel Full-field Strain Quantification Method

Anushka Sarode, Mechanical and Aerospace Engineering (D)

Digital image correlation (DIC) has transformed experimental solid mechanics by resolving the full strain fields on the surface of samples, irrespective of the material system and testing conditions. However, DIC is limited by the penetration depths of the visible light wavelengths used in illumination and imaging, precluding investigation between the strains within multi-layer material systems and those developed on the surface based on the differences in the boundary conditions. Hence, the overarching objective of this research is to create a novel DIC method by leveraging far terahertz illumination and imaging approaches to resolve the full displacement and strain fields of homogeneous and heterogeneous sample structures. This preliminary work tests a machine-learning model for real-time calculation of strain contours by collecting terahertz images during a loading scenario. Given the transparency of polymers to the terahertz light, the samples investigated in this work include elastomeric polyurea foams with various markers. The strategic selection of this class of materials is to allow future work based on (1) leveraging the microstructure of the foam as an inherent speckle pattern, (2) uniquely tailoring the properties (stiffness) to control the resulting strains, and (3) agile laying, i.e., interfacing, between several densities (properties) without any adhesives. The proposed novel deformation measurement system, performed on a model material system of ungraded polymeric foams, creates the basis to uncover the fundamental internal mechanisms responsible for overall mechanical behavior.

Session C-3

Humanities, History, Literature, & Philosophy (U) 2
Friday, February 28, 2025 1:00 PM
Visionary Suite

1:05 PM

Equity Gaps in Logic Courses

Joel Varon, Philosophy (U)

This presentation investigates how proficiency in traditional mathematical skills predicts student success in introductory logic courses. It explores the hypothesis that mathematical

ability serves as a predictor for conceptual understanding of introductory logic, providing a foundation for refining instructional practices in logic pedagogy to close equity gaps. Additionally, the study examines differences in pedagogical approaches across introductory logic courses at several California State University (CSU) campuses, with a focus on how mathematically grounded instruction can address GPA disparities, particularly among first-generation students. By leveraging students' prior knowledge in mathematics, the research aims to demonstrate the efficacy of this approach in promoting success in logic courses.The hypothesis posits that pedagogy grounded in traditional mathematics can effectively narrow GPA gaps between first-generation and non-first-generation students. To investigate this, surveys were developed for both students and instructors, collecting data on student mathematical learning and instructional strategies. We use linear regression to determine significant predictors for this data.We also investigate whether or not the GPA gap in Introductory Logic at SDSU is significantly different from other CSU campuses. We use ANOVA to determine if there is a significant difference between these groups.Data collection is ongoing, and results are being analyzed

1:25 PM

Dialectic Intelligence Fortune Telling Through Hegel

Kristina Bardhi, Philosophy (U)

Dialectic Intelligence' is an innovative philosophy rooted in Hegelian dialectics, reimagined for the modern era to tackle global challenges and drive innovation. It examines the dynamic relationship between thesis, antithesis, and synthesis, offering a framework to resolve contradictions across environmental, social, and economic systems while generating actionable insights for sustainable progress. By incorporating interdisciplinary perspectives including philosophy, technology, systems theory, and governance, Dialectic Intelligence provides predictive tools to uncover emerging trends, market opportunities, and societal transformations. Uniquely, it bridges the gap between human consciousness and artificial intelligence by embedding natural human patterns and algorithms, enabling AI to evolve toward a more advanced, integrated level of consciousness. This approach positions Dialectic Intelligence as a catalyst for redefining the future of technology and its role in shaping a just, equitable, and sustainable world.This presentation introduces the core concepts of Dialectic Intelligence, demonstrating its ability to navigate complex global issues such as climate change, technological disruption, and inequality. By reframing crises as opportunities for synthesis and growth, it provides a transformative lens for strategic decision-making and innovation. Ultimately, Dialectic Intelligence empowers communities and leaders to balance present needs with future prosperity, promoting a more just, equitable, and sustainable world.

(U)=Undergraduate; (M)=Masters; (D)=Doctoral

1:45 PM

The Evolution of Women: From Late Imperial (Qing) China To Early Communist (1949-1976) China

Lola Fregoso, Asian Studies. Emphasis in Chinese Studies & Language (U)

Between two distinctively different eras, the social roles of women in China faced intense levels of change. Early Communist China (1949-1976) had policies on gender equity that Late Imperial (Qing-era) China did not even consider to exist. Such opposing methods of governance and social expectations inevitably created both positive and negative effects on the female population. This paper explores such effects as well as contextualizes the two eras based on the influence of male or government authority, female reactions to their social treatment, and female role models to showcase specific and extreme examples of expectations. Much research has been done about both Imperial Chinese women and Communist Chinese women, but they are often presented in separate studies" either an analysis of traditional roles or an analysis of what Communism did to these roles. Rather, this paper intends to look at social evolution and objectively compare and contrast their impacts.

2:05 PM

ESL and Multilingual Students' Perception and Strategies of Use With Generative AI

Madeline Kerins, Linguistics (U)

ChatGPT remains a highly relevant topic of research as the use of AI continues to become a more casual and integrated part of academic life. There is potential for generative AI resources to offer academic support, specifically pertaining to writing and essay construction, and this study investigates how perception and attitude towards AI may influence students' actual use of these tools. Research has largely yet to intersect the cognitive complexity of multilingualism as a potential influence on students' usage of AI powered technology within university level education. In this study I present my analysis of how generative AI is being used by multilingual students as academic support, with a specific focus on the processes and strategies they employ for writing.

2:25 PM

A Systematic Framework for the Unmanned Revolution: Understanding the Role of Drones and Emerging Trends in the 2022 Russo-Ukrainian War

Purnell Strom, Political Science & International Security and Conflict Resolution (U)

The 2022 Russo-Ukrainian war has emerged as a pivotal case study for understanding the transformative role of drones in modern warfare. This paper establishes a systematic framework for analyzing the operational impact of unmanned aerial systems (UAS) across different classes ranging from the versatile and cost-effective Class I drones to the highly capable but increasingly vulnerable Class III systems. By examining the integration of drones in surveillance, logistics, precision strikes, and psychological warfare, this study reveals how technological innovation, domestic production, and international collaboration have reshaped the battlefield. The analysis highlights the critical role of conventional military drones like the Bayraktar TB2, the Shahed-136, and emerging FPV drones in redefining combat strategies, while also addressing the vulnerabilities and countermeasures that accompany their deployment. Furthermore, this paper situates the conflict within a broader context, offering a framework for understanding the trends and implications of drone warfare in future conflicts. By synthesizing insights from operational trends, technological advancements, and evolving military strategies, this work provides a comprehensive foundation for evaluating the role of unmanned systems in shaping modern and future warfare.

2:45 PM

Belonging and Identity Negotiations of International Students in U.S. Academia: A Case Study with Taiwanese Students

Sophia Chang Chien, Communication (Liberal Arts) (U)

Our SURP delves into how Taiwanese international students, current and former, in San Diego communicate and negotiate their intersecting identities, particularly marginalized identity positions (e.g., Taiwanese, immigrants, women, racial minorities, and more). Throughout the Summer of 2024 and Fall of 2024, we interviewed and completed transcripts with a total of 18 participants ranging from 19 to 74 years old. The gender makeup of our participants consisted of 11 males and 7 females. All participants identified as Taiwanese and U.S. citizens. In terms of race and ethnicity, two identified as biracial, and four as Asian. All of the participants came from middle-class backgrounds. This demographic data helped us understand the factors that may significantly shape one's identities. Also, in our interviews, we found that this critical information shaped and informed how participants communicated their experiences as much as possible. Our initial analysis of the eighteen interviews highlights three preliminary directions. First, all eighteen interviews evidenced that one's family background was one of the key factors that affected an individual's sense of Taiwanese-ness. Participants whose families moved to Taiwan around or after 1945 were less likely to strongly identify as Taiwanese because of the significant amount of time spent with their provincial families back in Mainland China. Second, another preliminary direction is the impact of race on one's identity negotiations as Taiwanese Americans and/or Taiwanese international students. Two mixed-race participants indicated that they were influenced by multiple cultures. This blending of cultures added complexity to how they viewed their Taiwanese identity. Third, food culture was one core reason why most participants formed their identity as Taiwanese. Many international students in this study took comfort in cooking Taiwanese food while living and studying in San Diego. In conclusion, our preliminary findings highlight that family background, race, and food culture played vital roles in shaping the identities of Taiwanese Americans and Taiwanese international students. Moving forward, we aim to recruit and interview more voluntary participants throughout Fall 2024 to gain more diverse perspectives and valuable insights.

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Session C-4

Humanities, History, Literature, & Philosophy (U/G) 1
Friday, February 28, 2025 1:00 PM
Lipinsky Suite

1:05 PM

Possibilities for (Dis)Empowerment: Female Sexuality and Subjectivity in Gothic Literature
Taylor Gibbs, English (U)

The narratives of women in gothic and horror texts frequently center around issues of the formation of identity and subjecthood, or the impossibility of it. These formations are often restricted due to their placement within the confines of heteropatriarchal society, which heavily regulates and denigrates women's bodies and sexualities. What makes gothic and horror especially apt modalities for conveying such experiences, however, are the extremities of their aesthetics, which allow for a dramatization of the precarity women experience and the extreme measures necessary for them to successfully navigate heteropatriarchal society. In considering Matthew Lewis's The Monk (1796), Sheridan Le Fanu's Carmilla (1872), and Chelsea Summers's A Certain Hunger (2020), a chronology of the portrayals of female subjecthood emerges, particularly as it is connected to female sexuality. Throughout these texts, it becomes evident that women have two choices in navigating heteropatriarchal society: monstrous subjecthood and fetishized objecthood. Regardless of which option women identify, or are forced to identify with, the instinct of hegemonic society to discipline and punish women prevails. This instinct thus triggers the need for counter-mechanisms by which women may reclaim agency and autonomy. As seen especially in contemporary works of gothic and horror, these possibilities manifest in the form of weaponized sexuality and female coalition.

1:25 PM

The Perils of Positive Stereotyping: The Origins of the Model Minority Myth
Alexis Petty, History (M)

The 1992 Los Angeles Riots, widely known as the Rodney King Riots, is infamously known for the destruction of not only South Central Los Angeles' physical landscape, but for the destruction of interminority camaraderie and relations. The history of the riots has primarily helped to highlight the disproportionate amount of police brutality faced by Black Americans, though it also reveals a deeply fragmented relationship between Black and Asian Americans that comes as a result of decades worth of racial stereotyping and competition. While there are a variety of factors that have led to interminority tensions over the decades, the model minority myth, a social construct used to characterize Asian American communities, is arguably one of the most important to explore. The model minority myth is a social construct that first appeared in the post-World War II era with the publication of William Pettersen's New York Times article,

Success Story: Japanese American Style. The myth relies heavily on positive racial stereotyping that portrays all Asian American communities as representing economic and academic success, strong family values, obedience, and low rates of criminal records. While seemingly unproblematic on the surface, positive stereotyping, such as the model minority myth, still relies on a system of categorization that ultimately limits those targeted by the stereotype. The stereotypes that developed as a result of the myth have contributed to a sense of competition amongst Black and Asian Americans that led to a history of interminority violence and racism. This presentation seeks to explore the evolution of the model minority myth in the mainstream press by focusing on four publications from prominent U.S. newspapers, journals, and magazines. These sources span from 1965 to 1987 and include the New York Times, U.S. News and World Report, Pacific Citizen, and TIME Magazine. The historical analysis of these four articles will trace the myth from its accidental origins to its normalization, and eventually the mass Asian American push back against these stereotypes. By concentrating on the language used in these publications, the presentation will ultimately reveal how the innocent characterization of Asian Americans became manipulated to create competition and violence between minority groups, such as that seen in the unfolding of the Rodney King Riots.

1:45 PM

Eros & Psyche: Magical Gemstones and Lovemaking Dynamics in Mythology
Andrea Tarabay, History (M)

The tale of Eros and Psyche, made famous in diverse works of Greek and Roman literature, was also depicted in artifacts for aesthetic, religious, and magical purposes. The archetype's specific uses in these two streams of evidence, literary and artifactual, have largely been examined by scholars separately and apart: Clarke (1998), Schwartz (1999), Faraone (1999), Winkler (2007) and Edmunds (2019). But the question of how the literary myth (especially the version told by Apuleius) relates to the objects of material culture remains. There is a significant number of examples of Eros and Psyche gemstones which have been interpreted as functional amulets for witchcraft. The imagery has been tied to the motivations and desires of the gem owners for achieving practical objectives of binding or retribution through erotic spells. This paper argues that the evidence from artifacts connected to Eros and Psyche are in fact in dialogue with the major literary narratives. Themes of sexual violence, agency, and reciprocated desire arise illustrating the ancient cultural dynamics of erotic relationships.

2:05 PM

Understanding the Social Determinants of Health in Homeless Populations
Annie Mewkill, Geography (M)

Social Determinants of Health (SDOH) are factors that affect health outcomes. These include socioeconomic and environmental circumstances ranging from access to reliable transportation to education attainment. Homelessness is associated with shorter life expectancy, greater use

ABSTRACTS

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of acute hospital services, and higher rates of traumatic injury. A deep-learning model will be utilized to understand the relationship between homeless encampments and SDOH variables. Statistical methods and analysis, such as geographically and temporally weighted regressions, will be used to analyze access to healthcare providers, neighborhood characteristics for homeless populations, and neighborhood shifts after density changes. This project will expose the links between urban development, gentrification, and neighbor-hood-shifting demographics. Understanding these factors and the social determinants of health can help stakeholders enact more effective and pinpointed policies for decreasing the economic burden of social services like hospital care for homeless adults.

2:25 PM

Baudrillard, Shantay You Stay: Song Selection Reinforcing Hyperreality in RuPauls Drag Race
Donovan Alcones, Critical Studies in Music (M)

Drag art centers the stylized act of lip syncing, with many drag artists choreographing and editing audio clips to produce a cohesive narrative in their performances. RuPaul's Drag Race, a competition reality TV series that pits many drag queens against each other for the title of America's Next Drag Superstar, features choreographed lip synching, but most of the artistic decisions are made by the producers of the show. Although the contestants still have limited agency regarding their performance, the producers exert control whenever possible, particularly by meticulously selecting Lip Sync for Your Life songs that favor pre-selected contestants to advance in the competition.In this paper, I examine the song choices in selected episodes of RuPaul's Drag Race through the lens of Jean Baudrillard's Simulacra and Simulation, with each lip sync performance acting not only as a culmination of character storylines and series-long tropes, but also as simulacra of drag reality. Each televised victory reinforces a drag archetype based on the aesthetic and technical qualities of the participating queens' performances. From this analysis, I aim to reveal a Drag Race hyperreality in which the show's producers create œauthentic results for the audience, manufacturing levels of perceived predictability that can be manipulated for entertainment value. This system benefits the profitability of the producers and the entertainment of the audience, but often at the expense of the contestants and their artistic expression.

2:45 PM

When You're Lost in the Darkness, Look for the Light: Ecogothic Monsters in The Last of Us
Edgar Brito, English (M)

Released in 2013, The Last of Us (TLOU) is a survival horror video game series developed by Naughty Dog. The story follows two protagonists, Joel and Ellie, as they journey across a post-apocalyptic United States twenty years after a cordyceps fungal outbreak decimates the human population. The cordyceps fungus that brings about the downfall of humanity was inspired by the real-life Ophiocordyceps

unilateralis fungus that infects ants and turns them into zombies. This fungus exemplifies what Amitav Ghosh coins in his book The Great Derangement as the environmental uncanny which are œthe events set in motion by global warming have a more intimate connection with humans because we have all contributed in some measure, great or small, in their making (32). The Last of Us expands on eco-gothic themes and monsters, warning its audience of the possible perils fueled by the Anthropocene. Eco-gothic monsters such as the infected who were once humans and are mind controlled by a parasitic fungus symbolize nature's cognitive ability to reclaim control of the world lost by humans. This presentation argues that The Last of Us is a critique of human hubris in the Anthropocene where the creators call for a balance between the human and natural worlds. I will present eco-gothic monsters such as the infected and the human cult group, the Seraphites, as a metaphor for nature's revolution against humanity. I will also demonstrate Ellie's immunity of the cordyceps fungus as a metaphor for the balance between humanity and nature. Lastly, I will elaborate on how the creators of The Last of Us posit this balance through post-Anthropocene communities such as the one in Jackson, Wyoming.

Session C-5

Health Nutrition and Clinical Sciences (U/G) 1
Friday, February 28, 2025 1:00 PM
Park Boulevard

1:05 PM

Interdisciplinary Research and Design: Making Knowledge Actionable
Aurora Bryant, Art with Emphasis in Graphic Design (U)

AbstractProblem: The lack of clean, fully stocked, accessible, and well-maintained public restrooms in San Diego presents a significant problem which overlaps a wide variety of topics such as public health, human dignity and the right to clean, accessible water. This has adversely impacted a wide range of demographics which include families, gig workers, public transit users, first responders, survivors of disasters, unsheltered populations, women, and LGBTQIA+ folks. Outbreaks such as Hep A and the recent pandemic highlight the need for basic Water, Sanitation, and Hygiene (WaSH) services as well as research which aligns with the advocacy of such provisions to the general public.Solution: In order to create a buy-in for such services from public officials as well as informing non-profit organizations and everyday citizens, information must be delivered in a way that is easily understood, accessible, and fosters empathy. The Project for Sanitation Justice's (PSJ) website is designed to utilize a storytelling approach to present complex research in such a way that it is easy to understand by the layperson, while prioritizing accessibility to ensure those with disabilities such as color blindness are able to easily navigate and access the research they require to stay informed. This helps promote engagement with the research as well

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as humanize all those involved in the research: from the PSJ member to the people we represent who need basic WaSH services.Process: As a professional web designer, research and clear communication is at the heart of every design, and to inform my design I listen to transcripts which involve social workers, formerly unsheltered individuals, and public officials and I use the information to inform the design of the website. Illustrations are heavily used to create a balance of human connection and research backed by data to emphasize that the problem we face is a human issue that affects us all.

1:25 PM

Hearing Loss in Latino Older Adults: Exploring the Disconnect Between Subjective and Objective Measures

Brianna Angel, Speech Language and Hearing Sciences (U)

Objectives: Disparities in hearing healthcare have been well documented. Less than 5% of Latino adults with hearing loss use hearing aids, compared to approximately 20% of the general U.S. population. These disparities are driven by multiple factors, the high cost of devices, services, limited insurance coverage, and a shortage of hearing healthcare providers"especially those proficient in Spanish. There are known barriers of stigma and misconceptions about hearing health, potentially driven by language and health literacy differences with hearing healthcare providers. This study aims to understand the predictors of subjective hearing disability among older Latino adults. Outcomes can help contribute to improved access, and equity of hearing care for this population. We hypothesize that objective audiometric hearing will not strongly predict subjective hearing difficulty. We anticipate this disconnect may be influenced by cultural and linguistic factors shaping self-perceptions of hearing loss within Latino culture.Design: Data collection took place at all-day elder care facilities in San Diego County. Data collection included a demographic questionnaire (age, sex, income, education), and subjective hearing difficulty was measured using the validated Hearing Handicap Inventory for the Elderly (HHIE). Pure-tone air-conduction audiometry was collected using a portable audiometer and summarized using a pure tone average (PTA). Results: A total of 103 older primarily Spanish-speaking Latino adults participated (mean age = 76 years, SD = 9). The mean PTA was 32 dB HL (SD = 18), and the mean HHIE score was 14 (SD = 14). The main predictors of HHIE were PTA (p < 0.001) and education level (p = 0.04). Although PTA was a statistically significant predictor, it only explained 13% of the variance in HHIE. We will also present stratified analyses based on hearing aid experience and evaluate the sensitivity and specificity of the HHIE in predicting PTA outcomes.Conclusions: Findings highlight the role of non-audiometric factors, including potentially cultural and linguistic variables, in shaping the social and emotional consequences of hearing loss, and emphasize the need for culturally responsive hearing care. Future research will explore aspects of Latino culture that influence the uptake of hearing rehabilitation.

1:45 PM

Healthcare Workers' Experiences of Patient Aggression

Vivian Magahis, Psychology with an Emphasis in Industrial and Organizational Psychology (U)

Introduction: Do peer support programs explicitly provide support for victims of aggression? Peer support programs were first developed to help healthcare workers who were second victims (i.e.those traumatized by an adverse patient event, medical error, or patient injury). However, healthcare workers may also be victims of direct aggression from patients. Prior to this literature review, there was not enough information to identify whether established peer support programs were designed to help workers who experienced patient aggression, in addition to second victims. This literature review examines peer support program characteristics and identifies if there are any current peer support programs that are designed for those who directly experience patient aggression.Method: Papers that met the inclusion criteria were those that were peer support programs or interventions that addressed workers who experienced potentially traumatic situations. Programs that were excluded were those delivered by trained professionals, did not address potentially traumatic events, and interventions not aimed towards employees. After screening through titles and abstracts of current papers, the next step was coding the peer support program papers and identifying characteristics that described the peer support programs. Some characteristics identified include: the goals of the program, responsibilities of peer supporters, form of contact, and extent of training.Results: Importantly, we found that there are some established peer support programs that offer support for victims of aggression; however, most do not. Current peer support programs can expand their training to better support healthcare workers who are exposed to aggression. Findings suggest that peer support programs should provide active and non-judgmental listening, reduce stigma around peer support, and avoid forced debriefing. We are currently still finishing collecting information about peer support programs.Discussion/Implications: After enough information is collected, this literature review will eventually inform the development of a pilot intervention study in a children's hospital to expand their existing peer support program to cover experiences of aggression.

2:05 PM

The Moderating Role of APOE4 on the Relationship Between Blood Pressure and Brain Volumes Among Hispanic/Latino Adults

Carolina L. Costa, Psychology (M)

Background: High blood pressure (BP) and the apolipoprotein E4 (APOE4) allele are known risk factors for Alzheimer's disease. U.S Hispanic/Latino adults have high rates of poorly controlled high BP and are projected to have the highest increase of Alzheimer's disease and related dementia cases in the next 40 years. The association between BP with brain structure

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and modifiers of this association remain largely understudied amongst Hispanic/Latino adults. Therefore, we aim to investigate the moderating effects of APOE4 on the relationships between BP and brain volumes within the Hispanic/Latino population. Methods: This study included 160 Hispanic/Latino adults without dementia (APOE4+=39, APOE4-=121), ages 65-94 years (mean = 75.6, SD = 6.6), from the National Alzheimer's Coordinating Center (NACC). Data were collected from 2015 to 2022 from 33 sites. Three sets of linear regression models were built to assess the interactive effect of BP [continuous variables; pulse pressure (PP), systolic (SBP), and diastolic (DBP) BP] and APOE4 status (carrier/non-carrier) on continuous brain outcomes (total, grey matter, hippocampal, and white matter hyperintensity (WMH) volumes). Models were adjusted for age, sex, Hispanic/Latino heritage, history of hypertension, and anti-hypertensive medication status.Results: No significant differences in BP variables were seen between APOE4 carriers and non-carriers. APOE4 significantly moderated the association between SBP and total brain volume ($\hat{I}^2$=0.01, p=0.04). Specifically, among APOE4 carriers, greater SBP was associated with lower total brain volume ($\hat{I}^2$=-0.001, p=0.04) whereas it was associated with larger total brain volumes among non-carriers ($\hat{I}^2$=0.006, p=0.03). No other significant associations were found. Discussion: Among Hispanic/Latino older adults, higher SBP was associated with lower total brain volume among APOE4 carriers yet larger volumes among non-carriers. These findings suggest that APOE4 carriers may be particularly susceptible to structural brain damage in the presence of hypertension. This research highlights the importance of further expanding on the complex interactions between cardiovascular health, brain volumes, and APOE4 status. Future research should employ longitudinal designs that encompass a broader age range to better understand these associations.

Session C-6

Engineering and Computer Science (G) 3
Friday, February 28, 2025 1:00 PM
Pride Suite

1:05 PM

Title: Reactive Molecular Dynamics Modeling and Experimental Investigation of Engineered Hybrid Carbon Materials
Carter Faucher, Bioengineering (D)

Historically, carbon material research is an isolated field, where both academia and industry work with specific carbon allotropes for their niche. Graphene is a useful carbon allotrope due to its high conductance; however, this comes at the cost of charge storage capacity. To bridge the gap amongst these material properties and provide a better fundamental understanding of what makes a material a solid choice for its application (specifically in the bioelectronic applications of biomolecule sensing and electrical stimulation), we propose novel hybrid materials based on mixing photoactive polymers.

In this research, we identify key chemical functional groups via reactive molecular dynamics (MD) simulations (ReaxFF) that drive carbon synthesis in hopes of engineering carbon materials at the molecular level. Identification and characterization of the pyrolysis process via the number of 5-, 6-, and 7-membered rings (and core elemental species) provides an understanding at the molecular level of the charge-storage/conductance inversely proportional relationship. Additionally, graphene edge type (zigzag, armchair, etc.) appears to be a fundamental driving factor in the mechanism for ring formation. Utilization of various photo-patternable polymers (SU8, PMMA, and PEI) produced a new generation of hybrid carbon material systems through pyrolysis. Since molecular interactions that drive carbon ring formation are fundamental across carbon species, we propose the synthesis of hybrid graphene materials for formation of novel graphene-like carbon materials. Utilizing this information, microfabrication of test structures and subsequent pyrolysis was performed for qualitative and quantitative validation of the ReaxFF model. Material characterization and future applications vary from implantable devices to energy storage systems.

1:25 PM

Lattice structure Bioceramic Components via 3D-Printing and Sintering
Maryam Ghorbani, Mechanical Engineering (D)

Ceramics implants from hydroxyapatite (HAP) and Zirconia (YSZ) offer favorable osteoconductive properties for bone regeneration. This study focuses on the fabrication and characterization of bioceramic components with internal channels. The scaffold envelope technique is employed to design a mold using pyrolytic carbon, fabricated through additive manufacturing and pyrolysis processes. This precise inverse approach enables printing and sintering complex shapes with pore connectivity. The produced bioceramic samples are characterized by scanning electron microscopy and X-ray diffraction analysis. The density measurements are carried out on nano- and micron-size HAP powder-based components. SEM observations reveal the presence of channels within the manufactured components, ranging from 100 Âμm to 300 Âμm, making them suitable for biomedical applications. The flow test is conducted on a sintered scaffold to evaluate the fluid exchange. Additionally, a continuum theory of sintering-based model is developed to predict the micro- and macro-structural evolution of the lattice bioceramic components during the sintering process. This approach provides valuable insights into the fabrication and potential applications of bioceramic scaffolds for critical-sized bone defects.

1:45 PM

Numerical Modelling of Cross-Laminated Timber Shear Walls
Ramin Sarange, Structural Engineering (D)

The numerical modeling of CLT buildings, particularly under seismic loads, remains a significant topic of interest. The various modeling approaches and types of analyses available in the literature show considerable variability, making it difficult to

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draw consistent and reliable conclusions.The component-level approach is used for the numerical modeling of the CLT panel-connection system. This approach involves calibrating the constitutive law for each component based on experimental data or appropriate analytical evaluations. However, it does not account for global phenomena or second-order effects, such as friction forces, and requires complex analytical models to capture the interaction and coupling of forces within the connections. The results of a study using the Bayesian model selection procedure was used to determine the most plausible hysteretic model for each type of CLT connection, along with their initial parameters.The preliminary results for the global behavior of the CLT shear wall and the local behavior of its connections have been validated by existing models in the literature. In the next phase of research, experimental testing and further numerical validation will be carried out to confirm the proposed design methodology.

3:05 PM

Climate Change Adaptation Strategies and Sustainable Innovation in Southern California and Baja Wineries: A Vineyard Case Study

Cesar Lopez, Master's in Business Administration (undergrad- Management) (M)

AbstractThis project investigates the challenges faced by the wine industry in Baja California, with particular focus on the Valle de Guadalupe. Following a review of several vineyards in the region that are impacted by the effects of climate change and water scarcity, El Cielo emerged as a unique example of a family-owned enterprise that recognizes the importance of adaptation strategies. By applying the lens of Ostrom's framework of decentralized decision making and encouraging stakeholder engagement, this study serves as a strategic guide that identifies critical gaps in previous regional studies. As Baja navigates water scarcity and changing weather conditions, our findings demonstrate how a holistic, stewardship-based approach to stakeholder engagement can help to mitigate climate impacts and establish a road map for best practices in the wine sector. This study not only highlights the adaptation strategies of vineyards like El Cielo, but also underscores the need for systemic changes in regulatory and governance frameworks to support equitable and sustainable water use across the industry. By exploring the interplay of how management is affected by political influence, resource management, and community involvement in conjunction with findings in the research and policy literatures, this analysis of the El Cielo vineyard helps us to build an understanding of the institutional and social/economic challenges faced by entrepreneurs and businesses amidst water scarcity and changing weather conditions in the winemaking industry.

3:25 PM

Examining Gender-Based Violence in Honduras and Its Mitigation through Government Funds

Genesis Velez, Master of Public Administration/MA in Latin American Studies (M)

Gender-based violence (GBV) is a global phenomenon where violence against women has led to increased crime rates in many countries. Violence against women has become a serious humanitarian crisis that can be manifested in many ways including domestic violence and intimate partner violence. I aim to study how gender-based violence has increased in Honduras, a Latin American country that, in recent years, has been named the murder capital of the world towards women. This is significant as many violent crimes in Honduras remain unsolved, with perpetrators rarely prosecuted. It is imperative to adequately address gender-based violence with the goal of eliminating the occurrences of violence against women and de-normalizing its occurrence within society. To that end, a part of this research includes analyzing how government funds are utilized to mitigate GBV in the country. Initiatives have been brought to the attention of the Honduran government called gender-responsive budgeting (GRB) which is a strategy that creates budgets that work for everyone. Without considering women's needs in budgets, it can have negative consequences that can perpetuate and worsen existing gender disparities in areas like healthcare, education, economic empowerment, and security. Analyzing GRB is one of the chief goals of this research to examine how Honduras has implemented gender-responsive budgeting as a powerful tool to combat gender-based violence within Honduras. Additionally, I aim to advocate that women deserve to receive high-quality public assistance so that they may receive as many opportunities in life as possible instead of being restricted to few opportunities that offer lives without personal growth and upward mobility.

Abstracts of Presentations

Session D

SDSU | San Diego State University

(U) = Undergraduate ; (M) = Masters ; (D) = Doctoral

Session D-1

Business, Economics and Public Administration (G) 1
Friday, February 28, 2025 3:00 PM
Legacy Suite

3:05 PM

Climate Change Adaptation Strategies and Sustainable Innovation in Southern California and Baja Wineries: A Vineyard Case Study
Cesar Lopez, Master's in Business Administration (undergrad- Management) (M)

AbstractThis project investigates the challenges faced by the wine industry in Baja California, with particular focus on the Valle de Guadalupe. Following a review of several vineyards in the region that are impacted by the effects of climate change and water scarcity, El Cielo emerged as a unique example of a family-owned enterprise that recognizes the importance of adaptation strategies. By applying the lens of Ostrom's framework of decentralized decision making and encouraging stakeholder engagement, this study serves as a strategic guide that identifies critical gaps in previous regional studies. As Baja navigates water scarcity and changing weather conditions, our findings demonstrate how a holistic, stewardship-based approach to stakeholder engagement can help to mitigate climate impacts and establish a road map for best practices in the wine sector. This study not only highlights the adaptation strategies of vineyards like El Cielo, but also underscores the need for systemic changes in regulatory and governance frameworks to support equitable and sustainable water use across the industry. By exploring the interplay of how management is affected by political influence, resource management, and community involvement in conjunction with findings in the research and policy literatures, this analysis of the El Cielo vineyard helps us to build an understanding of the institutional and social/economic challenges faced by entrepreneurs and businesses amidst water scarcity and changing weather conditions in the winemaking industry.

3:25 PM

Examining Gender-Based Violence in Honduras and Its Mitigation through Government Funds
Genesis Velez, Master of Public Administration/MA in Latin American Studies (M)

Gender-based violence (GBV) is a global phenomenon where violence against women has led to increased crime rates in many countries. Violence against women has become a serious humanitarian crisis that can be manifested in many ways including domestic violence and intimate partner violence. I aim to study how gender-based violence has increased in Honduras, a Latin American country that, in recent years, has been named the murder capital of the world towards women. This is significant as many violent crimes in Honduras remain unsolved, with perpetrators rarely prosecuted. It is imperative to adequately address gender-based violence with the goal of eliminating the occurrences of violence against women and de-normalizing its occurrence within society. To that end, a part of this research includes analyzing how government funds are utilized to mitigate GBV in the country. Initiatives have been brought to the attention of the Honduran government called gender-responsive budgeting (GRB) which is a strategy that creates budgets that work for everyone. Without considering women's needs in budgets, it can have negative consequences that can perpetuate and worsen existing gender disparities in areas like healthcare, education, economic empowerment, and security. Analyzing GRB is one of the chief goals of this research to examine how Honduras has implemented gender-responsive budgeting as a powerful tool to combat gender-based violence within Honduras. Additionally, I aim to advocate that women deserve to receive high-quality public assistance so that they may receive as many opportunities in life as possible instead of being restricted to few opportunities that offer lives without personal growth and upward mobility.

Session D-2

Health Nutrition and Clinical Sciences (G) 2
Friday, February 28, 2025 3:00 PM
Pride Suite

3:05 PM

One size does not fit all: Leveraging alternative data approaches to improve single-language DLD screening for multilingual public-school students
Erica Gutmann, Joint Doctoral Program in Language and Communicative Disorders (D)

Problem: Universal screening for Developmental Language Disorder (DLD) is a promising preventative approach to decrease the negative educational outcomes often associated with DLD. Schools with multilingual student bodies face barriers in following the best-practice guidelines for bilingual assessment, particularly in testing students in all of the languages that they speak. In this study, we aimed to explore the problem of practice of implementing a universal language screening for a multilingual student body when limited resources prevent the district from administering the screener in each of the child's languages. We proposed solutions to utilizing data from a single-language DLD screener to more effectively identify DLD risk status for multilingual students.Methods: The researchers formed a Research to Practice Partnership with a school district that implemented an English-only universal screening for DLD to their Kindergarten class in the Fall and Spring of the 2021-2022 academic year. We analyzed screener outcomes for the 703 multilingual Kindergarteners in the district who completed the screener. Additional data analysis approaches were explored to determine how to utilize the data from the English-only screener to most appropriately and effectively identify DLD risk status for multilingual students.Results: The English-only language screener over-identified multilingual students as at-risk for DLD. Rate of risk identification increased as the students' English

(U)=Undergraduate; (M)=Masters; (D)=Doctoral

proficiency levels decreased. Alternative methods for data analysis including utilizing local normals, adjusted cut points, and measuring growth from Fall to Spring all lowered the rate of identification of bilingual students as at-risk for DLD to be closer aligned with the expected DLD prevalence rates.Conclusions: Our results add to the body of literature demonstrating that single-language testing will over-identify multilingual students as at-risk for DLD. We provide guidelines for alternative data analysis approaches that school districts administering a single-language screener can leverage to lower identification of DLD risk in a multilingual population to more appropriate rates.

3:25 PM

Types of social support and mental health among sex workers in Vancouver, Canada: An analysis of a community-based cohort

Hannah Barca, Public Health, Epidemiology (D)

OBJECTIVE: To describe patterns of social support related to mental health outcomes in a community-based cohort of sex workers.METHODS: Female sex workers (cisgender and transgender) enrolled in the An Evaluation of Sex Workers' Health Access (AESHA) open cohort study of over 900 participants were followed longitudinally via semi-annual interviews from 2010-2023. Types of social support (social cohesion, overall support, affectionate, emotional/informational, positive social interaction, and tangible support) and mental health outcomes (treated/received counseling for/diagnosed with depression or anxiety and difficulty receiving mental health care) were analyzed through bivariate and multivariate logistic regression models with generalized estimating equations (GEE). PRELIMINARY RESULTS: From 2010-2023 the 6-month prevalence of depression and anxiety was between 6-24% at each study visit. Those with higher social cohesion scores had less incident diagnoses for anxiety and depression, which was statistically significant. Additionally, higher social cohesion scores were associated with more mental health care utilization, also statistically significant. Similar trends were seen for overall social support scores and the social support subtypes, with varying levels of significance. CONCLUSION: Our findings suggest that various types of social support are protective against incident depression and anxiety and may help to foster mental health care utilization among those who need care.

Session D-3

Humanities, History, Literature, & Philosophy (G) 2
Friday, February 28, 2025 3:00 PM
Lipinsky Suite

3:05 PM

Censorship as Decolonization in the Irish Free State

Sara Romano, History (M)

The Irish Free State, established in 1922, was the first independent Irish state on the island of Ireland since the twelfth century Anglo-Norman invasion. Emerging after

centuries of British colonialism and oppression, it marked the beginning of a postcolonial era for Ireland. However, as is so often the case with postcolonial states, there were still many concerns about how to ensure political, cultural, and economic autonomy. Central to these discussions were questions about Irish culture and its connection to the media and mass communication. Irish leaders saw censorship as a way to curtail foreign influence and promote Irish culture, values, and nationalism. Consequently, the Irish Free State passed two censorship-related legislative acts within its first decade, including the Censorship of Publications Act of 1929. While previous scholarship has examined the campaign for censorship of publications legislation and its enactment as pivotal moments in Irish media history, the relationship between censorship and postcolonialism has only received minimal attention. This research builds upon the existing scholarship and understanding of censorship in the Irish Free State while developing its connection to postcolonial theory. Using a critical postcolonial approach, this research utilizes legislative and policy analysis and contemporary press coverage to situate censorship in the Irish Free State in its broader historical context. I argue that Irish leaders used censorship as a tool of decolonization in the fight for cultural autonomy after political independence while aiming to distance the new Irish state from its colonial past; a decision that had a profound impact on twentieth century Irish culture and media. The 1929 act was ultimately applied more extensively than expected, resulting in the suppression of critical opinions and artistic freedom that significantly inhibited Ireland's modernization process and limited the effectiveness of censorship as a tool of decolonization. The significance of Ireland's complex relationship with censorship and postcolonial media control is a necessary examination of a post-independent state's reckoning with media culture and development.

3:25 PM

From Migrant Caravans to the End of Title 42: Immigration as a Critical Incident in Spanish-language Television News

Maria Jose Duran, Mass Communications (M)

In 2018, the travelling of thousands of migrants through Mexico to reach the United States border became widely covered in the media. This study will analyze the coverage of Spanish-language television news of the migration phenomenon that started with the 2018 migrant caravans and ended with the dissolution of the asylum policy Title 42 in 2023. Using the concept of critical incident (Flanagan, 1954), this study will research how this has forever defined newsroom procedures and routines and changed the way journalists in local Spanish-language television stations view their profession. The construct of critical incident has been used to define many changes in journalism, but never in Spanish-language television news or the topic of immigration. In the tradition of critical incident scholarship, the researcher will be conducting interviews with journalists involved in the coverage of this migration phenomenon.

(U) = Undergraduate ; (M) = Masters ; (D) = Doctoral

Session D-4

Visual or Creative Arts (G) 1
Friday, February 28, 2025 3:00 PM
Aztlan

3:05 PM

Musical Theater in Tanzania
Janeth Shayo, MFA Musical Theater (M)

I created the project Musical Theater in Tanzania (MTIT), and after understanding the process of building a connection to Tanzania, I would put MTIT into action. By viewing musical theater through the lens of the African country of Tanzania I was able to dive into an opportunity for international collaboration. This presentation serves as an exploration into what the process of bringing musical theater to Tanzania and what that could mean for the future of the country if achieved. Introductions of the different cultures, playwrights, schools, and plays are explored in detail allowing for more creative ideas for theater to be shared.

3:25 PM

Immersive Theater: History, Analysis and Impact on Engaging New Audiences
Ajay Junious, MFA Musical Theatre (M)

The live entertainment industry faces increasing pressure to appeal to the growing demand for experiential entertainment. In response, art exhibitions, theaters, and entertainment venues have embraced the terms immersive and interactive as marketing tools to attract audiences seeking novel, participatory experiences. This paper explores the rise and impact of immersive and interactive theater as a response to evolving audience preferences in the 'experience economy.' It defines and distinguishes these theatrical conventions, tracing their historical roots and analyzing their modern applications. Key case studies of immersive musicals"Natasha, Pierre & The Great Comet of 1812, Here Lies Love, and The Great Gatsby"are examined for their use of immersive theater's core elements: site-specific environments, active audience participation, and live storytelling. The research identifies immersive theater as a potential strategy for revitalizing the struggling live theater industry, particularly in the post-pandemic era when audiences increasingly prioritize experiential entertainment. However, the financial risks associated with immersive productions underscore the importance of aligning with audience preferences and adopting sustainable production strategies.To remain competitive with large-budget Broadway productions, the paper advocates for regional theaters to adopt site-specific performances and collaborative partnerships that reduce costs while engaging local audiences. Immersive theater is positioned as both a sustainable model and a catalyst for creative innovation, offering unique storytelling opportunities that dissolve the traditional boundaries between performer and audience. By catering to the demands of the growing 'experience economy,' immersive theater holds significant promise for engaging diverse demographics and fostering deeper, more meaningful connections to the arts.

3:45 PM

Someone tell the story American School Shooting Culture & The Missing Perspective from Modern Day Productions of Stephen Sondheim's Assassins
Rebecca Murillo, MFA Musical Theatre (M)

The Broadway musical Assassins by Stephen Sondheim and John Weidman provides a psychological case study for the violent phenomenon that plagues American history" presidential assassinations. Looking at the show through both a dramaturgical and Generation Z lens, modern day productions have the chance to use this show as a vehicle to highlight the other violent phenomenon that plagues our more modern American history" school mass shootings. Analyzing events such as John Wilkes Booth's assassination of Lincoln in 1865 and the 1999 Columbine massacre as catalyst to this legacy of death, parallels become apparent in the psychological nature that drives shooters to violence. These findings point to a clearer answer as to the cyclical nature of these events and provide evidence for the opportunity to invite this allegory into modern day productions in order to better reflect back to audiences the violence it is complicit in creating.

4:05 PM

Hits That'll Make You Make You Hit Harder: Roller Derby and Musical Identity
Sophia Simmons, Master's in Jazz Studies (M)

Since its inception in the 1930s, the alternative sport of roller derby has captivated players and spectators, who have long recognized its cultural value as a powerful expression of gender. How each participant constructs their identity and how they present themselves to audiences through makeup, fashion, skating style, and public persona are well documented in the scholarly literature, but the musical choices of the skaters and the soundtrack of the sport are often overlooked. To understand how roller derby skaters rely on specific music to develop confidence, creativity, and community, I will conduct interviews with active members of selected teams in Northern California. After collecting data regarding the musical genres and styles selected for such activities as individual preparation, team practices, and competitive bouts, I will draw from Judith Butler's theory of gender performativity to interpret the prominent role that music plays in shaping the rituals of the sport. This study will reveal how the varied musical soundtracks of roller derby not only contribute to the formulation of gender identity for individual athletes, but also serve to queer the entire cultural experience for all participants and observers.

(U)=Undergraduate; (M)=Masters; (D)=Doctoral

Session D-5

Education (G) 1
Friday, February 28, 2025 3:00 PM
Metztli

3:05 PM

Evaluating Spirit Toolkit Post-Training Across Psychologists And Service Coordinators
Monique Zarate, Child Development (M)

The current study builds upon the initial evaluation of SPIRIT (Haine-Schlagel et al., 2022) to examine provider perspectives on the SPIRIT training across two types of providers that interact with families at the time of diagnosis: psychologists and service coordinators. The current study examines an updated version of SPIRIT designed for both psychologists and service coordinators and looks into how perceptions of the toolkit may differ according to provider type as well as whether the provider had repeated the training a second time. The objective of this study is to learn what the providers thought of SPIRIT so these perceptions can be used to continue to improve the toolkit training and materials.

3:25 PM

An Analysis of ChatGPT Written Feedback on Second Language Academic Writing
Natacha Garbe, Applied Linguistics (M)

In the writing classroom, instructors serve a crucial role in guiding students' writing development through meaningful and effective feedback. However, this feedback is often absent in general classroom settings due to its time-consuming nature (Hyland & Hyland, 2001). With the introduction of ChatGPT, an increasingly accessible yet under-explored tool for providing written corrective feedback (WCF) has emerged. Recent studies in applied linguistics have examined students' behavioral engagement with ChatGPT's feedback (i.e., how learners respond to and interact with the AI) and its impact on the second language (L2) writing classroom (Koltovskaia et al., 2024; Teng, 2024). With limited research on the nature of AI-generated feedback, this study conducts a text analysis on ChatGPT-4o's feedback on ten academic papers written by first-year university multilingual students. Employing Holmes' (1988) characterization of compliments, feedback was first coded as praise, criticism, or suggestion. Next, WCF was analyzed using Ferris' (2006) taxonomy of error categories to evaluate feedback at both local and global levels and further categorized as accurate, ambiguous, or inaccurate. The analysis revealed ChatGPT's sequencing of providing praise first, followed by criticism or suggestion demonstrating how the AI echoes discourse surrounding how feedback is often provided in academia (i.e., teacher choices in often pairing praise with criticism). Further, ChatGPT often overlooked and miscategorized local error types. The AI exhibited limited accuracy, focusing predominantly on surface-level issues such

as word choice and article usage, neglecting deeper global concerns crucial for writing development. ChatGPT frequently provided erroneous or ambiguous feedback (eg., hallucinating errors or overcorrecting the target text) resulting in misleading and harmful feedback points. This study reveals ChatGPT's flawed model of good writing, raising key questions concerning its effectiveness as a feedback source and how it may be better leveraged in the L2 writing classroom.

3:45 PM

Examining the Impact of Racial Trauma on Mental Health in Minority Youth: A Quantitative Study on Racial Stress and Psychological Well-Being
Arwa Alkhawaja, Education (D)

This study examines the effects of racial trauma on the mental health and sense of belonging of college students from racial minority backgrounds, hypothesizing that racial trauma negatively impacts belonging while increasing depression, with demographic factors moderating these relationships. Employing a quantitative, cross-sectional design, data were collected via the Healthy Minds Study (HMS) survey, analyzing constructs such as racial trauma, depression, and belonging using multilevel mixed-effects regression models. The sample encompassed racially and gender-diverse students from 86 institutions, accounting for demographic and institutional variables. Results revealed that racial trauma significantly reduced belonging and heightened depression levels, with non-binary and gender-diverse students reporting higher depression, while Black and Asian students exhibited comparatively lower levels. A strong sense of belonging emerged as a protective factor against depression, mediating the effects of racial trauma. School-level differences contributed to variations in outcomes. These findings underscore the dual impact of racial trauma on mental health and community integration among marginalized students, emphasizing the importance of institutional interventions to promote belonging, reduce depression, and enhance academic success.

4:05 PM

STEM is NOT Culture-Free: Ways to Incorporate Culturally Relevant Pedagogy in STEM at HSIs
Elizabeth Nguyen, Doctoral Program in Education (D)

Research has shown that many STEM instructors believe that STEM has no culture. This misconception can inadvertently create an environment that fails to support marginalized student populations at Hispanic Serving Institutions (HSIs) leading to lower persistence rates in STEM fields. There is a significant lack of diverse representation in the STEM workforce particularly among Latinx, Asian and Black individuals. As the number of institutions achieving HSI designation grows to meet the federal requirement of at least 25% of their student population identifying as Latinx, they often lack the tools and resources necessary to effectively support these groups of students, particularly in STEM disciplines.The purpose of this literature review was to draw on successful CRP practices from

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institutions such as Historically Black College and Universities (HBCUs), HSIs and other minority serving institutions (MSIs). By identifying and adapting effective STEM focused CRP strategies, HSIs can improve retention and success for Latinx students in STEM fields. This literature review analyzed over 40 empirical articles found in Google Scholar and OneSearch using keywords such as culturally relevant pedagogy, STEM education, HSIs and STEM-HSI. All articles were stored in Zotero and analyzed for key themes.Findings indicated that HBCUs are more successful at integrating STEM CRP practices to promote academic success, cultural competence, and socio-political awareness, largely due to their foundational mission of supporting Black students. Compared to HSIs they were not originally built to serve their Latinx students, leaving behind many STEM faculty underprepared to meet their diverse needs. However, the findings suggest that when STEM faculty participate in CRP professional development and adopt CRP, they foster a holistic and inclusive environment that validates students' cultural identities. These practices not only empower marginalized students but also help them envision and pursue pathways in STEM careers.

4:25 PM

Student-Led Servingness: Highlighting the often invisible advocacy of students in the era of HSIs

Griselda Paredes, Education (D)

The number of Hispanic Serving Institutions (HSIs) in the United States has increased tremendously, and now HSIs represent 18% of all US institutions (Excelencia in Education, 2022). The emphasis on servingness and informing educators of effective strategies for supporting Latinx students is integral. A large body of research has highlighted how faculty, staff, and administrators' roles as institutional agents have been instrumental in advancing and cultivating equitable environments for students from marginalized backgrounds at HSIs (Bensimon et al., 2019; Deeb-Sossa et al., 2021; ZeledÃ³n PÃ©rez, 2018). However, the overwhelming majority of this contemporary research often dismisses how students currently shape higher education, instead offering a limited lens that highlights the impact of institutional structures and college personnel. The labor of Latine/x student leaders is often overlooked, yet has been critically instrumental in advancing the trajectories of Hispanic Serving Institutions (HSIs). While HSIs assume a federal fiduciary responsibility to serve Latine/x college students, current policies and practices reflect a demonstrable need for more attention to serve students adequately. Despite the dearth of research on student-led servingness, historical examples of student movements underscore how student leaders served their peers and transformed college institutional structures long before the HSI Designation, inadvertently paving the way for the emergence

of HSIs (Cano Matute, 2023). While at present, Latine/x student leaders continue to advance a culture of servingness among their campus communities, existing research often dismisses their role in shaping policies, influencing curriculum, and advancing equity at HSIs. Moreover, there is a prominent research and theoretical void that considers the leadership efforts of Latine/x students as contributions to HSI servingness widely (Terrazas, 2017; TreviÃ±o, 1994). In light of the overwhelming failure to holistically interrogate the unfulfilled promises of HSIs, there is a dire need to examine the experiences of student leaders in fulfilling servingness gaps. Given the urgent need to delineate and broaden insights into who is served by and who serves at HSIs, this presentation highlights the experiences and actions of Latine/x student leaders at HSIs. This qualitative research critically centers on the Multidimensional Conceptual Framework for Servingness (Garcia et al., 2019) and advocates for incorporating the role of student leaders as a fundamental component of its scope.

4:45 PM

Needs Analysis for ESL Students in CNA Program

Isabella Mullins, Applied Linguistics (M)

In the fall of 2024, a federal grant was allotted to a vocational school in California to support the ESL students attending classes within the healthcare department, including Certified Nursing Assistant (CNA) courses. While there is ESL support present in the CNA courses, further support for the ESL students was indicated. The present study focuses on a needs analysis identifying the specific language needs of ESL students and utilizes target-situation analysis and present-situation analysis. Information-gathering procedures in the study include class observations and interviews with key stakeholders - two CNA instructors, one ESL support teacher, and the chair of the ESL program. The data was extracted and analyzed with a qualitative approach from the interviews in order to identify comparing and contrasting information while the class observations were used to confirm and identify further language needs. The findings of the needs analysis revealed contrasting beliefs of student language needs between ESL and CNA stakeholders, as well as a need for an increase of collaboration between ESL and CNA stakeholders. Further research should include information from the students' perspective, analysis of required course materials, and observations and interviews pertaining to the clinical sections of the classes.

Abstracts of Presentations

Session E

SDSU | San Diego State University

(U) = Undergraduate ; (M) = Masters ; (D) = Doctoral

Session E-1

Cultivating a Sustainable Food Future (U/G)
Friday, February 28, 2025 9:00 AM
Templo Mayor

9:05 AM

Agroforestry as a Climate Adaptation Strategy for Farmers in San Diego County
Chie Tsujimoto, Sustainability (U)

This research aims to enhance understanding of agroforestry as a strategy for farmers in San Diego County, California, to adapt to the impacts of climate change and extreme weather events. The study addresses critical gaps in current agroforestry research, particularly in North America, where studies on its biophysical and socioeconomic effectiveness are limited. We focus on the specific climate challenges faced by the region, such as increased temperatures and heatwaves, and assess the potential of agroforestry to mitigate these impacts.Utilizing farmer surveys and interviews, our research explores farmers' perceptions of climate change and their adaptation strategies, particularly the role of agroforestry. Our methodology includes designing surveys in Qualtrics, and conducting follow-up interviews to gain deeper understanding of the effectiveness of agroforestry practices. The anticipated outcomes will provide evidence on the environmental, economic, and social benefits of agroforestry, while emphasizing the importance of including diverse perspectives.Given the significance of agriculture in San Diego County, which contributes over $1.7 billion to the local economy, the findings from this research could inform targeted policy recommendations for enhancing resilience in the face of climate change. Additionally, the engagement with Hispanic farmers will ensure the research benefits the local community, contributing to broader conversations about sustainable farming practices. This work not only aims to empower farmers with knowledge and resources but also seeks to influence climate change adaptation policies at various levels, thus promoting sustainable agricultural practices in the region.

9:25 AM

Investigating Genetic Spillage in Erythranthe cardinalis Common Garden Experiment
Lydia Duran, Biology emphasis in Ecology (U)

Common gardens are critical to studying the differences in traits observed for a particular species and how environmental or genetic factors influence them. During common garden experiments, non-native species and non-local populations must be monitored closely to reduce the chances of their genetic material from reaching the native populations. Escape from the site can lead to genetic spillage, which is the introduction of species with unwanted phenotypes/genotypes to native ecosystems. This could decrease the fitness of native populations and threaten natural habitats. This study investigates this phenomenon within the context of an existing common garden experiment of the Scarlet Monkeyflower (Erythranthe cardinalis). This garden consists of six populations that originated in three regions across California (North, Central, and South), and were propagated at Santa Margarita Ecological Reserve to evaluate how native plants respond to climate change. A population was spotted a kilometer away from the common garden, leading to the question of whether it is a wild population or an escapee from the greenhouse experiment. This study will investigate a possible spillage of genetic material from the common garden experiment at the reserve. Leaf samples were collected from individuals of each provenance established at the common garden, as well as, the wild population. DNA was extracted from all samples and further processed for genomic sequencing. Genetic clustering analysis is being used to determine the genetic proximity of the putative wild population against the six provenances from the common garden. If a spillage is detected, the findings will serve to develop contingency plans for controlling the escapees in nature by manually removing the plants and preventing future propagation.

9:45 AM

Comparing Satellite-Based Evapotranspiration Models and Groundwater Pumping Measurements for Improved Irrigation Management in a Mandarin Orchard
Adam Oliphant, Geography (D)

Water scarcity in the Central Valley of California necessitates effective irrigation management, particularly for high-value crops like mandarin oranges. This study compares groundwater pumping volumes for a mandarin orchard in Madera County, California, with evapotranspiration (ET) estimates from IrriWatch and OpenET satellite derived ET products. Daily ET data from IrriWatch and seven OpenET models were analyzed alongside local weather and irrigation data to evaluate differences and model performance. IrriWatch reported lower annual ET compared to OpenET models. The results of this case study demonstrate the need for refining ET methods for citrus crops. Despite limitations, satellite-based ET tools offer cost-effective solutions for water management and compliance with the Sustainable Groundwater Management Act (SGMA).

10:05 AM

Rethinking the Benefits vs Risks of Community Gardens: From Environmental Justice (EJ) to Lead Contamination in San Diego, CA
Aneika Perez, Geography (D)

In recent years, community gardens have become increasingly popular. Supporters believe cultivating food together in urban spaces can help tackle social, economic, health, and environmental issues. Numerous studies highlight the diverse benefits of urban agriculture, especially in low-income communities of color where access to fresh food and green spaces is often scarce. However, marginalized communities often face significant challenges in establishing and sustaining gardens due to economic investment, political neglect, and environmental pollution and degradation. One of the most pressing issues is soil contamination caused by historical industrial activities

ABSTRACTS

(U)=Undergraduate; (M)=Masters; (D)=Doctoral

and urbanization. Some studies have begun to document the risks posed by heavy metals in urban soils to the health and well-being of gardeners and those who consume the produce they grow. Urban political ecology literature suggests that urban green spaces - such as community gardens - are shaped by power dynamics that influence cities" availability, quality, and distribution. Under neoliberal urbanism, clean land is allocated to community agriculture primarily if it aligns with a growth agenda that supports capital accumulation. Otherwise, community groups are left to their own devices to secure land and cultivate healthy soil. My dissertation examines the disparities in community gardening opportunities in San Diego, with a particular focus on the challenges encountered by Latino communities.

10:25 AM

Using the AI program AlphaFold to engineer transient tertiary structure (TTS) tags to enhance S1-casein solubility

Sierra Murrell, Chemistry Joint Doctoral Program (D)

The primary aim of this research is to produce the nutritious proteins found in milk (Î±S1-casein) using precision bacterial fermentation. This approach aims to reduce the carbon footprint associated with fossil fuel-based mechanical processes inherent to modern farming methods. In addition to greenhouse gas emissions, the production of feedstock agricultural products (e.g., soy, corn, and grains) for milk production also requires significant amounts of water. For example, approximately 120 gallons of water is required to produce just four ounces of cheese using traditional methods that rely on milk produced by dairy cows. We believe that the production of the Î±S1-casein milk protein via bacterial fermentation is potentially more sustainable and results in a significantly lower carbon footprint and reduced water requirement. When casein proteins are expressed in E. coli, they tend to aggregate into inclusion bodies' due to the lack of structure and high expression rates driven by strong transcriptional promoters. A negative aspect of this is exemplified by the irreversible aggregation of egg white proteins in boiled eggs. If the aggregation of an expressed protein is not extensive, then it is possible to re-solubilize the proteins from looser aggregates. There is a spectrum of inclusion body properties that range from completely insoluble aggregates to loosely packed gels that are straightforward to re-solubilize and purify. The more folded an expressed protein is, the less prone it is to form insoluble inclusion bodies. This is precisely why we are using the AI program, AlphaFold, to design transient tertiary structure (TTS) tags that are expressed as fusions to the N- and C- termini of Î±S1-casein. The function of the TTS tags is to impart transient structure on Î±S1-casein, enabling a looser protein association within inclusion bodies, which will greatly enhance our ability to quickly isolate and purify nutritious milk proteins. Purified Î±S1-casein will be tested for structural and functional properties and its potential use in cheeses and other food products. Once the process is developed and optimized for cost-effective Î±S1-casein production, we will apply the same methods for large-scale production of the other caseins: Î±S2-casein, Î²-casein, and Î°-casein.

10:45 AM

Role of Language Preservation & Food Knowledge Within La Mixteca Baja

Anahi Martinez, M.A. in Latin American Studies (M)

Language holds so much power and knowledge that affect the world around us, especially in the case of cultural identity, transfer of knowledge, and traditional practices. Looking towards indigenous communities, they face the greatest obstacles of preserving cultural practices and the language itself. Latin America is home to various indigenous communities who are attempting to work towards language revitalization and destigmatizing food practices and dishes. Within the Ã'uu Savi community alone based in Oaxaca, Mexico, language is so integral to the preservation and revitalization of their cultural identity and food practices/techniques. However, as modernization has come about and newer generations come in, there is a loss and shift in language and culture. Thus, we see changes in linguistics, culture, and culinary practices. More specifically, the preservation and documentation of indigenous food knowledge and culinary heritage. Through this research I attempted to investigate the linguistic, socio-cultural, and culinary implications of language loss and shift within the Ã'uu Savi Community (Mixtec Community) in Ixpantepec Nieves, Oaxaca, Mexico.

Session E-2

Cancer Research (G)
Friday, February 28, 2025 11:00 AM
Templo Mayor

11:05 AM

From Blood to Brain: Leveraging Stem Cells and Regenerative Medicine through Direct Reprogramming of Monocytes and Fibroblasts

Nino Gvalia, Biochemistry (M)

The adult human brain possesses a remarkable degree of plasticity and regenerative capacity, overturning long-held notions that neurogenesis concludes after early development. In the Fred H Gage Lab at Salk Institute for Biological Studies, we harness these regenerative processes to explore novel therapeutic strategies for an array of neurodegenerative and neuropsychiatric disorders. My research emphasizes two cutting-edge approaches in direct cellular reprogramming. First, I am optimizing the direct conversion of peripheral blood monocytes and other blood-derived cells into functional neurons. By deploying a tailored combination of transcription factors and small-molecule modulators, I generate patient-specific neuronal populations that maintain the donor's unique genetic background. This technique eschews invasive biopsies and grants unprecedented access to human neuronal cells, thus enabling detailed exploration of diseases such as Alzheimer's, Parkinson's, and schizophrenia at the cellular level.Second, I investigate newly characterized transcription

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factors to directly induce astrocytes and microglia from dermal fibroblasts. These glial cells are vital for preserving neuronal homeostasis, regulating immune responses, and mediating neuroinflammation. Establishing reliable protocols for glial reprogramming will substantially enhance our capacity to study neuronal"glial interactions and disease progression, providing invaluable insight into conditions like multiple sclerosis and other inflammatory disorders of the central nervous system. Preliminary results indicate promising upregulation of neuronal and glial markers, suggesting the feasibility and translational potential of these direct conversion strategies. By combining single-cell sequencing, immunocytochemistry, and electro-physiological assays, our work aims to pinpoint the molecular signatures that govern lineage commitment and cellular functionality. Ultimately, these breakthroughs pave the way for personalized disease models, accelerating the development of targeted therapies and redefining how we approach complex neurological conditions.

11:25 AM

Individual and Organizational Factors Associated with Tobacco Cessation Counseling among Patients within a Federally Qualified Health Center

Linda Salgin, PhD Public Health (D)

Background: Federally Qualified Health Centers (FQHCs), largely serving low-income populations, report a tobacco use prevalence that is 5.2 percentage points higher than the national average. Low-income communities are more likely to face medical complexities exacerbated by tobacco use, resulting in a disproportionate burden of tobacco-related morbidity and mortality. This study examined the relationship between FQHC patients' medical complexity and receipt of tobacco cessation counseling and explored associations between sociodemographic and organizational factors and receipt of tobacco cessation counseling.Methods: We conducted a cross-sectional analysis of electronic medical records between January 1, 2022 and October 1, 2023 from active patients identified as tobacco users. Multivariable mixed-effects logistic regression estimated the association between medical complexity via the National Association of Community Health Centers assigned risk stratification score and receipt of tobacco cessation counseling and the relationship between sociodemographic and organizational factors and provider delivered tobacco cessation counseling. Results: The analytic sample (N=13,462) included patients 12-98 years of age (M=48.89) with 90% below the 200% federal poverty level. Over half (52%) identified as Hispanic/Latino, and 8% identified as Black-African American. Patients' medical complexity ranged from low (28%), medium (38%) to high (34%). Only 61% received tobacco cessation counseling in the study timeframe. Controlling for all covariates patients with high medical complexity had 2.87 greater odds of receiving tobacco cessation counseling relative to patients with low medical complexity (95% CI: 2.59 " 3.18). Patients who were younger, male, unhoused, uninsured (self-pay), or used substances excluding tobacco were less likely to receive tobacco cessation counseling. Regarding provider type, patients seen by resident

providers, compared to family medicine providers, had 0.81 lower odds of receiving tobacco cessation counseling (95% CI: 0.67-0.98).Conclusion: These findings underscore the need for interventions to equitably increase tobacco cessation counseling among subgroups of FQHC patients.

11:45 AM

Chemotherapy enriched macrophages promote cancer stem-like cells in ovarian cancer

Luis Cruz, PhD Cell and Molecular Biology (D)

Ovarian cancer is a disease with a 75% death rate after metastasis. Moreover, cancer stem-like cells (CSCs) that evade chemotherapy and cause relapse further contribute to the worse prognosis of this cancer. It remains unclear how CSCs facilitate relapse and what role the tumor microenvironment (TME) plays in this process. We found that a secreted cytokine, tumor necrosis factor-like weak inducer of apoptosis (TWEAK), and its receptor, Fn14, are overexpressed in ovarian tumors and increase after chemotherapy. Our recent work shows that TWEAK induces stem cell features and enhances the survival of CSCs during chemotherapy exposure. The source of TWEAK in ovarian tumors has not been clarified; however, clinical data from human ovarian tumors show that TWEAK mRNA was primarily observed in immune cells known as tumor-associated macrophages (TAMs). Indeed, we found that TWEAK expression was highest in PBMC-derived macrophages relative to IMR-90 activated fibroblasts and ovarian cancer cell lines, as measured by qRT-PCR, western blot, and ELISA, respectively. TAMs expand during cytotoxic chemotherapy administration, which we reason might be the source of increased TWEAK following chemotherapy. Thus, we propose that TWEAK-producing TAMs support CSC survival and expansion and contribute to the high relapse rate in ovarian cancer patients. We recently found that treatment with CSF1R inhibitor during chemotherapy significantly reduces TAMs, decreases TWEAK production, eliminates CSCs, and prolongs remission in mouse models of ovarian cancer as compared to vehicle. We also found that when macrophages are exposed to chemotherapy in vitro they can induce CSC features in co-cultured ovarian cancer cells. Ongoing studies are testing whether the knockout of Fn14 in ovarian cancer cells is sufficient to reduce CSC features and tumor regrowth following chemotherapy. Identification of immune populations responsible for TWEAK production and the role of TWEAK-Fn14 in tumor regrowth following chemotherapy could lead to new therapeutic strategies for patients with high relapse rates.

12:05 PM

Loss of DNA mismatch repair protein alters actin dynamics to promote breast cancer metastasis

Megha Raghunathan, Biomedical Sciences (D)

Estrogen receptor-positive (ER+) breast cancer is one of the most common cancer diagnoses for women in the U.S. and worldwide. About 30% of ER+ breast cancer patients develop metastases causing over 40,000 deaths annually in the U.S. alone. Mechanisms driving metastatic progression of ER+

ABSTRACTS

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breast cancer, and therefore, targeted therapies for these patients, remain elusive. In preliminary investigations, we find that one potential underlying mechanism is through the loss of MLH1, a protein of the DNA mismatch repair (MMR) pathway. Mutation or loss of gene expression of MLH1, a known tumor suppressor, occurs in ~30% of metastatic ER+ breast cancer patients. Using experimental approaches, we identified a causal role for MLH1 loss in inducing migration and invasion in vitro, and metastasis in vivo, warranting investigation into the underlying mechanisms. Results from an agnostic proteomic screen comparing isogenic cells with stable shRNA against either MLH1 or Luciferase (control) identified dysregulation of the cytoskeletal protein actin as a consequence of MLH1 loss. The cytoskeletal matrix undergoes significant reorganization during metastasis, and proteins that interact with/regulate actin polymerization can influence the metastatic potential of cancer cells. Using immunoprecipitation/mass spectrometry we identified MLH1 as a potential interactor of actin. Further, a morphological screen on MLH1-proficient and MLH1-deficient ER+ breast cancer cells revealed significant disruption in actin architecture in MLH1-deficientcells, resulting in a more mesenchymal cell morphology. Structural analysis identified a putative, conserved actin binding motif in MLH1 . We engineered MLH1 to harbor point mutations that disrupt this putative actin binding motif and confirmed disruption of the interaction between MLH1 and actin. Together, these data shed insight into a novel role for MLH1 in regulating actin polymerization, with potential impact on ER+ breast cancer metastasis. Mismatch repair proteins are well-established tumor suppressors and historically, their tumor-suppressive functions have been attributed to their roles in DNA mismatch recognition and repair. Loss of these functions are thought to increase genomic instability and heighten the likelihood of oncogenic events. However, recent findings from our lab and others suggest that the loss of MMR proteins extends its impact beyond genomic instability, influencing additional cellular processes. Preliminary data supports non-repair roles of MLH1 in actin regulation that contribute to breast cancer metastasis. By identifying novel mechanisms underlying ER+ breast cancer metastasis, the research will contribute to the development of better diagnostics and therapeutic options for this lethal diagnosis.

12:25 PM

The impact of obesity-induced changes in adipose tissue on ovarian cancer progression
Sofia Howe, JDP - Cell & Molecular Biology (D)

Obesity, characterized by excessive accumulation of body fat, has been increasingly prevalent globally and constitutes a significant risk factor for ovarian cancer. Omental adipose tissue is the initial metastasis site of ovarian cancer cells due to its cytokine rich environment that promotes cell migration and tumor growth. Elevated NF-kB activation in obesity is known to aberrantly influence cancer cell behaviors, however the role of omental preadipocytes, the precursors of mature fat cells, in the contribution in ovarian cancer metastasis and drug resistance

remains understudied. Using subcutaneous injections and in vitro coculture models of cancer cells with either adipocytes or preadipocytes, we found that the differentiation state of adipose tissue does not alter the ability to support tumor growth or NF-kB activation. To assess obesity, we employed subcutaneous injections of omental-derived high or normal BMI preadipocytes with cancer cells and found that obesity-induced changes contribute to early tumor growth during isolation stress and decreased survival probability in mice. Furthermore, in vitro IGF-1 secretion from high BMI preadipocytes sustained cancer cell proliferation during nutrient and isolation stress. These findings collectively emphasize the impact of obese omental tissue on cancer progression and showcase IGF-1 signaling as a potential mechanism supporting metastasis. Understanding these molecular processes under obese conditions will enable the design of more effective therapies for treating ovarian cancer under metabolic stress.

Session E-3

Food Insecurity (U/G)
Friday, February 28, 2025 1:00 PM
Templo Mayor

1:05 PM

Resilience and Community Building among Street Food Vendors: A Foodscape Case Study of the City of San Diego
Osvaldo Napoles Robledo, Geography (M)

This thesis examines the complex dynamics of Latino street food vending in San Diego, CA, particularly in the City Heights neighborhood, known for its diverse ethnic communities. As a means of survival, street vending is a prevalent yet increasingly regulated activity in San Diego, where vendors often face significant challenges from local ordinances and competition from established businesses. This study investigates how these regulations, magnified by the COVID-19 pandemic, impact the livelihoods of Latino street vendors. By analyzing historical, place-specific, and regulatory contexts, this research explores how street vendors demonstrate resilience and foster community building despite economic and legal obstacles. Key questions investigated include the historical influences on street vending practices in San Diego, the shifts in regulations post-COVID-19, and their effects on vendors' income, interactions with authorities, and community relationships. Additionally, this thesis investigates the adaptive strategies employed by vendors to navigate health and safety concerns and the role of advocacy groups in supporting compliance with new regulations. Ultimately, this research aims to contribute to the literature on street vending and inform future policy discussions, ensuring that small scale Latino street vendors are recognized and supported in times of crisis.

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1:25 PM

En Busca de Provecho: Exploring the Relationship Between Food Deserts and Gestational Diabetes Mellitus Among Latinas

Leticia Camacho, MPH Epidemiology and Biostatistics (M)

The burden of gestational diabetes mellitus (GDM) in the United States is a critical public health issue, with rates increasing by 20% from 2016 to 2020. Although these trends are U.S.wide, Latina mothers are disproportionately affected, experiencing higher rates of GDM and its associated long-term risks, including type II diabetes and mortality. Structural barriers, such as food deserts, may limit access to healthy diets, a known modifiable factor for reducing GDM risk. This study examines the association between food desert residence and GDM among Latina mothers in California from 2015 to 2019 and explores the modifying effect of participation in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC).We conducted a secondary analysis of the Study of Mothers and Infants (SOMI), a retrospective cohort of over 6 million mother-infant dyads. The final analytic sample included 878,023 singleton births from Latina mothers. Food desert status was defined using the USDA Food Access Research Atlas, based on census tracts meeting low-income and low-access thresholds (â‰¥1 mile for urban areas and â‰¥10 miles for rural areas to the nearest supermarket). GDM diagnosis was identified via birth certificates and hospital records. Logistic regression models adjusted for maternal age, parity, and insurance status.Adjusted models revealed that mothers residing in food deserts had 8% higher odds of developing GDM (aOR: 1.08; 95% CI: 1.06"1.10; P < 0.001) compared to non-residents. WIC participation mitigated this relationship, reducing GDM odds by 2.6%. The small magnitude of these associations suggests limited public health significance, indicating that other structural and individual-level factors need to be considered to fully understand the causes of maternal health disparities. However, this study suggests that equitable food access and WIC participation may play a modest role in addressing GDM disparities among Latinas, underscoring the need for culturally competent policies to reduce structural barriers and improve maternal health outcomes.

1:45 PM

The Degradation of the Land and the Worker: The Story of San Quintín

Lauren Gomez, Latin American Studies (M)

This research will address the valley of San San Quintín, Baja California, Mexico and its development through programs like NAFTA. The disruption of seasonal labor in Mexico to industrial farms in San Quintín has built the region from the arid and rural fishing village to the center of agriculture in the country. The transformation of San Quintín as a robust agricultural community through the many migrants from predominantly Indigenous groups from states like Oaxaca and Guerrero.

Through NAFTA this now permanent settlement has for the first time generations being born and raised in San Quintín being born in San Quintín, creating a new point of origin for these Indigenous groups. San Quintín has become the hotbed for American industry abroad, producing so many of the fruits and vegetables being eaten across the world. However, due to the NAFTA (North American Free Trade Agreement) and now the USMC (United States, Mexico, Canada Agreement) which went into effect in 2020 has forever changed the region. This shift in regional agricultural work across the country to the industrialized concentration of farm working in San Quintín has shifted the population, culture, and working conditions for many migrants to see San Quintín as their new home. These sweatshop-like conditions are now considered the norm for the many people and families moving to San Quintín. This research will begin to unpack the degradation of the environment and the bodies of farm workers seen as expendable in the 'larger' scale of American wealth through the eyes of point of origin. My time in Oaxaca for the stuffy abroad program in the summer of 2024, allowed me to study and learn about why these communities ended up migrating to communities like San Quintín. It was greatly helpful to learn first hand from the people who have emigrated to places like San Quintín and understanding the Amerinciatiuon of labor and how that has permeated into every aspect of society. This research will address why it's so important to learn the ancestral forms of agriculture of places like Ixpantenpec, Nieves and then comparing it to the Americanized systems of labor in San Quintín.

2:05 PM

Rural Heat Islands: How do they affect WBGT and agricultural workers?

Benjamin Wells, Environmental Science (U)

The Imperial Valley of California has long been known as an area dominated by agriculture. Climate change in this area is expected to raise temperatures and increase water scarcity which will increase the heat stress for farmworkers. The goal of this project is to investigate the intricate relationship between heat stress, agricultural practices, and environmental factors in the vulnerable communities using data like WBGT. The plan to accomplish this is composed of six steps. The first two steps are to map rural heat island trends and to identify the relationship between heat stress and cropping. Next, using in-situ monitors, farmworkers' experiences of heat stress will be documented in the form of PSI and compared to current thresholds in place for outdoor laborers. Finally, the last two steps are to develop tools to distribute analysis results and obtain feedback on these tools from the agricultural community. Results of this study will demonstrate the threat that increased heat places on the agricultural workforce and how new, innovative solutions are needed. This research will direct climate action policies in the Imperial Valley with thresholds that account for the changing climate.

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2:25 PM

High-throughput Phenotyping for Model Validation of Haematococcus lacustris

Barbara Saucedo, Microbiology/Cell & Molecular Biology Master's Program (Ma)

Haematococcus lacustris is a photosynthetic, unicellular freshwater microalga known for its ability to produce astaxanthin, a ketocarotenoid with widespread applications in nutraceuticals, cosmetics, food, and aquaculture. The cultivation of H. lacustris is central to the industrial production of astaxanthin. This algae undergoes a complex life cycle of vegetative growth, encystment, and sporulation, and under stress conditions such as nutrients limitation, enhances astaxanthin production. To better understand the biochemical and metabolic processes underlying these phenotypes, my project focuses on generating experimental data to support the development of a genome-scale metabolic model of H. lacustris.Preliminary experiments have involved the cultivation of pure cultures of H. lacustris in liquid and agar media, alongside Biolog phenotype microarray assays to assess initial metabolic profiles. These experiments provide foundational data for further studies aimed at understanding the metabolic responses of H. lacustris under different growth conditions, with a particular focus on stress-induced pigment biosynthesis. The data collected will offer insights into the metabolic network of the organism, supporting the creation of a highly curated model that includes organelle-specific metabolism and pigment biosynthesis pathways.Ultimately, this research aims to create a genome-scale metabolic model that will not only optimize astaxanthin production in H. lacustris but also refine cultivation strategies and media formulations through virtual experimentation. By integrating experimental data, the model will support more efficient and sustainable astaxanthin production, which is crucial for various biotechnological applications. Beyond pigment biosynthesis, this project will deepen our understanding of H. lacustris' metabolic flexibility under environmental stress. The insights gained will guide the development of more resilient algal strains, improving astaxanthin production. This work establishes the foundation for applications in sustainable biotechnology, offering potential solutions for industries such as agriculture and environmental management

2:45 PM

Model-Driven Discovery and Characterization of the Metabolism of Diatoms at Genome Scale Using Biomass Compositional Data Under Environmentally Relevant Temperatures

Shaila Prasad, Microbiology with emphasis in Clinical Laboratory Science (U)

Phaeodactylum and Cylindrotheca are marine diatoms known for their extraordinary genetic capabilities to generate up to 50% of oxygen on Earth. Currently, they face diverse temperature environments due to climate change, however, how they cope metabolically is still unknown. Systems biology approaches have resulted in genome-scale computational models that represent the metabolism of microorganisms, enhancing our systems-level understanding of organisms and informing hypotheses for experimental designs. When applied to photosynthetic microorganisms, metabolic models offer the potential to exploit natural metabolic robustness and diversity to develop biotechnological processes. Of special interest in microalgae-based biotechnology is the restoration of marine environments in response to climate change and to create new venues of sustainable food production. As rising global temperatures increase oceanic temperatures, understanding the biological responses of diatoms is crucial for both ecological restoration and biotechnological innovation. The resilience in the metabolism of Phaeodactylum and Cylindrotheca is critical since they are able to adjust their biomass position. This project aims to characterize experimentally the biomass composition of diatoms in response to changes in temperature relevant to climate change. Collected data will be used to enhance the currently available genome-scale metabolic models of those marine diatoms. Additionally, growth kinetic parameters will be determined in a dynamic framework while experimentally measuring total protein (Lowry method), carbohydrates (acid digestion method), lipids (gravimetric analysis), and photosynthetic pigment (cold acetone extraction) content and adjusting those data to the Gompertz-Zwietering model. Parameters such as biomass carrying capacity, growth rate, and lag time will be calculated at five different temperatures (22, 15, 4, 28, and 35â„ƒ). Preliminary results indicate that growth in 15â„ƒ conditions resulted in an optimal growth rate and carbohydrate concentration. On the other hand, growth at 22â„ƒ had a higher concentration of protein and displayed a deeper brown color, associated with Chlorophyll C. The combination of biomass compositional analysis and kinetic parameters will help determine optimal Phaeodactylum and Cylindrotheca cultivation temperatures to enhance the metabolic models of diatoms that exhibit temperature resistance that is vital to our ecosystems and planet.

Session E-4

Cancer Research (U/G)
Friday, February 28, 2025 3:00 PM
Templo Mayor

3:05 PM

Radiation Therapy Utilization and Outcomes in Primary and Secondary Central Nervous System Lymphoma

Brianna Hostler, Psychology with an Emphasis in Neuroscience (U)

Radiotherapy (RT) is an established consolidation strategy for primary CNS lymphoma (PCNSL). However, the role of RT in secondary CNSL (SCNSL) is unclear. Here, we describe RT doses, disease failure patterns, and survival outcomes in an RT-treated CNSL cohort.MethodsPatients treated with CNS-directed RT for CNSL at UCSD were identified by ICD-10 codes, RT course description, or radiation oncologist. Site of CNS disease failure was local (involving initial site) or

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distant (outside of initial site). Overall survival (OS) and CNS progression-free survival (CNS PFS) were evaluated from time of RT start using Kaplan-Meier. Outcomes were stratified by PCNSL vs SCNSL.Results30 patients (13 [43%] PCNSL, 17 [57%] SCNSL) and 39 total CNS-RT courses were included. Most received RT for relapsed/refractory disease (23, 77%) as opposed to definitive (6, 20%) or consolidative (1, 3%) intent. At the time of RT, 1 (3%) patient had CSF, 13 (43%) had ocular, and 12 (40%) had extracranial disease (6 progressive, 6 stable). Median RT dose was higher for PCNSL (40.5 Gy vs 30 Gy for SCNSL, p=.031). First course RT targets were whole-brain RT (WBRT; 17, 57%; 6 included orbits [3 electively]), orbits alone (10, 33%), focal (2, 7%), and spine (1, 3%).17 patients relapsed, most only distantly (9 [53%] vs 5 [29%] locally). Only SCNSL patients had synchronous local and distant failures (3, 18%). 2 patients received focal RT to dura and did not progress. Of the 4 (36%) who relapsed after WBRT, 2 were local-only SCNSL failures, and 2 were distant-only PCNSL failures. Of the 4 (67%) who relapsed after WBRT + orbits, 3 failed in the parenchyma. Most of the 8 who relapsed after orbits RT alone had distant (5, 63%) failures, most (3, 60%) parenchymal. Those with ocular involvement received WBRT + orbits or orbital RT alone, most relapsing in the parenchyma (8, 62%). No ocular failures occurred in those without ocular disease at RT start. Median OS was longer for PCNSL vs SCNSL (18.6 months [95%CI 0.0-42.4] vs 6 months [95%CI 3.0-8.9]), respectively; log-rank p=.058). Median CNSPFS was similar between PCNSL vs SCNSL (2.83 months [95%CI 0.0-19.8] vs 4.41 months [95%CI 1.4-7.4], respectively; log-rank p=.256). 3 patients had systemic relapse preceding CNS relapse.Conclusions Different disease failure patterns were seen in mostly relapsed/refractory SCNSL vs PCNSL receiving CNS-RT. Only SCNSL patients failed both distantly and locally, suggesting the inclusion of more comprehensive treatments alongside RT (e.g., systemic or intrathecal). As SCNSL received a lower RT dose and most patients suffering local failure were SCNSL, further dose optimization should be considered. Future studies will examine MRI predictors of disease failure patterns. AcknowledgmentsThe research reported in this abstract was supported by the National Cancer Institute of the National Institutes of Health under award numbers: U54CA285117 (SDSU) & U54CA285115 (UC San Diego). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

3:25 PM

Development of the Culturally Targeted Financial Navigation Program for Underserved Latina Breast Cancer Patients

Samantha Llanas-Medina, Social Work (U)

Background: Financial toxicity refers to the financial challenges a patient undergoes due to the high costs of medical care. Latina, particularly Spanish-speaking breast cancer (BC) patients, are 2.8 times more likely to experience cancer-related financial strain than their non-Latina White counterparts. Latina cancer patients have various challenges in accessing financial resources including lack of knowledge and language barriers.

Financial navigation programs address these challenges by providing personalized financial guidance via patient education on health insurance plan coverages, budgeting support, and providing financial resources. These were found to reduce patients' psychological distress and increase their financial literacy. Despite its importance, the challenges to accessing financial resources among rural Latina BC patients and their preferences in developing a culturally appropriate intervention are understudied.Aims: The purpose of this study is to explore the 1) barriers to accessing financial resources and 2) preference in the development of a culturally appropriate financial navigation program for underserved Latina BC patients. Methods: This was a qualitative study in which in-depth interviews were conducted with 48 participants, including Latina BC patients (n=22), their family members/caregivers (n=14), and healthcare professionals (n=12), all from a rural agricultural region. Qualitative data were analyzed using a thematic analysis and demographic data were analyzed using descriptive statistics.Results: Barriers to accessing financial resources include a) lack of systematic screening, b) lack of resource knowledge, c) geographic distance, and d) embarrassment and fear of deportation. Preference for the key aspect of the financial navigation program includes a) resource provision (i.e., food, utility, rent), b) psychological support, c) transportation services, d) financial resources (e.g., transportation, health insurance), and e) case coordination. Important areas of culturally targeting intervention include 1) designing culturally relevant material (e.g., Latina photos on brochure) 2) intervention delivery through in-person intervention, and 3) outreach to the community/ advertisement.Discussion/Conclusion: Participants perceived a financial navigation program as important in potentially reducing disparities by reaching out to rural areas and connecting various resources including economic and basic necessities, psychological support, and transportation services. Participants also emphasized the importance of cultural inclusiveness in designing intervention material (e.g., Latina patient photos, and material written in Spanish). Healthcare providers need to consider cultural preferences and approaches in working with Latina BC patients and family members in addressing their financial concerns.

3:45 PM

Identifying New Pathways Susceptible to Mutant IDH1-Driven Inhibition

Sean Alfaro-Cunningham, Chemistry with an Emphasis in Biochemistry (U)

Isocitrate dehydrogenase (IDH) is a key enzyme that catalyzes the decarboxylation of isocitrate into α-ketoglutarate (αKG). Certain mutations in IDH1 like R132H contribute to a gain-of-function that allows IDH to perform the neomorphic catalysis of αKG into D-2-hydroxyglutarate (D-2HG). These mutations are found in ~70-80% of lower-grade gliomas. D-2HG is an oncometabolite that drives tumorigenesis through its inhibition of αKG-dependent enzymes. Due to high concentrations of D2HG that build up in patients, inhibition of enzymes that use substrates structurally similar to αKG may also be possible. However, the number of pathways

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that may be affected by inhibition of enzymes that rely on ð›¼KG and similar molecules is not fully understood. One important candidate for inhibition by D2HG includes ornithine decarboxylase 1 (ODC1), an enzyme that catalyzes the initial rate-limiting step in polyamine synthesis, the decarboxylation of ornithine into putrescine. Polyamines like putrescine, spermidine, and spermine, which are structurally similar to ð›¼KG, play an integral role in controlling cell proliferation, apoptosis, and protein synthesis. I hypothesize that D-2HG inhibits the activity of the ODC1 enzyme by competing with binding of the ornithine substrate, ultimately leading to altered levels of polyamines. I predict that we will observe an increased ornithine and decreased putrescine upon treatment of ODC1 with D2HG. First, I sought to heterologously express and purify ODC1 from E. coli. Then, I replicated the ODC1 reaction in vitro, using thin layer chromatography (TLC) and gas chromatography-mass spectroscopy (GC-MS) to determine if any putrescine is being produced from the purified enzyme. In my future work, I will spike in varying concentrations of D-2HG into the ODC1 reaction tube, and after quantifying levels of ornithine and putrescine, I will use Lineweaver-Burk plots to diagnose inhibition type. This work will allow us to gain insight into how D-2HG may affect a variety of important cellular pathways and to establish the mechanism that D-2HG uses to interact with the ODC1 enzyme.

4:05 PM

Optimizing Expression of IDH2 Enzyme in E. coli for Mechanistic and Therapeutic Study.

Aaron Le, Biochemistry (M)

Human isocitrate dehydrogenase (IDH) enzymes catalyze the NADP+-dependent conversion of isocitrate (ICT) to form alpha-ketoglutarate ($\hat{I}\pm$KG) and NADPH, two metabolites with important roles in lipid biosynthesis, epigenetic regulation, and redox balance. Mutations in IDH1 and IDH2 are drivers of many types of cancer, including 80% of low grade gliomas and secondary glioblastomas and ~12% of acute myeloid leukemias. The most common cancer-driving variants are IDH1 R132H, IDH2 R172K, and IDH2 R140Q. These mutations confer a neomorphic NADPH-dependent reaction that reduces $\hat{I}\pm$KG to D-2-hydroxyglutarate (D2HG). D2HG is structurally similar to $\hat{I}\pm$KG and acts as an $\hat{I}\pm$KG antagonist to competitively inhibit $\hat{I}\pm$-KG-dependent dioxygenases. Since mutations in IDH2 can reduce $\hat{I}\pm$-KG levels and increase D2HG production, this imbalance can lead to abnormal histone and DNA methylation patterns. These epigenetic level changes can disrupt normal gene regulation and contribute to cancer development. Despite the importance of IDH2 mutants, our understanding of their enzymatic properties is limited, likely primarily due to challenges in IDH2 expression and purification. Here, we sought to optimize the heterologous expression and purification of wild type (WT) and mutant IDH2 in Escherichia coli (E. coli).

We improved expression by testing E. coli expression strains, including co-expression with chaperone GroEL protein, and by replacing rare nucleotide codons in the human gene with codons preferred to be translated by E. coli (codon optimization). For improving purification, we tested different chromatography resins and conditions, ultimately increasing the yield and activity of IDH2 enzyme. The successful expression and purification of IDH2 is a critical step for us to be able to measure the kinetic features of WT and mutant IDH2. This approach will advance our understanding of IDH2 enzymatic activity and its role in oncogenesis, providing knowledge for the development of strategies targeting IDH2 mutations and inhibitor development.

4:25 PM

Advancing Reproductive Health Access Through Transnational Collaboration: A Study on Cervical Cancer Prevention in Bolivia

Morgan Newport, MPH/MA LatAm (M)

From May 11th to May 28th, preliminary research was conducted in Santa Cruz de la Sierra, Bolivia, funded by the Tinker Foundation, focusing on non-governmental reproductive healthcare networks. The study examined how transnational feminist health organizations collaborate with local nonprofits and community health workers to provide care to underserved populations lacking access to government or private healthcare. Partnering with PINCC (Preventing Cervical Cancer Globally), which aims to eradicate cervical cancer through affordable HPV testing and thermal ablation, clinical operations were supported and contributed to in both public and private healthcare settings.PINCC's 'train-the-trainer' model empowers local medical professionals to develop the skills to provide cervical cancer care, fostering community trust and collaboration. Collaboration with the Rotary Club of Bolivia improved outreach and follow-up care, providing insights into the barriers to healthcare in resource-limited settings, including transportation, low health literacy, and lack of communication access.This experience reinforced the importance of community-driven health interventions and demonstrated the positive impact of global health networks in local settings. While the thesis will remain focused on healthcare access at the US-Mexico border, these insights will inform a broader understanding of transnational health networks and their role in improving reproductive healthcare for underserved communities.

Abstracts of Presentations

Session F

SDSU | San Diego State University

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Session F-1

Behavioral and Social Sciences (U) 1
Friday, February 28, 2025 9:00 AM
Montezuma Hall

9:00 AM   1

Social Determinants of Health and Patient Engagement with Electronic Health (E-Health) Education Materials among Hispanic/Latino patients with Type 2 Diabetes (T2DM)

Adriana Rivera, Psychology (U)

Hispanics/Latinos are disproportionately at-risk for type 2 diabetes mellitus (T2DM) and have poor diabetes medication adherence, control, and a higher risk for diabetes complications and mortality when compared with non-Hispanic Whites. Furthermore, previous research has shown that higher levels of patient engagement relate to favorable health outcomes (e.g. less depressive symptoms or remission from depression, and healthy glucose levels) and cost savings in people with T2DM and other chronic illnesses. A randomized controlled trial that will test a highly innovative healthcare delivery model (behavioral health, care coordination, primary care, and E-Health education videos) in an at-risk, mostly Mexican, Spanish-Speaking, and immigrant population with T2DM at San Ysidro Health (SYH), a largely qualified health center (FQHC) aims to improve glycemic control and psychological distress. However, there still exists limited research on the acceptability of E-health education materials and patient engagement among Hispanic adults with T2DM. To explore the association between social determinants of health and patient engagement with E-Health education videos.Descriptive analyses and multivariable linear regression analyses were used to evaluate the relationship between social determinants of health (marital status, education, household size, housing status, housing insecurity, income, number of dependents, transportation status, employment, insurance status, social support, and sleep) and patient engagement, controlling for demographic factors. Engagement was defined as the total proportion of X educational videos reviewed by participants within the x-month intervention period. Of the 59 participants eligible at the time of this study, the mean age was 56.0 years, most were female (69.5%), married or partnered (64.4%), born in Mexico (89.8%), had less than a high school education (55.9%), and were not employed (56.4%). On average, participants viewed M= X (SD=X) of the XX videos. Adjusted regression analyses showed that only marital status was related to the extent of engagement with the E-Health videos (B=0.29, p=0.007, 95% CI = 0.08, 0.49), such that unmarried persons demonstrated greater engagement. Compared to individuals with T2D who were married or partnered, those who were single were more likely to engage with the educational videos. These results can help inform how to improve engagement in future interventions.

9:00 AM   2

Identifying Barriers and Facilitators to Sports Participation among Rural, Hispanic Girls: A Qualitative Study

Ana Santos, Public Health (U)

Background: Physical activity is essential for the health and well-being of youth, yet participation rates in sports and physical activities are disproportionately low among girls, particularly in underserved regions like Imperial Valley, California. This rural, predominantly Hispanic area is known as an agricultural hub that faces economic challenges and experiences extreme heat which makes engaging in outdoor physical activities difficult. This emphasizes the importance of developing physical activity and sports programs that encourage involvement and participation.As part of a larger study, interviews were conducted with girls, parents, coaches, and Boys and Girls Club staff to better understand the barriers and facilitators to physical activity and sports participation among Hispanic girls living in rural areas. These interviews are crucial for understanding the cultural and environmental factors influencing participation. The findings from these interviews will help design an out-of-school program that promotes long-term physical activity while addressing the specific needs of this underserved population. Methods:This study used semi-structured interviews with parents, girls, coaches, and Boys and Girls Club staff (n=37) to identify the barriers and facilitators influencing young girls' participation in sports and physical activity. These interviews were audio-recorded, transcribed, and are currently in the process of being coded. The codebook was developed using the Self-Determination Theory and the Framework for Understanding Youth Sports Participation. Key findings will be organized into themes to demonstrate the most significant factors affecting participation.Results:The initial analyses identified major themes influencing physical activity and sports engagement. The study included 15 girls (ages 8-10 years), 18 parents (ages 22-54 years), and four coaches and Boys and Girls Club staff. Early findings suggest obstacles such as extreme weather, the vital role of parental support in promoting consistent involvement, and the importance of offering diverse, affordable sports options to maintain engagement.Discussion:Identifying these barriers and facilitators is essential to reducing physical activity disparities among rural girls. These findings suggest that it is important to understand the barriers and facilitators to physical activity, and they will inform an out-of-school sports curriculum tailored to meet the unique needs of girls living in Imperial Valley.

9:00 AM   3

Sleep and Workplace Functioning among Low-Wage Hospital Workers

Anali Cruz, Psychology (U)

Background: Sleep is a major determinant of physical and mental health. Poor sleep is associated with adverse health outcomes including heart disease, obesity, and type 2 diabetes. Prior research has shown that poor sleep is more prevalent among people of color and individuals with low income. For

(U) = Undergraduate ; (M) = Masters ; (D) = Doctoral

working populations, sleep quality and quantity are associated with work performance and overall well-being. Low-wage workers, who are essential for workplace functioning in health care and other sectors, have high risk of cardiometabolic conditions compared to higher-wage workers and experience working conditions that mayimpact sleep (e.g., shift work)). Little is known about the relationships between sleep, health, and work functioning in low-wage hospital service workers. Purpose: The aim of this study was to explore the relationships of sleep, working conditions, and workplace functioning among low-wage hospital service workers.Methods: In 2023, hospital employees were recruited from two low-wage departments within a Southern California health care system: Environmental Services (i.e., janitorial staff) and Food/Nutrition Services. Participants completed semi-structured qualitative interviews in English or Spanish to discuss sleep, health, and work functioning. Interviews were conducted as part of a larger study aiming to adapt a remotely delivered depression intervention for low-wage workers. Interviews were audio-recorded, professionally transcribed, and analyzed by two independent raters using Dedoose 9.0.107 software and structured thematic analysis.Results: Participants were low-wage hospital service workers (N=43) aged 21-65; 37 (75%) were female and 39 (79%) reported Hispanic/Latinx ethnicity. Many workers reported sleep disturbances including poor sleep quality and short sleep duration. Sleep conditions including insomnia and sleep apnea were also described, but less common. Workers reported that sleep disturbances impacted workplace functioning (e.g., increased fatigue, reduced morale and motivation). Work schedules and work-related social conditions (e.g., shift work, early starttimes, long commutes, financial stress) contributed to poor sleep quality and short duration. Chronic stress and depression and anxiety symptoms were frequently reported alongside sleep disturbances. Few workers reported accessing workplace well-being resources to support their sleep or overall health.Conclusion: Poor sleep quantity and quality were commonly reported among low-wage hospital employees and had adverse impacts on work functioning. To bolster low-wage worker well-being, employers should consider offering resources to support healthy sleep and modifying working conditions to allow for consistent sleep schedules. Longitudinal research is needed to understand the relationships between sleep and work functioning among low-wage workers.

9:00 AM 4

Sanitation Justice in San Diego: Identifying Opportunities for Coalition Building and Narrative Change
Andy Lopez, IS3D (U)

Abstract Sanitation justice is making sure that everyone has the basic things we need " clean water and public restrooms that keep us healthy, safe and dignified. San Diego faces a critical shortage of public restrooms, leaving unhoused individuals in dangerous conditions that are often unsanitary, but also affects those who are merely out and about in search of facilities during the course of their day-to-day activities. This gap not only aggravates public health risks, such as exposure to diseases like Hepatitis A, but underscores broader inequities in the

city. Currently, the general public is experiencing compassion fatigue around this issue, especially related to homelessness. To address this, my preliminary research question is: What opportunities exist on SDSU's campus and across the San Diego region to build a coalition of individuals and groups who care about sanitation justice? And, once a coalition is formed, how do we change the narrative to effect change? I will share how sanitation justice serves us all and not just those unhoused while inspiring action and advocacy for increased public restroom access and how people can better serve these needs and the potential for a healthier San Diego for all.

9:00 AM 5

Exploring Implicit Bias and Political Participation Among Asian Americans: The Impact of Group Efficacy, Self-Assertion, and Model Minority Theories
Angelica Tharpe, Psychology (U)

This study examines the relationship between implicit bias and political participation among Asian Americans (AAs), focusing on how three theories"Group Efficacy, Self-Assertion, and Model Minority"might influence this connection. While there has been growing interest in understanding implicit bias and its impact on political behavior in minority communities, there is a lack of research that specifically addresses how these factors influence Asian American political engagement. Two hypotheses were tested: one suggesting that as implicit bias increases, Asian American political participation also increases, and another proposing the opposite, where higher levels of implicit bias would lead to lower participation. Participants (n = 950,798) completed the Implicit Association Test (IAT) to measure implicit bias, and voter turnout and registration data were retrieved from the U.S. Census Bureau reports across four election years to measure political participation. To test these hypotheses, new variables were created to measure voter turnout and registration rates for both Asian Americansand the general population across four election years. These variables allowed for comparisons between Asian American participation and that of the total population. The findings indicated that, on average, Asian Americansvoted at lower rates than the general population, with variations in participation across different election years. A series of statistical tests, including Pearson correlations, were conducted to assess the relationship between implicit bias (measured by the IAT) and voting behavior. The results showed weak and inconsistent correlations between bias and political participation. In 2008, 2012, and 2016, there was either a weak negative or positive relationship, while in 2020, the correlation was slightly stronger but still not statistically significant. These findings suggest that implicit bias alone does not explain the variations in political participation among Asian Americans. Other factors are likely playing a more significant role in shaping their political behavior. Overall, the study found no strong or consistent link between implicit bias and political participation among Asian Americans. This indicates that additional factors beyond implicit bias may be influencing voting behavior, and future research should explore these other variables to gain a deeper understanding of political engagement within this community.

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9:00 AM 6

Higher Sensitivity to Internal Symptoms is Related to Feeling Worse after Self-touch

Audrey Duane, Psychology, Neuroscience emphasis (U)

Stress is a common human problem, and unregulated stress can cause major impairments to quality of life, daily functioning, and physical health. Self-touch behaviors, defined as rubbing, scratching, caressing, or grooming any part of one's body usually with one or both hands, are common stress responses, but may not help everyone. For example, higher sensitivity to internal bodily symptoms is related to higher stress such that higher autonomic symptom scores are associated with histories of maltreatment, adversity, and post-traumatic stress disorder. It is therefore possible that sensitivity to internal symptoms predicts the success of self-touch as a stress-mitigation strategy. To research this question, 214 participants (80.8% female, M age = 18.84) filled out the Body Perception Questionnaire (BPQ), which assesses sensitivity of internal bodily functions, such as urge to swallow and how hard the heart is beating. They also filled out the newly developed Self-Touch Behavior Index (STBI), which aims to capture both the usage and intended purpose of non-clinical and non-sexual repetitive self-touch behaviors. Participants rated the frequency of their engagement in various self-touch behaviors (hair twirling, picking cuticles, etc), and then rated how much they felt a certain way after those behaviors (nervous, anxious, bored, stressed from not at all (1) to very much (7)). Correlational analyses showed a strong positive correlation between scores on the BPQ (both body awareness and autonomic reactivity subscales) and STBI. Hypersensitivity of internal symptoms was related to higher frequency of self touch (p's < .001), and as correlational evidence of the ineffectiveness of self-touch, hypersensitivity of internal symptoms was also related to feeling more nervous, anxious, bored, and stressed after self-touch (p's < .001). In other words, higher sensitivity to internal symptoms is related to more self-touch, but also feeling worse after self-touch. Although experimental evidence is needed to address whether self-touch actually increases stress, these findings indicate that for certain individuals, self-touch may be less effective in reducing stress.

9:00 AM 7

Macaca mauras consumption of native and non-native plant species in the Education Forest, Sulawesi, Indonesia

Ava Gulson, Anthropology (U)

Due to global-scale anthropogenic modification to land through deforestation, reforestation projects have become increasingly popular in efforts to reduce long-term harm to the land and climate. Although considerable attention has been given to the ecological benefits of reforestation, there is less research on how restoration affects native wildlife and primates in particular. Although moor macaques (Macaca maura) are highly adaptable primates, their populations are increasingly threatened by the destruction and fragmentation of their habitats, which has led to the species being listed by the IUCN as Endangered.

The Hutan Pendidikan, located in South Sulawesi, Indonesia, represents one forest known to provide habitat for the moor macaques. Having experienced forest degradation in the past, reforestation of the area in the 1960s and 1970s included the planting of non-native tree species, such as the Sumatran pine (Pinus merkusii). Today, a large portion of this forest is made up of the species, permanently altering the native moor macaque population's habitat. Our objective was to examine the feeding behavior of one resident group of moor macaques (Group Tokka) to determine which tree species, whether native and/or non-native, comprise their diet. Feeding behavior was defined as the manual handling of edible item(s) by an individual and subsequent placing of the item(s) in the mouth. Using the all-occurrences method, we recorded each observed feeding and foraging behavior of an individual, along with a corresponding age/sex, food item type, and the habitat type and substrate used during feeding during all-day follows of Group Tokka over 9 days in July/August 2024. The fruits from fig trees (Ficus spp.) represented the majority of the feeding records (57%), with non-native pine cones making up the remaining records. Similar rates were found for foraging and feeding locations; 46.5% of all foraging and feeding behaviors were in fig tree canopies, while 41.37% were in pine tree canopies. These results emphasize the dietary flexibility of moor macaques and the significant impact reforestation with non-native plants can have on endemic species of a region. Therefore, the impact of edible non-native plants on native species' diets should be carefully considered in reforestation projects.

Session F-2

Behavioral and Social Sciences (U) 2
Friday, February 28, 2025 9:00 AM
Montezuma Hall

9:00 AM 8

Neurobehavioral Dysregulation of Inhibitory Control in Fibromyalgia

Ben Salemme, Interdisciplinary Studies (U)

Fibromyalgia (FM) is a chronic pain disorder characterized by pain and tenderness throughout the body. It is commonly accompanied by fatigue, insomnia, depression, anxiety, and cognitive difficulties colloquially termed fibro fog. FM is known as a centralized pain condition, since causative peripheral pathology is lacking. Previous neuroimaging studies have found disruptions in the executive networks in the frontal regions of the brain responsible for attention, decision-making, and inhibitory control. However, research evidence on the neural underpinnings of the link between FM and executive functions is scant. To address this gap, this study used a fast-paced, visual Go/NoGo task to examine the behavioral and neural indices of inhibitory control function, which relies on the ability to suppress unwanted actions (NoGo) in the context of prevalent Go responses. We recruited participants with FM and people with no chronic pain symptoms or current health concerns, who comprised the control (CONT) group. The two

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groups were matched on demographic variables and cognitive capacity. Electroencephalography (EEG) signal was recorded from all participants as they completed a Go/NoGo task. As expected, response accuracy was notably lower on NoGo trials overall. Task performance was comparable between the FM and CONT groups, but reaction times were shorter on NoGo error trials for the FM group only. The observed greater difficulty in withholding responses is indicative of inhibitory control deficits in the FM group. The EEG signal was analyzed in the time-frequency domain within the theta range (4-7 Hz), which is sensitive to cognitive engagement. Event-related theta power was lower in FM participants, especially on the inhibitory (NoGo) trials, suggesting a disruption of the capacity to inhibit motor responses.These preliminary findings confirm a dysregulation of top-down executive processing, which can contribute to subjective cognitive difficulties reported as fibro fog. Inhibitory control is a core executive function, and its deficits can translate to an inability to control one's emotions, thoughts, or behavior, which can impact the management of daily tasks. The present study sheds light on the complex relationship between chronic pain and cognitive control, and how it may disrupt daily living.

9:00 AM   9

Exploring Cognitive-Linguistic Profiles and the Attentional Blink in Aphasia

Caden Sajnog, Speech, Language, and Hearing Sciences (U)

Aphasia is a language disorder affecting a person's ability to talk, write, and understand what they hear and read. Aphasia is highly variable, looking different across people. It is possible that one source of variability may be differences between people in the underlying cognitive skills that support language, such as attention and short-term memory (Villard & Kiran, 2017). Growing evidence suggests that people with aphasia (PWA) have impaired attention (e.g., Murray, 2012). Particularly relevant to aphasia is the ability to rapidly engage and shift attention, as language requires rapid shifting between words and other elements of language. One tool for exploring attention shifting is the Attentional Blink (AB) paradigm (Shapiro et al., 1997). During a standard AB task, participants are shown a rapid sequence of letters and are asked to monitor for and report on two targets in the sequence. A blink occurs when participants fail to identify the second target if it appears too quickly. To better understand the interaction of general cognitive skills and language in aphasia, we explored the relationship between AB and other cognitive-linguistic skills. We compiled scores from 14 PWA and explored patterns and trends in the data. We used a variety of measures of language (e.g., picture naming ability, overall aphasia severity), verbal and nonverbal working memory (WM), various forms of attention, sequencing, and short-term memory (STM). Based on visual analysis of graphed data, we found that working memory and language scores seemed to have a positive relationship with AB scores (i.e., higher test scores generally co-occurred with better AB performance), but STM and sequencing scores did not show a relationship. For the language tests, in particular, we found that participants who had better AB scores also had higher language scores; however, higher language scores didn't necessarily co-occur

with better AB scores. Future studies should further examine AB performance as it relates to WM by including more PWA across a wide age range, more data per person, and using diverse cognitive-linguistic assessments. Understanding these processes can provide insights into the cognitive underpinnings of language and aphasia and better guide targeted therapeutic interventions.

9:00 AM   10

Impact of Prenatal CBD Exposure on Maternal Factors and Offspring Physical Development in Rats

Daniel Miramontes, Psychology (U)

Cannabis use among expectant mothers has been increasing due to its perceived benefits. This is particularly true of cannabidiol (CBD), a non-psychoactive component of cannabis. Recent studies indicate that 20"30% of women of reproductive age in California consider using CBD to alleviate pregnancy-related symptoms such as anxiety, nausea, and labor pain (De Genna et al., 2023). However, despite its widespread use, little is known about the safety of prenatal CBD exposure, and emerging evidence suggests potential adverse neurodevelopmental effects on offspring. Using an animalmodel, this study aims to assess the impact of CBD exposure on maternal growth, health, and nutrition, as well as physical development of the offspring. Pregnant Sprague-Dawley rats were administered either 0 mg or 50 mg of CBD daily via an edible cookie dough vehicle from gestational days (GD) 5"20. Throughout gestation, maternal body weight, food intake, and water intake were monitored daily to evaluate any potential effects of CBD on maternal nutrition and health. After birth, pups' body weights were recorded daily from postnatal day (PD) 1 to PD 21, and developmental milestones, including the development of eyes, ears and fur were assessed from PD 1 to PD 17. Preliminary findings indicate that 50 mg/kg/day CBD exposure duringgestation does not impact maternal food or water intake, or body growth. Similarly, prenatal CBD exposure did not impact pup body growth. Thus, any effects seen in offspring prenatally exposed to CBD are not due to malnutrition or poor growth. Preliminary data do suggest that prenatal CBD may subtly advance ear and fur development, although these effects on physical maturation are minor. In contrast, we find significant behavioral alterations in these subjects. These data suggest that CBD may not necessarily be a physical teratogen, but can still disrupt fetal development, posing a risk to individuals exposed prenatally. Supported by Center for Medicinal Cannabis Research P64-07-001.

9:00 AM   11

Investigating Reaction Time and Language Comprehension in Spanish-speaking Children with the Web-based Computerized Comprehension Task

Diego Leon, Psychology with an emphasis in Neuroscience (U)

The present proposal evaluates relations between accuracy and reaction time (RT) on a new Spanish language measure as a function of age and word difficulty. The Spanish Web-based Computerized Comprehension Task (Spanish Web-CCT) is an

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extension of the original Computerized Comprehension Task (CCT; Friend & Keplinger, 2003, 2008).Early vocabulary contributes significantly to children's language and cognitive development. This development lays the foundation for literacy, numeracy, school readiness, and future academic success (Masrai et al., 2019; Purpura et al., 2015; Friend et al., 2018; Armstrong et al., 2016). Nevertheless, there is a dearth of reliable and culturally appropriate direct assessments for Spanish speaking children. Available assessments in Spanish are often a direct translation from English, which may jeopardize their cultural relevance and developmental validity (PeÃ±a et al., 2007). They are often lab administered, potentially reducing access to families who find visiting the lab difficult (Arevalo et al., 2016). Finally, there are few continuous assessments spanning the crucial first five years of development. We developed the Spanish Web-CCT to address these limitations. Previously, we have presented the psychometric properties for the Spanish Web-CCT: positive correlation with age (r(21)=.606, p=.003), convergent validity (r(18)=.661, p=.002), and internal consistency (Î± = .983). The present proposal replicates and extends these findings. To further explore the characteristics of this assessment, we present comparative accuracy and RT analyses as a function of age and word difficulty. Creel (2024) reports that visual RTs are generally faster for accurate pointing responses. De Anda et al. (2018) find that the same is true for haptic RTs and further, that RTs decrease with age. Relatedly, Rosemberg et al. (2024) report that haptic RTs and accuracy correlate on the Argentinian adaptation of the CCT. Thus, RTs on the CCT may serve as a supplemental measure of word recognition. Of interest in this proposal is to evaluate the relation between accuracy and RT as a function of age and word difficulty on the Spanish Web-CCT. We expect accuracy to increase with age, RT to decrease with age, and accuracy and RT to be negatively correlated. Further, we expect that, within age, children will show reduced accuracy and higher RTs for difficult relative to easy target words. To test these hypotheses, we plan to conduct ANOVAs with Age, Difficulty, and Age X Difficulty as predictors with Accuracy and RT as dependent measures. Preliminary results (n=21), controlling for word difficulty, indicate a significant correlation between age and accuracy (r(14)=.733, p=<.001). In addition, RTs were faster for relatively easy words (M: 1946.71 ms) than for more difficult word sets (Ms=2679.32 ms and 2524. 21 ms, respectively; Friedman ð'2(2)= 4.571, p= .102) although this trend did not reach significance. Contrary to expectations, neither age nor accuracy were significantly associated with RT (r(14)=0.35, p=.898, and r(16)=-.066, p=.802, respectively). We anticipate significant effects with a larger sample and plan to present data on 45 monolingual and bilingual Spanish-speaking children.

9:00 AM   12

Prenatal CBD Exposure Impairs Spatial Memory in a Sex-Dependent Manner

Dorsa Naderpour, Psychology (U)

The perception that cannabidiol (CBD) is a natural/safer alternative to pharmaceutical medications may contribute to its use among pregnant women. While CBD is often marketed as safe, there is limited research on its effect during pregnancy.

Thus, the current study examined the effects of prenatal CBD exposure on spatial learning and memory using an animal model. From gestational days 5 through 20, pregnant Sprague-Dawley dams received edible cookie dough infused with either CBD honey (50 mg/kg) or control honey (0 mg/kg). Behavioral performance was measured in the offspring; thus, this study utilized a 2 (CBD, Control) x 2 (Female, Male) design. From postnatal days 40-46, offspring were tested on a Morris water maze spatial learning and memory task. The Morris water maze requires subjects to use spatial memory to find a hidden escape platform in a tank filled with water. Subjects were tested for four trials/day during acquisition; an automated tracking system monitored subjects' movements and measured speed, distance traveled, time spent in specific zones of the maze, and time in thigmotaxis (swimming in the periphery). On the seventh day, the platform was removed, and subjects were tested on a 60-second probe trial to measure spatial memory. Although there were no group differences in acquisition, males exposed to prenatal CBD exhibited memory impairments during the probe trial (p<.05). In addition, males exposed to prenatal CBD spent less time in thigmotaxis, indicating a reduction in anxiety (p<.05). Interestingly, effects were not seen among females. Thus, prenatal CBD can impair memory and alter emotional regulation in adulthood. Functional impairments in the hippocampus, a critical region for learning and memory, may underlie the deficits in spatial memory. Similarly, changes in brain structures involved in emotion may be altered by prenatal CBD. These findings warrant further investigation and caution against CBD use during pregnancy. Supported by CMCR P64-07-001

9:00 AM   13

Promoting STEM engagement in Latina Communities Through Elementary and High School Outreach Activities

Elena Enriquez, Speech Language and Hearing Sciences (U)

Although diversity in neuroscience is expanding, Latina representation remains low. Early educational outreach is crucial to empowering diverse students to pursue STEM pathways and higher education. Our laboratory performed a full day of neuroscience and language outreach activities in a 3rd-grade classroom and a high school biology class in predominantly Latinx schools. As part of these activities, we asked students to complete a survey to gauge their interest in the brain and language before and after the program. This study focuses on the quantitative and qualitative responses of students who participated in this educational outreach and compares the responses of male and female students. A qualitative analysis of the students' responses reveals an overall interest in brain function and general curiosity toward brain science and language. Our quantitative results show various differences in engagement between male and female high school students. First, female high school students rated the importance of studying the brain significantly higher after outreach activities than male students. Females also rated the importance of studying language significantly higher on the post-outreach survey as compared to their pre-outreach survey. In contrast, male high school students

ABSTRACTS

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had no significant change in their views before and after the outreach activities. The results from the elementary school students show a similar trend, with female elementary school students rating the importance of studying the brain significantly higher after outreach activities. Male elementary school students, however, rated the importance of studying language significantly higher after outreach, unlike the high school data. Overall, these results suggest that neuroscience outreach activities can play an important role in increasing interest and motivation to pursue STEM pathways, especially in girls in predominantly Latinx school settings. These outreach activities may be one way to promote Latina representation in neuroscience and other STEM fields.

9:00 AM   14

Understanding the Effect of Substance Use on Depression Through EMA

Ella Moyer, Psychology with an emphasis in Neuroscience (U)

Research suggests that substance use has both psychological and mental negative consequences. Longitudinal data is necessary to examine the impact of substance use and future negative mental states (e.g., depression). Ecological momentary assessment (EMA) provides a context-specific method of examining whether substance use predicts future depression symptoms in real-time.In the current study, we investigated the relationship between substance use at one time point and depression at the next time point. We hypothesized that the use of substances at one time point would predict an increase in depression at the subsequent time point.We recruited 437 undergraduate students from a large southwestern university. Participants self-identified as female (80%) and non-Hispanic white (36%) and completed 5 surveys every day for two weeks on their smartphone. During the EMA we asked participants to rate how much they experienced substance use and depression since the last assessment (3 hours prior) on a 0 (not at all) to 100 (extremely) sliding scale. The item substance use consists of alcohol, caffeine, and any non-prescription drugs. To analyze the data, we used a linear multilevel model.The results indicate that substance use is a significant predictor of depression over time, such that greater substance use at one time point predicts greater depression at the next time point ($\delta_\frac{1}{2} = 0.79$, p < .001). These findings suggest that substance use predicts depression over time.This study has limitations. For example, we asked about substance use in general including alcohol, caffeine, and non-prescription drugs. Therefore, we were unable to examine the effect of each specific substance on the level of depression. This limitation notwithstanding, we found that substance use impacted psychological well-being. Future research should use EMA to investigate if this relationship is seen in both high and low substance users.

Session F-3

Biological and Agricultural Sciences (U) 1
Friday, February 28, 2025 9:00 AM
Montezuma Hall

9:00 AM   15

Quantitating Mitochondrial Parameters from Diverse Species' Spermatozoa Using Electron Microscopy

Aaliyah Ringor, Microbiology (U)

Sperm are very specialized cells that transport genetic material, with their morphology showcasing different adaptations among various species that help them navigate reproductive environments and fertilize an egg. The sperm midpiece, in particular, is crucial for producing energy and motility due to its abundance of mitochondria. This research investigates morphological quantitations of different species' mitochondria, using imaging techniques such as Scanning Electron Microscopy (SEM) and Transmission Electron Microscopy (TEM), to further understand structural adaptations of the sperm midpiece and its impact on motility and reproductive success. The midpiece resembles a spring-like structure in some species, visible under SEM. We quantified mammals, reptiles, birds, and aquatic species. Understanding this unique feature can be completed once the spring constant is found. While this value has yet to be calculated, our future plans include several steps to do so. First, using the quantifications obtained from SEM and TEM, we aim to develop a 3D model of the sperm midpiece utilizing these measurements. Once the model is 3D printed, physical testing will occur to calculate the spring constant of this feature, which could provide novel insights into sperm motility, and reproductive dynamics. We aim to better understand sperm mechanics that could advance fertility efforts and our comprehension of reproductive adaptations. Ultimately, this study combines microscopic structural analysis with broader implications for reproductive biology to provide a foundation for understanding sperm mechanics and give way for future research in this field.

9:00 AM   16

Multiple dimensions of plant diversity as drivers of soil microbial communities in tallgrass prairie ecosystems

Alec Juliano, Biology (U)

Soil bacterial communities are essential components of terrestrial ecosystems. Plants and soil bacterial communities interact in numerous ways, such as through the contribution of organic matter from plant roots and leaves that provides substrates for bacterial metabolic activities. More diverse plant communities are expected to produce a wider range of inputs that support a more diverse soil bacteria. However, it is poorly understood how plants influence the bacterial communities' diversity or composition, and to what degree the identity of the plants in a community is important. We used five years

ABSTRACTS

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of plant survey data and soil microbiome characterizations from restored and remnant tallgrass prairies to determine if plant diversity predicts soil bacterial diversity for both alpha and beta diversity components. We calculated plant taxonomic, functional, and phylogenetic diversity and tested relationships with bacterial diversity using linear mixed models. Plant beta diversity was a stronger predictor of bacterial diversity than plant alpha diversity, such that pairs of plant communities with high dissimilarity were associated with high dissimilarity in bacterial communities. Thus, plant impacts on soil microorganisms may be more strongly determined by the identity, traits, and evolutionary history of the plant community than the number of species alone. From a land management and conservation perspective, establishing dissimilar plant communities at a landscape scale can help promote diverse soil communities and the many important ecosystem functions that they drive.

9:00 AM   17

The development of a neuronal model of GNB1 syndrome derived from hiPSCs

Amaya Valenzuela, Biology (U)

GNB1 disease manifests in early development of adolescents and is often the cause of intellectual disabilities and abnormalities in brain structure, and half of recorded individuals with GNB1 syndrome are reported to have seizures. For our project we are working with two point mutations located on the 6th exon of the gene that is known to cause GNB1 syndrome, I80T and K78R, alongside the wildtype line from which the mutated cells originated. From each mutation two cell lines were generated via CRISPR resulting in a total of 5 cell lines: I80TA5, I80TC9, K78RA12, K78RF10 and P33WT. The aim of the project is to generate NPCs from these iPSCs to then generate neurons which, at the time of writing this, would be the first human neuronal model created of these two mutations. With the generated neurons we could then analyze in an MEA to compare the neuronal activity between the mutated cells and wild type cells as well as generate brain organoids as models to be tested. Alongside the generation of neurons the project also consists of performing Immunofluorescence microscopy of both iPCS and NPCs, imaging of iPCS and NPCs colonies under an EVOS microscope, and RTqPCR.This research is all for the goal of gathering preliminary data to obtain a grant to allow for further research.

9:00 AM   18

Evaluating Transduction Potentials of Achromobacter Therapy Phages Used to Treat Cystic Fibrosis

Anusha Palanivelu, Microbiology Emphasis in Clinical Laboratory Science (U)

The spread of antimicrobial resistance is becoming a global health threat and threatens to return us to the pre-antibiotic era. Phage therapy"using viruses that specifically target and kill bacteria--is an alternative that can be used when no other antibiotics are available to treat a drug-resistant infection. A potential unintended consequence of using phages as a treatmentis the possibility of transduction, which is phage-mediated horizontal gene transfer that may spread virulence factors or antibiotic resistance genes among the target population. We investigated the transduction potentials of bacteriophages used to target Achromobacter species in patients with cystic fibrosis (CF) to determine whether the potential therapy phages have transduction capability and if so, to quantify the extent of transduction. Phage lysates were prepared on a donor strain with a Himar1 transposon insertion in the clpX gene; the Himar1 codes the KanR cassette as a selectable marker. Transduction reactions involved incubating lysates prepared on the donor strain with Achromobacter recipient strains, with wild type clpX. These reactions were performed after titering the donor lysates to determine the efficiency of plating and confirm phage host range. Our transduction experiments yielded no evidence of transduction. Assessing the titers of the original lysates prepared on wild-type strains versus titers on the clpX mutants revealed restricted growth in the absence of clpX function for certain phages, ones that belong to the same phage family based on proteome analysis. Surprisingly, some phages belonging to the same family were expected to have similar growth rates but did not. These analyses are revealing distinct properties for therapy phages that will be useful when assembling phage cocktails, that is mixtures of phages used to treat individual patients.

9:00 AM   19

Mytilus galloprovincialis Heart Rate and Valve-Gaping Behavior in Response to Acute Dissolved Oxygen Stress

Arianna Dial, Microbiology with an Emphasis in Clinical Laboratory Sciences (U)

Low-inflow estuaries in Southern California often experience rapid abiotic changes, such as low dissolved oxygen (DO) from tidal inlet closures and eutrophication. Sessile organisms like the Mediterranean mussel (Mytilus galloprovincialis), which is abundant in San Diego estuaries, must adapt to these stressors. In a controlled experiment simulating hypoxic conditions, we monitored the mussels' heart rate and valve-gaping behavior. Mussels initially closed their valves as dissolved oxygen levels dropped but reopened before exposure ended. Low DO caused variable heart rates, while reoxygenation led to brief spikes (>30 bpm) before returning to baseline (15-20 bpm). These results suggest mussels can tolerate short-term hypoxia but may experience oxygen debt requiring recovery after reoxygenation.

9:00 AM   20

Investigating Nematode Infection Resistant Alleles to Bacteria Bordetella atropi Through Hydrogen Peroxide Exposure

Breana Reyes, Biology with an emphasis in Cell and Molecular Biology (U)

The innate immune system utilizes reactive oxygen species (ROS) as an essential chemical defense response to microbial pathogens. Hydrogen peroxide (H_2O_2) is an example of ROS

that is used by the innate system to help kill bacteria. One of the genes responsible for generating hydrogen peroxide across all animals is the gene dual oxidase (DUOX). We utilize the nematode worm Oscheius tipulae as a model organism as it shares innate defense mechanisms with humans, and we have potentially found a link between DUOX and intracellular bacterial resistance.We discovered the first intracellular bacterial pathogen of nematodes, Bordetella atropi, that infects the intestinal cells of the nematode O. tipulae. We found that certain wild strains of O.tipulae demonstrate varying resistance to this bacteria, showing that there is natural variation to intracellular bacterial infection in the wild. Our preliminary data shows that when O.tipulae was infected by bacteria B. atropi, the wildtype strain, CEW1, had a 75% infection rate while another strain, JU457, had a 3% infection rate. To identify the genetic causes of this natural variation in bacterial resistance, we conducted bulk segregant analysis (BSA) to cross CEW1 and JU457, using infection as a selection pressure to generate mixed populations. Quantitative trait loci (QTL) was then performed and with this approach, we discovered a region on chromosome 3 that had housed an allele of the DUOX gene in JU457. This strain had lost the capacity to produce hydrogen peroxide with DUOX. Based on this data, we hypothesize that B. atropi has harnessed H_2O_2 as a signal for infection. To test this, we will exogenously add H_2O_2 into strain JU457, with the expectation that H_2O_2 will increase B. atropi infection. This simple experiment may provide valuable insight to how the animal immune responses are co-opted by pathogenic microbes for their own benefit processes.

9:00 AM   21

Metal Oxide Catalysts for Alternative Anodic Reactions of Water Oxidation

Deren Qian, High School Student (U)

Green hydrogen is a sustainable energy source produced through water electrolysis, which couples the cathodic hydrogen evolution reaction (HER) with the anodic oxygen evolution reaction (OER). However, oxygen is a low-value product, and OER is the rate-determining reaction with a high thermodynamic and kinetic energy barrier.This study improves OER by employing metal oxide electrocatalysts to oxidize alternative substrates, such as glycerol, sorbitol, xylose, fructose, and ethylene glycol, into value-added chemicals. It compares the performance of $Cu(OH)_2$ and $Au-Ni(OH)_2$ loaded onto nickel foam (Cu@NF, Au-Ni@NF, respectively) with bare nickel foam (NF) and bare copper foam (CF) catalysts. It is worth mentioning that upgrading C2 based ethylene glycol has been intensively studied. However, upgrading C5 and C6 based sorbitol, xylose, and fructose is challenging due to the selectivity issue.The substrates were prepared at a concentration of 0.1 M in 10 mL of a 1 M KOH solution at a pH of 14 for electro-oxidation in a three-electrode configuration. Our research demonstrated that the electro-oxidation of glycerol (GlyOR), sorbitol (SOR), and xylose/fructose (XOR/FOR) can selectively produce formate at a lower energy input than OER alongside green hydrogen.

Session F-4

Engineering and Computer Science (U) 1
Friday, February 28, 2025 9:00 AM
Montezuma Hall

9:00 AM   22

Thermal Durability of Polymer-Bonded Lunar Regolith Simulants for Enhanced Lunar Transportation

Adrianna De Los Garzas, Civil Engineering (U)

This project aims to develop a polymer-bonded lunar regolith simulant capable of withstanding the extreme temperature fluctuations on the Moon, ranging from 110°C to -80°C. The primary focus is to assess the simulant's strength and durability under repeated thermal cycling. Compressed regolith simulant mixtures with 15% polymer content were tested using an axial compression load machine to measure the maximum load the specimens could withstand before failure. Increasing the polymer content resulted in increased strength. Specimens that underwent only freeze cycles showed no significant difference in strength compared to those that experienced both heat and freeze cycles, with strength values being nearly identical for both groups. Preliminary results indicate that the polymer-bonded samples can endure up to 20 cycles of temperature variation without significant degradation or loss of strength, with each cycle consisting of 40 minutes in an oven and 30 minutes in a freezer. Data comparing strength values between groups exposed to only freeze cycles and those subjected to both heat and freeze cycles are being analyzed. However, the potential impact on the internal bonding structure remains an area for further investigation. This project is designed to support lunar transportation initiatives, as improving the quality of regolith simulants could enhance rover performance, enabling more efficient material transport across the Moon's surface. The next phase of research will focus on reducing the polymer content in the samples to further optimize their thermal stability and mechanical properties while maintaining their ability to withstand the harsh lunar environment.

9:00 AM   23

An Enhanced Remotely Accessible Platform of Testbeds for AI and Robotics Research and Education

Alejandro Rivera Lara, Computer Engineering (U)

The rapid growth of artificial intelligence (AI) and robotics has spurred demand for hands-on educational andresear-chopportunities. Despite this, resource limitations often constrain students andresearchersto simulation-basedstudies, limiting exposure to real-world hardware systems critical for advancing knowledge and practical skills. To address this gap, we propose an enhanced remotely accessible platform of testbeds to support AI and roboticsresearchand education.

(U)=Undergraduate; (M)=Masters; (D)=Doctoral

Building on previous work, this project enhances the RAPTURE (Remotely Accessible Platform of Testbeds for Unmanned SystemsResearchand Education) platform, a Kubernetes-based infrastructure enabling remote deployment and testing of applications on hardware testbeds. The platform supports seamless experimentation via an intuitive web portal, allowing users worldwide to upload code, execute tests, and analyze results. Its accessibility democratizesresearchopportunities by reducing the need for costly physical setups.A central feature of RAPTURE is its redesigned user interface, which incorporates clear navigation, visual cues, and step-by-step experiment configuration wizards. Improvements include distinct headers for each experiment phase, dynamic tooltips for guidance, and collapsible sections to streamline navigation. These features ensure a user-friendly and efficient experience, reducing the learning curve for new users. Additionally, the integration of real-time notifications, progress tracking, and actionable controls (start, stop, delete) facilitates efficient experiment management. The addition of a backend database further enhances the platform's functionality by enabling detailed user and progress tracking. This database empowers professors to monitor student activity, providing insights into participation, task completion, and experiment outcomes. Progress data is visualized with dashboards, allowing instructors to assess individual and class-wide performance. Furthermore, the system supports personalized feedback by logging experiment results and linking them to corresponding tutorials or resources for improvement.This initiative also integrates with the COMPE 696 AI for Unmanned Systems course, offering tailored tutorials and hands-on activities. These include exploring key AI and robotics concepts such as virtualization, container management, and real-time system interaction. We gain practical experience with Linux systems, embedded computing, and AI-driven robotics applications. The project emphasizes iterative usability improvements based on user feedback. Activities include enhancing documentation, refining interface elements, and implementing robust backend analytics. Planned tasks span initial platform familiarization to the deployment of educational modules, culminating in comprehensive reporting and system evaluation.This work not only addresses the gap between simulation and practice but also prepares participants for future challenges in AI and robotics. By combining a user-friendly interface with powerful backend capabilities, RAPTURE enables scalable, hardware-based learning andresearch, fostering innovation and broadening accessibility to advanced technological education.

9:00 AM   24

Evaluation of Biopolymer-Amended Soils for Sustainable and Climate-Resilient Infrastructure: Mechanical Properties, Durability, and Recycling Potential

Alek Zhang, Civil Engineering (U)

The environmental impact of cement-based materials, responsible for nearly 8% of global CO_2 emissions, creates the necessity for more sustainable composites in civil infrastructure. Biopolymer-amended soils have emerged as promising

low-carbon materials due to their enhanced mechanical properties and reduced environmental footprints. However, the durability characteristics and reuse potential of these novel biopolymer-amended soils remain insufficiently understood. Thus, the main aim of this research is to evaluate the physical and mechanical properties of soils treated with Xanthan Gum (XG), a natural polymer, when subjected to wetting-drying cycles, and subsequent recycling processes. Two sand types with distinctively different grain size distributions, well-graded and poorly-graded sands, were amended with XG at concentrations of 0.5%, 1%, and 2% by dry weight. Mechanical properties were assessed through unconfined compression, three-point bending, and oedometer tests. Additionally, changes in biopolymer-amended composites' microstructure were analyzed using the micro-X-ray imaging technique. The results demonstrate that well-graded biopolymer-amended soils exhibit greater initial mechanical properties and higher recycling potential, while poorly graded sands show enhanced resistance to wetting-drying cycles. Additionally, an increase in biopolymer concentration improved the initial mechanical properties but had no significant impact on the mechanical performance of recycled specimens. No consistent trends were observed regarding the influence of biopolymer concentration on wetting-drying resistance. In summary, this research shows that well-graded grain distributions are better for applications requiring mechanical properties, while poorly-graded grain distributions are more suited for resilience to wetting.

9:00 AM   25

Analysis of the concentrations of human-associated fecal indicators and pathogens along the Tijuana River in California

Alina Alex, Environmental Engineering (U)

The Tijuana River, like many rivers globally, faces significant pollution from sewage, raising concerns about water quality and public health. Traditional fecal indicator bacterias, such as E.coli and enterococci, can be used to assess water quality. However, neither are specific to humans nor result in analyses that provide an understanding of pathogen behaviors. HF183 and PMMoV are both indicators of human fecal pollution, with HF183 being a DNA sequence from human-associated strains of Bacteroides and PMMoV being an RNA sequence of a virus originating from pepper plants that is linked to human waste due to dietary factors. While HF183 is more susceptible to environmental conditions, PMMoV demonstrates greater resilience to factors such as sunlight and elevated temperatures. While they both indicate pollution from sewage, quantifying their concentrations in surface water cannot distinguish a small amount of fresh sewage from a large amount of old sewage. We hypothesize that the HF183:PMMoV ratio can provide an indication of contamination age and may better correlate with human pathogens such as adenovirus and norovirus, than either marker alone. In this study, we used (RT-)qPCR to examine the concentrations of HF183, PMMoV, adenovirus, and norovirus, as well as the HF183:PMMoV ratio in samples collected from 12 sites along a 3-mile stretch of the Tijuana River, from the U.S.-Mexico border to Imperial Beach.

(U) = Undergraduate ; (M) = Masters ; (D) = Doctoral

Additional samples were collected from untreated influent and treated effluent at the International Boundary and Water Commission Treatment Plant in San Diego, CA. Results showed that the human fecal biomarker concentrations did not decrease in a linear fashion downstream as initially expected. While some sites exhibited lower HF183:PMMoV ratios further from the border, others did not follow this trend, indicating that the ratios may fluctuate based on factors such as hydrology, temperature, and treatment infrastructure. The non-linear pattern highlights the need for ongoing monitoring and a larger sample size. This study demonstrates the potential of the HF183:PMMoV ratio for assessing the decay of human fecal pollution, though further research is necessary to refine its use in predicting pathogen concentrations and understanding contamination dynamics in surface waters.

9:00 AM   26

Transformer Based Navigation on Embedded Devices

Alyssa Serrano, Computer Science (U)

In terms of autonomous navigation, there is much exploration with transformer-based navigation systems. The application of a transformer-based navigation system leverages parallelism and extracting global features from images in order to navigate. Although it has the drawback of high computational power and only optimal with large datasets. Specifically, our work focuses on benchmarking this transformer-based navigation system and comparing among various embedded devices such as a standard desktop and a NVIDIA Jetson device. We measure the performance of the transformer algorithm in terms of its runtime, memory, and distance. By comparing the performance on different devices, we seek to find out the tradeoffs with resource-restrictions and computational capability. The findings of this research will give us insight on how to optimize the performance of the transformer algorithm for deployment in embedded systems as well as in a distributed network environment.

9:00 AM   27

Dual Excitation Co-located Dual Band Miniaturized Loop Antennas Utilizing Inherent Impedance Matching for Wearable RF Applications

Arthur Gratas, Electrical Engineering (U)

Introduction:The goal of this research project is to design a miniaturized loop antenna that operates at two different frequency bands, referred to as a dual-band loop antenna. The antenna consists of two concentric loops with two feed points, each with a separate feed network consisting of a transformer and mini-coaxial cable connector (MMCX).The design frequency for the inner and outer loops are 2.4 GHz and 915 MHz, respectively.Methodology:Both loops were first separately miniaturized by 75% using inductive and capacitive loading techniques described in [1], and then combined onto a single substrate using Ansys HFSS.The feed point for the inner loop was tested at three locations, the first on the same side

as the outer loop, then rotated by 90 and 180 degrees, and the best response was found to be at the 180-degree rotated feed point.Off the shelf inductors were found that had inductance values slightly lower than the ideal values found for both loops, and then extra length was added to each loop where the inductors are to be placed to increase the inductance value to match the ideal value.The ideal capacitive loading value was realized by using interdigitated capacitors on each loop. The feed networks were then designed using the data sheets for the transformer and the MMCX connector.The feed network for the outer loop is on the same plane as the two loops, while the feed network for the inner loop is on the opposite plane with two vias connecting the loop to the feed network.Results:Omnidirectional radiation patterns and half-wavelength current distributions were achieved for both loops, with only the inner loop being slightly affected due to coupling with the outer loop. Although impedance matching was achieved at both design frequencies with -10 dB at 2.4 GHz and -12 dB at 915 MHz, it can be further improved before manufacturing to ensure the measured results will be below -10 dB.Conclusion:This research project successfully demonstrated the design and optimization of a miniaturized dual-band loop antenna for wearable RF applications. By utilizing inductive and capacitive loading techniques, both loops were miniaturized by 75%, and effective impedance matching was achieved for both design frequencies of 2.4 GHz and 915 MHz. The antenna exhibited omnidirectional radiation patterns and half-wavelength current distributions, with minimal coupling between the two loops. While the results show acceptable impedance matching, further improvements can be made to ensure the antenna's performance meets the desired standards before manufacturing. This work provides a promising solution for compact, efficient antennas in wearable technology, offering dual-band functionality and inherent impedance matching in a miniaturized form.References:1.https://ietresearch.onlinelibrary.wiley.com/doi/full/10.1049/mia2.12491

9:00 AM   28

Trash Types and Pathways to the Coast in the San Diego Watershed

Camryn Crumpton, Environmental Engineering (U)

Anthropogenic pollution is a leading cause of degraded coastal ecosystems and communities. Trash accumulates in residential areas and stream systems and has several fates: degradation, transportation, etc. Building upon previous work, we will quantify trash loading and removal rates based on various land use types within the San Diego Watershed region. We will utilize data from the San Diego River Park Foundation (SDRPF) to estimate trash removal rates in riparian areas within the watershed and variations in trash size, weight, and type. This work will identify hot spots with the largest trash deposits, determine the time of year where trash debris has the largest impact, and note the presence of persistent trash types.

(U)=Undergraduate; (M)=Masters; (D)=Doctoral

Session F-5

Engineering and Computer Science (U) 2
Friday, February 28, 2025 9:00 AM
Montezuma Hall

9:00 AM   29

Development of Test Setup for Large-Scale Structural Testing

Carlos Navea, Civil engineering (U)

Testing large-scale structural walls and columns requires robust equipment, including reaction walls and floors, capable of withstanding and counteracting the significant forces applied during experimentation. To prepare the test setup, numerical modeling and hand calculations were needed to verify the strength and durability of the steel plates forming the strong floor and wall. These methods were essential to ensure that the steel would not yield under the anticipated loads. Following these verifications, new steel components were designed, fabricated, and assembled. Throughout the assembly of the new testing equipment, rigorous checks to ensure all bolts and steel interfaces were able to stay clamped together after the loading process. Additionally, safety features were designed and implemented to support ongoing and future research endeavors.This newly assembled testing setup is now being prepared for its first structural test, scheduled for the spring semester. This first test will be on quarter scale reinforced concrete bridge columns and will serve as a crucial validation of the equipment's performance. The work completed over the summer has laid a solid foundation for large scale structural testing at San Diego State University. With the instruments adjustable capabilities, we will be testing specimens twice as large in the upcoming year funded through Caltrans This preparation not only supports the immediate needs of the upcoming tests but also contributes to the long-term sustainability and efficacy of structural research on campus.

9:00 AM   30

Assessing wildfire impacts on Critical Water Supply Areas and Water Infrastructure in the Western United States

Dalston J. Karto, Computer Science (U)

Wildfires are increasingly impacting ecosystems and human communities, with severe consequences for water resources in the Western United States. This study aims to assess the drivers and consequences of wildfire risk in sub-basin watersheds, focusing on critical water supply areas. We integrated the following covariates: annual total runoff, total burned area (1950"2023), downstream consumer population, minority population %, and low-income population %. to assess wildfire risk and water resource value. We assessed the temporal trends of wildfire activity for the HUC12's of 11 Western United States by means of the Mann-Kendall test. Preliminary results reveal significant shifts in fire frequency in high-runoff watersheds, with statistically significant increasing trends (p < 0.05). This highlights the increasing vulnerability of critical water supply areas to wildfire, emphasizing the need for targeted watershed management strategies. This work sets the foundation for a future Decision Support System (DSS) to optimize wildfire mitigation and recovery efforts in high-priority watersheds.

9:00 AM   31

Examining the Temporal Changes in characteristics and performance of an ABR over a feeding cycle

Giselle Lemus, Environmental Engineering (U)

Examining the Temporal Changes in characteristics and performance of an ABR with Anammox Bacteria over a feeding cycleGiselle Lemus, Shiloh Bolden, Dr. Christy Dykstra, Dr. Mercedes Teresita Oropeza, Dr. Devrim Kaya, Dr. Natalie Mladenov, San Diego State University, San Diego, CAAbstract:Anaerobic baffled reactors (ABRs) are used in many countries as a low cost and low maintenance alternative to septic tanks for the common household. Anaerobic baffled reactors utilize multiple chambers separated by baffles for wastewater treatment, the wastewater flows through a sludge blanket in each chamber that allows the pollutants to be biologically degraded. The purpose of this study is to investigate how key performance characteristics (chemical oxygen demand, ammonium, nitrate, nitrite, and phosphate) change in an anaerobic baffled reactor over the course of one feeding cycle. Each chamber of the 10-L lab scale ABR, fed intermittently with synthetic wastewater, created using commercially available cat food was sampled seven times during a 48 hour period. Typically, ABR's struggle with the removal of nitrogen. Therefore, this ABR is designed as two tanks-in-series to promote reduction of ammonium and other nitrogenous compounds in the treated effluent. The second ABR employs a consortium of microbial communities including bacteria capable of anammox (anaerobic ammonium oxidation), a biological process that converts ammonium into nitrate to nitrogen gas under anaerobic conditions.There was temporal variability in concentrations of COD. The synthetic wastewater had an average COD concentration of 150.81Â±0.5mg/L over the 48 hours. In the first 24 hours, there was a 58% removal of COD in the ABR. In the final 24 hours of the study, there was a 30.2% COD removal. These results suggest greater COD removal at the beginning of the feeding cycle. The synthetic wastewater influent had an ammonium concentration of an average of 45.7Â±0.5 mg/L; the low standard deviation indicates that feed concentrations remained stable over the 48 hour sampling period. Ammonium concentrations in the final chamber of ABR2 (average of 30.2 mg/L) represent a removal of 34% in the systems. These results provide an important baseline from which biological processes in the ABR can be modeled to better optimize the system in the future.Biography:Hello, my name is Giselle Lemus and I am an undergraduate senior student at San Diego State University, working towards a degree in environmental engineering. I currently work as a student research assistant in The Water Innovation and Reuse Lab at San Diego State University under the mentorship of Dr. Natalie Mladenov. My goal is to obtain my undergraduate degree in environmental engineering, and work in wastewater treatment and water remediation, with the aim of providing clean water solutions to local communities in San Diego.

ABSTRACTS

(U) = Undergraduate ; (M) = Masters ; (D) = Doctoral

9:00 AM   32

Analyzing Edge of Chaos Behavior in Reservoir Computer Activation Functions

David Kaauwai, Computer Science and Applied Mathematics (U)

Reservoir computing presents itself as a relatively efficient and powerful implementation of artificial neural networks for classification and time series analysis. One of the primary roadblocks to having a reservoir computer that will operate well with the data that it is made to work with is tuning both the hyperparameters of the reservoir and identifying an activation function that will be both computationally efficient and produce the requisite behavior necessary to move the dynamical system of computations around fixed points within the chaotic milieu. The goal of this report is explore the behavior of conventional and novel activation functions within a standard reservoir implemented on Von Neumann architecture.

9:00 AM   33

Communicating Sustainable Civil and Environmental Engineering Research with Native American Communities (SDSU Weber Honors College)

Derin Guler, Psychology (U)

The present community outreach initiative, conducted by San Diego State University, seeks to enhance science communication and foster collaborative engagement with Native American communities. The project centers on translating complex research on geotechnical engineering tools such as biopolymer-amended soils into accessible and culturally relevant narratives. By utilizing storytelling techniques, community-driven feedback, and targeted communication strategies informed by previous literature, the initiative aims to address community needs regarding environmental challenges such as soil erosion, sustainable construction, and infrastructure improvement. The main hypothesis of the research design is that the community's expressed needs will align with their demographic profile, particularly their geographic location and the respondents' interest in and prior experience with similar scientific practices. The key methodological component of the research is a survey, designed to capture diverse perspectives and inform communication strategies. The survey comprises seven sections, including Demographic Questions, Interest and Relevance of Scientific Research, and Final Thoughts and Feedback. Responses are to be capped at 40 to ensure in-depth analysis and meaningful engagement. Key activities of the initiative include partnering with local tribal organizations, conducting focus groups and surveys to identify community needs, and developing educational materials tailored to diverse audiences. These efforts are guided by principles of cultural sensitivity and joint utility between growing communities and the developed SDSU community, ensuring that both parties gain valuable insights and resources.Ultimately, this initiative highlights the potential of collaborative science to inspire sustainable solutions while respecting cultural traditions. Researchers aimed to demonstrate the project's future implications by analyzing demographic data and communication preferences, providing valuable insights for future civic engagement.

9:00 AM   34

Traumatic Brain Injury (TBI) and its Progression to Neurodegeneration Using Cortical Brain Organoids Derived From Human Induced Pluripotent Stem Cells (hiPSC)

Emily Sok, Mechanical Engineering with an Emphasis in Bioengineering (U)

Traumatic brain injury (TBI) impacts approximately 69 million people worldwide per year, and is caused by an external force causing a severance in brain function. There are mild and severe cases of TBI and may result in neurodegenerative diseases like Alzheimer's disease (AD). Current methods of investigating TBI and its progression primarily involve the use of mice. This study aims to utilize human induced pluripotent stem cells (hiPSC) derived cortical organoids (COs) to advance the evaluation of TBI and its progression to AD-related outcomes, instead of mouse models. COs are 3D structures, produced from specific inhibiting factors during the early stages of differentiation, that can provide a greater physiologically accurate model to human brain characteristics to study neurodegeneration. These organoids were injured using a controlled custom mechanical trauma device to mimic TBI injuries. To evaluate neurodegenerative protein markers, immunostaining for tau and phosphorylated tau was done, followed by imaging and quantitative analysis. We observed organoids that had undergone injury displayed an increase of phosphorylated tau expression, tangled tau proteins, which has been associated with AD progression. hiPSC-COs models address the disconnect between animal models and human accuracy, and provide a promising human-relevant system of studying TBI and its progression to neurodegeneration. In the future, use of hiPSC-COs can be a tool to aid the development of TBI therapies that can mitigate the progression of neurodegeneration.

9:00 AM   35

Miniaturized Dual-Band Electrically Small Co-Located Loop Antennas with Inherent Matching and Single Excitation

Eric Smith, Electrical Engineering (U)

This research explores the design and performance of co-located dual-band miniaturized loop antennas with inherent impedance matching, utilizing a single excitation for wearable RF applications. Specifically, the study examines loop antennas resonating at 915 MHz and 2.4 GHz in Ansys HFSS simulation software, with a focus on miniaturization and impedance matching techniques. Initially, the resonant characteristics of the individual antennas were studied before applying a 75% miniaturization factor. Through the use of inherent loading techniques, the antennas were re-tuned to their respective resonant frequencies while maintaining compact dimensions before co-locating the antennas on a single dielectric substrate. Foster's canonical forms were employed to enable a switching circuit that allowed one antenna to be on while the other was off, effectively isolating each antenna at its resonant frequency. This approach aimed to create antiresonant points at undesired frequencies (2.4 GHz

(U)=Undergraduate; (M)=Masters; (D)=Doctoral

for 915 MHz resonance and 915 MHz for 2.4 GHz resonance) using tailored circuit designs, ensuring that each antenna resonated at its intended frequency without interference from the other. While successful impedance matching was achieved for the 915 MHz antenna, the 2.4 GHz antenna presented challenges in tuning. Specifically, parasitic effects from the larger (915 MHz) loop buffered the necessary adjustments for the 2.4 GHz loop. Attempts to match the 2.4 GHz loop to the 200-ohm impedance of a BALUN transformer, required for the feed network, were unsuccessful. Further investigation into the current distribution revealed that, although the switching circuit was functional, the performance was hindered by the untuned nature of the antenna. To address these challenges, the antenna feed length was reduced to minimize parasitic capacitance between the traces and the antenna elements. This modification helped reduce some of the undesirable effects, but further tuning was necessary to achieve optimal performance for both frequency bands. The optimization process included additional adjustments to the antenna geometry and feed network, improving the impedance matching and minimizing losses. Despite these efforts, the tuning challenge at 2.4 GHz remains an ongoing area of investigation. This work contributes to the advancement of compact, efficient antenna solutions suitable for wearable RF applications, where space constraints and performance requirements are critical. The successful demonstration of miniaturized loop antennas with inherent impedance matching for 915 MHz and the progress made in tuning the 2.4 GHz loop antenna represent a significant step toward practical, co-located antenna designs that do not require complex external matching networks. Further refinement and optimization of the 2.4 GHz antenna will be essential for achieving fully functional dual-band operation.

Session F-6

Physical and Mathematical Sciences (U) 1
Friday, February 28, 2025 9:00 AM
Montezuma Hall

9:00 AM   36

Europa Clipper: Application of Artificial Neural Networks for Identifying Thermal Ion Compositions in Europa's Plasma Environment
Alexandria Dunkhase, Astronomy Major, Evolutionary Biology Minor (U)

Europa orbits within Jupiter's magnetosphere and is a prime candidate for conditions conducive to extraterrestrial life due to its subsurface saltwater ocean. This ocean, acting as a conductor, exhibits induced magnetic fields in accordance with Faraday's law as it traverses gradients in the Jovian magnetic field. Another feature that alters the magnetic field near Europa is the plasma originating from Io's volcanic activity and, possibly, from Europa's geysers. In order to accurately isolate the induction response of the subsurface ocean, it is essential to also understand the plasma properties that exist around the moon. Our research aim is to determine the

thermal ion compositions around Europa that make up the plasma from measurements made by the Plasma Instrument for Magnetic Sounding (PIMS) onboard the upcoming Europa Clipper mission. PIMS consists of four Faraday cups, oriented perpendicular to one another in the spacecraft flyby plane. The data from Europa Clipper will only present the total ionic charge flux, however, with no additional information for discriminating between ion species. We explore the application of Artificial Neural Networks, trained on simulations of the PIMS instrument response to an ensemble of plasma conditions drawn from Voyager and Galileo observations. We present a methodology that can be utilized to identify the most probable ion compositions from future Faraday cup measurements in the Jovian magnetosphere. By incorporating these and potentially further observations or models of the plasma environment in the training, our method would produce a tool that is ready to accept PIMS measurements as they become available. This work is supported by the NSF REU Solar Physics Program at SAO, grant number AGS-2244112.

9:00 AM   37

Utilizing Atropisomerism as a Strategy to Obtain a Mutant Selective c-KIT Inhibitor
Angeline Philip, Biology with an emphasis and cellular and molecular biology (U)

Atropisomerism is a form of axial chirality that arises from hindered rotation abouta chiral bond. Our group has hypothesized that one atropisomer will bind to the desired target's active site, while the other atropisomer can bind to off-target kinases, thus leading to undesired side effects seen in many FDA approved drugs. Furthermore, we have shown that the selectivity towards a particular kinase can be improved by tuning the dihedral angle about the prospective atropisomeric axis in a low energy conformation that corresponds to that of the desired target. We are employing this hypothesis to obtain a potent, and selective inhibitor of the receptor tyrosine kinase (RTK), c-KIT. Activating mutations and genetic alterations in this kinase have been identified in many cancers, including gastrointestinal stromal tumors, gliomas, and lung cancers. An X-ray co-crystal structure revealed that a close analog of the FDA approved c-KIT/PDGFRA inhibitor, Ripretinib, binds c-KIT in a near-orthogonal conformation about the aryl-heterocycle axis. While Ripretinib has been found to target a broad rangeof oncogenic and drug-resistant c-KIT/PDGFRA variants, it has also been shown to inhibit several other RTKs, leading to undesired side effects observed in patients. Thus, we hypothesized that Ripretinib's selectivity can be improved to target c-KIT through tuning the dihedral angle about the atropisomeric axis in a near-orthogonal conformation, aligning with the preferred binding mode of this kinase. We have designed and synthesized atropisomeric Ripretinib derivatives with various sterically bulky groups, such as halogens and alkyl groups, adjacent to the chiral axis in order to stabilize the dihedral angle in this conformation. In collaboration with the Sicklick group at the UCSD Moores Cancer Center, we found one of our compounds to be significantly more selective than Ripretinib towards inhibiting mutant c-KIT compared to the

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wild-type in cell viability assays. Further experiments in cell-free assays are currently underway in order to validate this result, as well as evaluate the efficacy towards other clinically relevant c-KIT mutants.

9:00 AM   38

Investigating the Bimetallic Synergism of Copper and Nickel as Electrocatalysts for Biomass Conversion

Claire Baeriswyl, Chemistry (U)

Growing global energy demand, depletion of fossil fuels, and harmful greenhouse effect have led to increasing interest in carbon-neutral, sustainable energy sources. Hydrogen fuel has been identified as a promising source for mankind's future energy supply. Although 95% of hydrogen fuel is derived from steam methane reforming, there is significant potential for broader adoption of green hydrogen. Green hydrogen fuel can be produced through an electricity-powered water-splitting reaction. The water-splitting reaction consists of two coupled half-reactions: a water reduction reaction for hydrogen generation (HER) at the cathode and a water oxidation reaction to produce oxygen (OER) at the anode. The anodic half-reaction poses a challenge due to its disproportionate sluggish thermodynamics and kinetics. While researchers have had success designing precious metal-based electrocatalysts to reduce energy barriers, there remains a need for designing inexpensive catalysts with high performance. Additionally, OER can be replaced with biomass oxidation to improve kinetics, reduce energy input, and produce value-added products. Herein, we identify copper deposited on nickel foam (Cu-Ni@NF) as an efficient bimetallic electrocatalyst for converting biomass-derived compounds into value-added products. This study focused on biomass compounds containing 5 to 6-carbon polyols. In each substrate under alkaline conditions, Cu-Ni@NF demonstrated strong C-C bond cleavage capabilities, leading to the formation of formic acid through the Nuclear Magnetic Resonance (NMR) analysis. The polyols to formate conversion selectivity, percent conversion, and faradaic efficiency were further analyzed. To understand the bimetallic synergistic advantages of Cu-Ni@NF, surface analysis using Raman spectroscopy and X-ray photoelectron spectroscopy (XPS) pre- and post-electrolysis were compared to capture the catalyst evolution during the electrochemical conversion process.

9:00 AM   39

Electrocatalytically Upcycling of Biomass Toward High Selective Formic Acid Production

Evan Ji, High School Student (U)

Upcycling biomass through electrocatalysis is a promising and sustainable method to combat climate issues by concurrently producing green hydrogen and value-added chemicals, such as Formic acid, Glucaric acid, and Glycolic acid, with lower energy input. However, the current catalysis technologies rely on precious metals such as platinum(Pt) and ruthenium(Ru), which are too expensive for mass-production viability. In this investigation, we screened several bimetallic electrocatalysts involving transition metal oxides to maximize performance measured by faradaic efficiency, percent yield, and selectivity targeting formic acid. The biomass evaluated includes C2 - C6 compounds, Ethylene Glycol, Glucose, and Sorbitol. This study focused on identifying bimetallic electrocatalysts with synergistic interactions to boast biomass electrooxidation performance. The electrocatalysts tested include Pd-Ni(OH)2@NF, Au-Ni(OH)2@NF, and NiCo2O4@NF deposited on Nickel Foam(NF). Each catalyst was evaluated electrochemically through linear sweep voltammetry(LSV) to measure onset potential and current density, then electrocatalyzed for 1 hour for product analyses. Nuclear Magnetic Resonance spectroscopy(NMR) was employed to uncover the identity and concentrations of the products. Herein, we report that Au-Ni(OH)2 had the highest percent yield (~48.6%) for formic acid for the Ethylene Glycol oxidation reaction(EGOR) and Sorbitol oxidation reaction(SOR) (~47.0%). Whereas NiCo2O4@NF obtained the highest Faradaic Efficiencies of ~69.5% for EGOR, ~80.1% for oxidizing Glucose, and ~78.4% for SOR. For every test, Formic acid selectivity was above 96%, with NiCo2O4@NF in GluOR with the highest yield at ~99.1%. Further electrochemical, kinetic, and surface analysis of the electrocatalysts was performed to understand the bimetallic synergistic advantages over monometallic catalysts for biomass electrooxidation. Overall, the electrolysis of biomass is an innovative and efficient method of producing green hydrogen and synthesizing valuable building block chemicals such as formic acid.

9:00 AM   40

Exploration of Deep Eutectic Solvents

Kayla Arlantico, B.S. Chemistry with an emphasis in Biochemistry (U)

Deep eutectic solvents (DES) are a type of green solvent that is increasingly being researched for its benefits in organic and analytical chemistry. Every DES contains a hydrogen bond donor and a hydrogen bond acceptor and are known to possess characteristics different from normal buffer solutions and organic solvents. Commonly, researchers have used DES in place of organic solvents since DES are biodegradable, generally non-toxic, have a lower melting point, and are cheaper. Our lab specializes in capillary electrophoretic separations, which are based on the size and charge of the sample; the larger the size or smaller the charge, the slower it will move, and vice versa. We wish to explore the us of DES to see the capabilities it has, how it impacts the electro-osmotic flow (EOF) of the analytes, and other changes it presents in the system.In this area of experiments, a DES of 2:1 Ethylene Glycol: Dimethylaminoethanol is being deployed. Due to the viscous nature many DESs exhibit, mixtures of DES: aqueous buffer are created to battle the difficulty related to separations at a pure DES solution when analyzed via capillary electrophoresis (CE). A buffer of pH 7.5 phosphate is incorporated with 2:1 EGDMAE in increments of 5% to perform separations on analytes from small ions to proteins. It was observed that the higher the concentration of DES within a solution, the slower the electro-osmotic flow (EOF) of the analyte. The electrophoretic mobility of analytes in these

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buffer systems was seen to be changing when it should remain constant, based on CE theory. We believe that the DES may be changing the hydration shell around the proteins, differing from the behavior of a regular aqueous buffer. This poster will present the detailed findings of our measurements of the electrophoretic mobilities for a range of analytes, and EOF values for multiple DES-buffer combinations. We will present our theory on why the mobilities of analytes changes in unexpected ways in this new separation medium.

9:00 AM   41
Elucidating the effect of IDH1 mutations on its hydride transfer reactivity
Mateo Contreras, Chemistry B.S. (U)

Isocitrate dehydrogenase 1 (IDH1) is a human enzyme that, through mutation, has been observed to promote the production of an oncometabolite. The present study employs computational chemistry to model this system and provide deeper insights into the mechanism of the enzymatic reaction. The biochemical reaction of focus is a hydride transfer from the isocitrate molecule to an NADP+ moiety. Comparing the free energy barrier of this process in the wild type reaction to its mutated counterparts can enhance our understanding of the catalytic mechanism of this enzyme. Our exploration began with a preliminary system that was built using only the species participating in the enzymatic reaction, including ICT, Mg2+ ion, the head part of NADP+, and a truncated lysine residue. Density functional theory (DFT) calculations were performed with an implicit solvent model to predict the free energy barrier of the hydride transfer process, which turned out to overestimate the barrier compared to the literature values. To improve the accuracy of the free energy predictions, we created more sophisticated cluster models for the enzyme active site using the Protein Data Bank structures of IDH1 and its mutants. These systems included the previously mentioned molecules, with the addition of enzyme residues and water molecules that coordinate to the magnesium center. The wild type enzyme system contains lysine residue 72, which exerts an inductive effect on a carbon atom in NADP+, making it more electropositive and thereby facilitating hydride transfer. In the mutated variants, lysine 72 is replaced with asparagine, histidine, and glutamine. To ensure that these larger clusters resemble the active-site structures of enzymes, a harmonic confining potential is applied to the atoms at the edge of the active site where truncation occurs. Under this constraint, the optimized structures and vibrational frequencies of the reactant, transition, and product states were computed to determine the free energy barrier of each mutant.

9:00 AM   42
Deep eutectic solvents as media for protein separation
Payton Lee, Chemistry (U)

A deep eutectic solvent(DES), is a type of solvent formed via the mixture of a hydrogen bond donor(HBD) and a hydrogen bond acceptor(HBA) whose product experiences a severe depression of its melting point in comparison to the individual constituents. This class of solvent can potentially function as a cheaper, safer, and environmentally conscious alternative to other solvents on the market. Due to this solvent's ease of preparation, incredible stability, and biodegradability it is the perfect material to consider as separation media for capillary electrophoresis (CE). However not all DES are made equal, due to the limited dimensions of the capillary itself, any DES that is too viscous makes obtaining a separation incredibly difficult to achieve. In that circumstance, the problem can be alleviated via the mixing of a DES with an aqueous buffer of choice to reduce the viscosity of the media. We have prepared mixtures of a DES (1:4-betaine:ethylene glycol) and an aqueous buffer (sodium phosphate) at a range of percentages from 5% DES to 100% DES. These solutions have been examined for their impact on electroosmotic flow in CE separations, revealing how the change in separation media impacts separations. In addition we have compared two variants compositions of the DES: a 1:4 and 1:3 betaine:ethylene glycol ratio to determine how this subtle change might impact separations. This poster will present our data exploring how the viscosity of the DES impacts the EOF in a separation, by comparing data collected with two different DES (1:3 vs. 1:4 betain:ethylene glycol). This presentation will also explore the impact, and potential benefits of, separating proteins in a DES as compared to more traditional aqueous buffers.

Session F-7

Health Nutrition and Clinical Sciences (U) 1
Friday, February 28, 2025 9:00 AM
Montezuma Hall

9:00 AM   43
Overground Walking Adaptations to Unloading Knee Braces in Patients with Knee Osteoarthritis
Aalok Gokarn, Kinesiology (Pre-PT) (U)

Knee osteoarthritis (OA) is a degenerative disease marked by chronic pain and limited mobility. These limitations are further worsened by muscle wasting and compensatory overloading of the opposite knee. Unloading knee braces may restore mobility by alleviating walking pain. This study examines the effects of two unloading knee braces, Guardian and Ossur, on short-term overground gait adaptations. The Guardian brace incorporates features that promote full knee extension at heel-strike, encouraging longer and faster steps. Based on this design, we hypothesize that the Guardian brace will have a stronger rehabilitative effect than the Ossur brace by more significantly increasing step length and walking speed. Participants (Guardian Brace: n=7, aged 40"70; Ossur Brace: n=8, aged 40"70) were recruited from individuals with unilateral medial knee OA, diagnosed as moderate or severe through imaging and clinical evaluation. Inclusion criteria required a confirmed diagnosis and the ability to walk unaided for five minutes. Preferred walking speed and step length were initially assessed as subjects walked 40m without a knee brace (no-brace). Subjects then practiced walking with their knee brace during two 5-minute sessions, with preferred gait measured over

ABSTRACTS

(U) = Undergraduate ; (M) = Masters ; (D) = Doctoral

the last 40m of each session (5-min brace, 10-min brace). Final preferred gait with the brace was assessed over 40m (final-brace). Cost of Transport (CoT) was measured at no-brace and final-brace gaits to quantify the energy required to move a given distance, with lower CoT indicating greater metabolic and gait efficiency. A repeated measures ANOVA compared gait variables (walking speed, step length, CoT) between brace types (Guardian and Ossur) and walking conditions (unbraced/braced). We found that Guardian subjects increased both walking speed and step length to a greater extent than Ossur subjects as they adapted to walking in their brace (brace type - walking condition interaction for walking: p = 0.015 and step length: p=0.012). CoT was not significantly affected by brace type or walking condition (p>0.15). Our findings suggest that the Guardian brace offers superior rehabilitative effects by increasing step length and walking speeds without altering gait efficiency.

9:00 AM   44

The Need to Generate Stem Cell Banks from a Diverse Range of Individuals to Advance Research Towards Personalized Medical Treatments

Abygail Olivares, Biology (U)

Since the start of stem cell research in the 1970s, researchers have made long strides in advancing the fields of disease modeling, regenerative medicine, and drug screening. Despite the rapid progress and spread of stem cell awareness, gaps in the field remain. One of the largest hindrances in stem cell research to date is the limitations on genetic variance. While there has been some growth in knowledge of stem cells among the general populace, this exposure has been limited to the use of stem cells for cosmetic and athletic treatments rather than the potential of stem cells in clinical treatments and personalized medicine. Our lab sits in a unique intersection of science and medicine which allows us to receive primary patient materials for generation of induced pluripotent stem cells (iPSCs). Still, a majority of samples we receive are from older individuals with neurological, neuropsychiatric, and neurodegenerative diseases. This leaves a lot to be desired for wild type, age matched controls, as well as, individuals from diverse socioeconomic backgrounds. We intend to increase awareness of stem cell research, educate the general populace about the methods and importance of cell donation, and reduce barriers for stem cells lines in a research setting.

9:00 AM   45

Knee Brace-Associated Improvements in Walking Kinematics Among Knee Osteoarthritis Patients

Amanda Williams, Kinesiology (U)

Knee osteoarthritis (KOA) patients experience pain-induced mobility limitations. Rehabilitative interventions like unloading knee braces may improve mobility outcomes. This study examines the effects of the Guardian and Ossur braces on lower limb kinematics during treadmill walking. Notably, the Guardian brace is designed to promote terminal knee extension and increase step length. We hypothesized that the Guardian brace will yield greater gait improvements, including increased step length and increased knee extension and heel contact

during the initial stance phase.Participants were individuals with moderate or severe unilateral medial KOA (Guardian Brace: n=7, mean age 57 years ; Ossur Brace: n=8, mean age 62 years), confirmed by imaging and clinical evaluation. Inclusion criteria required participants to walk for 5 minutes unaided, while exclusion criteria included recent surgical interventions or other conditions affecting gait. Participants's preferred walking speed and step length were assessed both unbraced and after a 10-minute acclimation period wearing the brace. Subjects walked in three treadmill conditions: 1) unbraced walking at unbraced preferred gait, 2) brace worn walking at unbraced preferred gait, 3) brace worn walking at braced preferred gait while lower limb kinematics were measured using motion capture. A repeated-measures ANOVA, compared kinematic gait measures between brace groups and treadmill conditions.Preliminary results distinguish the two braces. The Braced group did not significantly modify the effect of treadmill condition on knee angle or foot angle at heel-strike (both p>0.21). However, the Ossur brace tended toward decreased knee extension when wearing the brace and the Guardian brace tended towards increased foot angle (greater heel contact) when wearing the brace at the brace preferred gait. Step length increased for both braces on both the arthritic and non-arthritic leg (both p<0.004), with the Guardian brace demonstrating a more pronounced effect (both p<0.003).Our findings suggest that the Guardian brace may promote more favorable gait adaptations compared to the Ossur brace, particularly by increasing step length and heel contact, which could enhance limb loading mediated muscle recruitment. These results highlight the potential for brace design to influence gait and inform rehabilitative strategies for individuals with KOA.

9:00 AM   46

Impacts of invasive vegetation on fire and burn severity patterns in Otay Valley Regional Park, San Diego

Anahi Mendez Lozano, Environmental Engineering (U)

Riparian zones provide vital ecosystem services, including water purification, soil aeration, and recreation. Anthropogenic activities and invasive plant species threaten native vegetation and alter fire patterns. This study investigated the impact of invasive vegetation cover (IVC) on riparian fire patterns in Otay Valley Regional Park, San Diego, California, using Sentinel-2 imagery to analyze 17 fires that occurred in 2019. The impact of IVC on fire patterns was assessed using high-resolution normalized difference vegetation index (NDVI) and differenced normalized burn ratio (dNBR) from 2019"2023. Results showed high NDVI variability in areas with >75% IVC, which is expected due to the rapid and aggressive regrowth patterns of non-native species. Non-native species like Tamarix ramosissima and Eucalyptus sp. were resilient, which maintained high pre- and post-fire NDVI. Rapid recovery of Arundo donax was characteristic of the non-native grass-fire cycle. This study emphasizes the need for integrated field and remote sensing approaches, incorporating plant phenology, to effectively monitor and manage fire in riparian ecosystems with high invasive species abundance.

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9:00 AM 47

Comparing Trans Fatty Acid Production Through Heat in Rapeseed, Soybean, and Olive Oil Oils

Beniam Refera, Foods & Nutrition (U)

Trans fatty acids (TFAs) are recognized as a risk factor for cardiovascular and other chronic diseases. Understanding their formation during cooking is crucial for minimizing associated health risks. This study investigated the formation of TFAs in rapeseed, olive, and soybean oils under various cooking temperatures. We hypothesized that rapeseed and soybean oils, due to their high unsaturated fatty acid content, would produce more TFAs at lower temperatures compared to olive oil. Molecular dynamics simulations were conducted at 850K, 900K and 950K using the CHON-2019.ff force field to analyze structural changes in the oils. The simulations incorporated realistic fatty acid compositions and common oxidants (O_2, H_2O_2) to mimic cooking conditions. Results indicated an increase in TFA formation with rising temperatures, particularly noticeable in rapeseed oil. Minimal TFA formation was observed below 200°C. These findings suggest the susceptibility of rapeseed oil to TFA production under prolonged high-temperature conditions and highlight the importance of cooking oil selection and temperature control to mitigate health risks associated with high TFA intake.

9:00 AM 48

The Impact of Asylum-Deterrence Policies and Other Socio-Structural Factors on Sexual and Reproductive Health Outcomes for Asylum-seeking women in Transit to the United States: A Systematic Review

Charlize Chu, Public Health (U)

Background: Refugee and asylum-seeking populations have been identified as at-risk of adverse SRH outcomes during times of forced displacement, including unmet perinatal health needs and associated morbidities, unplanned pregnancy, and gender-based violence. Though empirical research remains limited, evidence from other complex border environments suggests that socio-structural conditions perpetuated by and alongside asylum-deterrence policies significantly impact the SRH of displaced women.Objective: To systematically examine the ways in which asylum-deterrence policies and practices in concurrence with other socio-structural factors influence access to SRH care and SRH outcomes among asylum-seeking women transiting through Latin America to the US and develop a novel theory-driven framework outlining the socio-structural determinants of SRH within the context of forced displacementMethods: This systematic review was conducted in accordance with the Joanna Briggs Institute Methodology for Systematic Review. Relevant studies included asylum-seeking women (cis and trans inclusive) of any country of origin who have

transited through Latin America with the intention of seeking asylum in the United States, via the Southern US-Mexico land border. Search criteria were developed alongside a librarian-scientist and articles were retrieved across multiple databases, including PubMed, CINAHL, LILACS, and PsychInfo. Results: A total of 3,331 articles were identified, with 1,346 duplicates removed. 1,985 titles and abstracts were reviewed with 1805 studies excluded due to irrelevance to the research questions. 123 full-text articles were reviewed for inclusion and a final 23 peer-reviewed research articles were included. 34.8% (n=8) of articles examined STI and HIV/AIDS risk and healthcare access, 30.4% (n=7) access to perinatal care, 30.4% (n=7) gender-based violence, and 4.3% (n=1) contraception and family planning.Conclusion: Findings reveal critical gaps in access to SRH care for asylum-seeking individuals. It is crucial to address these barriers in hopes of reducing health disparities among systematically vulnerable populations, contributing to individual and public health outcomes. Most studies addressed HIV/STIs, and we identified major gaps in the literature addressing broader SRH needs including family planning.

9:00 AM 49

Campus Safety Skateboard Study

Emily Hernandez Rincon, Psychology: emphasis in neuroscience (U)

Under the direction of Dr. Bruce Appleyard of San Diego State University, the Urban Sustainability, Livability, and Equity (SLE) research team, supported by the Faculty Student Mentorship Program (FSMP), investigates the dynamics of skateboarding safety along HillTop Way. The study focused on specific dynamics, including skateboarders' behavior, skills, and potential hazards, utilizing video recordings and surveys as research methods. This research uniquely captures the experiences of skaters and pedestrians when navigating HillTop Way. We identified specific skills such as brake-change behaviors, collision occurrences, and congestion clustering by analyzing video footage. Additionally, we observed and concluded that pedestrian congestion patterns shift dynamically, with vehicle congestion becoming more hazardous when navigating HillTop Way. From our review of the videos, we found that high road and vehicle congestion often lead to increased brake-change behaviors leading to a higher frequency of collisions. This work aims to enhance the safety and accessibility of SDSU's campus transportation system by providing safety solutions that promote equity, safety, and sustainability. Incorporating stops, caution, or warning signs, particularly for skateboarders and pedestrians. By addressing these challenges, we can improve the quality of life of SDSU students and transportation equity for the diverse SDSU community.

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Session F-8

Behavioral and Social Sciences (G) 1
Friday, February 28, 2025 9:00 AM
Montezuma Hall

9:00 AM   50

How Gen Z and Millennial Social Media
Patterns Can Predict Gen Alpha Behavior
for Digital Marketing
Belen Ruth Herrera, MA Communication and Mass Media (M)

This literature review explores the evolving digital world of social media platforms and usage across generations, focusing on how Gen Z and Millennial social media behaviors can inform digital marketing strategies for Generation Alpha. This research explores the unique ways different generations engage with social media, noting that Gen Z, born into a digital world, approaches these platforms differently from Millennials, who adapted throughout the development of social media. Key findings reveal that Gen Z, comprising approximately 90% of adults aged 18-24 actively using social media, values authenticity and is more skeptical of traditional marketing tactics such as influencers. In contrast, Millennials tend to use social media for self-promotion and are more likely to trust influencer recommendations, with 25% willing to purchase products based on social media ads. The study uses theoretical frameworks like the Uses and Gratifications Theory and Theory of Planned Behavior to understand these generational differences, aiming to provide marketers with insights into effectively reaching Generation Alpha, a demographic growing up with unprecedented technological accessibility.

9:00 AM   51

Gender and Sociability
Citlalli Martinez Cano, Sociology (M)

Sociability is linked to health and social outcomes, yet gender differences and inequalities in sociability remain underexplored, particularly regarding financial success and geographic mobility over time. Previous literature has consistently shown that the social quality of a community impacts women. Using the General Social Survey (2016"2022), this study uses Ordinary Least Squares Regression to examine gendered sociability across settings: evenings spent with neighbors, friends, relatives, and at bars. Results show gender negatively predicts sociability except with relatives, where women exhibit stronger involvement. Time spent with friends was the only non-significant measure. Contextual factors, including the pandemic, geography, work hours, marital status, age, happiness, and financial satisfaction, reveal nuanced influences on sociability. These findings emphasize how individual and structural factors shape social behaviors differently across contexts, offering insights into gendered patterns of sociability.

9:00 AM   52

Anti-Trans Abuse in Intimate Partner Violence and Its Impact on Transgender and Nonbinary Health
Cleo Spencer, Master of Public Health (M)

Purpose: Transgender and nonbinary (TGNB) individuals are disproportionately affected by intimate partner violence (IPV). Current understandings of IPV overlook the unique stressors in TGNB individuals' relationships and their impact on TGNB health. The objective of this analysis was to identify preliminary themes surrounding unique forms of IPV experienced by TGNB individuals and their impact on mental and sexual health.Methods: As part of a national two-phase longitudinal cohort study called RADIANT, semi-structured interviews were conducted with 32 TGNB individuals aged 18-45. Participants were recruited from April to October 2024 via online and venue-based recruitment methods. Interviews were conducted in English, audio-recorded, and transcribed verbatim. Applied thematic analysis guided coding and theme development. Interview questions asked about sexual and romantic relationships, forms of IPV, and impacts of IPV on sexual health.Results: Ongoing analysis shows that IPV among TGNB individuals often includes anti-trans discrimination and abuse. This includes partners controlling their TGNB partner's gender expression, preventing gender transition, demeaning TGNB identity, and coercing them into gender dysphoric sex. Abusive partners used coercive control to pressure their TGNB partner to change their appearance or behavior to conform to binary gender roles, often those associated with their sex assigned at birth. Abusive partners also pressured their TGNB partner to forgo gender-affirming hormone therapy or surgeries. Participants reported partners minimizing TGNB identity or using transphobic rhetoric to put them down. Participants also described being coerced into specific sexual behaviors that caused or exacerbated gender dysphoria. All four examples of anti-trans abuse were more common within relationships between a cis partner and TGNB partner, as opposed to relationships where both partners are TGNB. Participants described how these instances of IPV negatively impacted both their mental and sexual health. IPV exacerbated existing mental health concerns and contributed to negative self-perception among TGNB individuals. It also prevented TGNB individuals from having agency over their use of condoms, PrEP, or HIV/STI testing.Conclusion: IPV prevention and intervention services for TGNB populations may benefit from integration of the unique anti-trans abuse impacting TGNB relationships, including in awareness raising, educational programming, IPV screening, and training for healthcare providers.

9:00 AM   53

Diverse Young Adults and Depressive Outcomes
David Magallanes, Sociology MA (M)

Several studies using the the Future of Families and Child Wellbeing Study database (FFCWS), have been able to explore youth depression and anxiety with a comprehensive set of controls on family, neighborhoods, and school factors. In addition, one salient gap found in the literature that uses FFCWS

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database, usually utilizes the focal child's parents or caregivers' perception about their children's mental health experiences rather than directly assessing the focal child. Exploring the mental health of the focal child is important in understanding what their experiences entail rather than their parents or caregivers' perception. Thus, the current study was designed to address and critically examine the differences in depressive outcomes among young adults at wave 7 (age 22), n = 2,290, with different racial or ethnic backgrounds, strictly using the FFCWS database. In two models, Black or African American respondents had significantly, less depressive outcomes when compared to white respondents, when controlling for other variables. Although, throughout each model, other racial groups had more depressive outcomes compared to whites, neither were significant in the hypothesis testing. Further exploration is needed of how other mental health outcomes impact young adults and can also be insightful in providing the necessary support to address the unique challenges each racial or ethnic group encounters.

9:00 AM　54

Belief in Election Conspiracies:
The Interplay of Evangelical Identity and Alienation in Democratic Trust

Dean Hall, MA/Sociology (M)

Understanding the dynamics of belief in election conspiracies is essential for navigating the polarized landscape of contemporary American democracy. This study focuses on the role of Evangelical and Fundamentalist identities and feelings of alienation in shaping susceptibility to conspiratorial thinking, particularly among white Evangelical Christians. Guided by Erich Fromm's Theory of Irrationality and the broader literature on symbolic interactionism and social identity theory, the research investigates how these identities and perceptions of systemic discrimination influence beliefs in election conspiracies. The analysis utilizes Ordinary Least Squares (OLS) regression to analyze data from the 2020 Times Series Study Full Release (N=8280). The findings reveal significant associations between Evangelical and Fundamentalist identities, perceived discrimination, race, income, and conspiratorial beliefs. This research bridges gaps in the existing literature by contextualizing conspiratorial beliefs within frameworks of identity and perceived alienation. By integrating Fromm's psychological insights with theories of inequality, the study underscores the role of identity and perceived threat in shaping trust in democratic institutions. These findings contribute to scholarly and practical conversations on addressing polarization, reinforcing democratic trust, and mitigating the spread of misinformation.

9:00 AM　55

Screening Sexual Minority Men for Intimate Partner Violence in Clinical Settings:Provider Experiences and Recommendations

Divya Sen, Masters of Public Health (M)

Purpose: Sexual minority men (SMM) are disproportionately impacted by intimate partner violence (IPV). Current screening practices are inconsistent and biased towards heteronormativity. The objective of this analysis was to identify limitations that exist with current IPV screening practices and recommendations for improving the efficacy of IPV screening in this community. Methods: Providers (n=10) were recruited from LGBT-serving organizations in Los Angeles. Semi-structured interviews were conducted in English, audio-recorded, and transcribed verbatim. An applied thematic analysis approach was implemented to create memos, inductively generate a codebook, apply codes to the transcripts, and identify key themes in data. Results: Two categories of themes were identified: barriers to efficacious IPV screening among SMM, and recommendations to improve IPV screening among SMM. The four themes for barriers were: 1) Screening has low sensitivity for non-physical forms of IPV, 2) Not enough time to screen at intake, 3) Unable to establish a safe space or build rapport with client, and 4) Lack of education on how to screen in SMM relationships. The three recommendations to improve IPV screening were: 1) Preemptively define all forms of abuse using client-led, non-triggering language, 2) Train providers on SMM-specific identification and assessment of IPV, and 3) Create environments that promote client wellbeing. Conclusion: These findings suggest the need for more training for providers on IPV among SMM. Clinicians may benefit from using an IPV screening tool specifically designed for this community.

9:00 AM　56

The Role of Inhibitory Control in Predicting Indiscriminate Friendly Behavior in Later Childhood

Elvan Guzman, M.S. Early Childhood and Family Clinical Counseling (M)

BackgroundChildren who have been adopted into the United States from international countries have often experienced a range of early stressors. These children have been shown to display indiscriminately friendly behavior, which is a lack of differentiation between strangers and familiar people (Smyke, Dumitrescu, & Zeanah, 2002). Indiscriminately friendly behavior has been shown to be associated with later difficulties with social relationships (Zeytinoglu, Morales, Henderson, Fox, 2023), but the developmental underpinnings of this behavior are not well understood. Inhibitory control refers to a child's ability to resist temptation/impulses and hinder from actions that are prohibited. This study examines whether problems with inhibitory control during early childhood is associated with the later development of indiscriminate friendliness.Method & ProcedureParticipants were 109 children who were adopted from international countries into the United States during early childhood. Children were adopted from a range of international countries (China=41%, South Korea=16%, Russia=15%, Ethiopia=12%) Children were assessed for problems with inhibitory control with an observational task when they were approximately 24 months old (M=27.4, SD=6.1) and 48 months old (M=48.3, SD=5.6). Children were given crayons and paper and told to abstain from touching the crayons when the researcher left the room. Recordings were coded for the number of seconds the child touched the crayons. Indiscriminate friendliness was measured at 48 months old with a semi-structured parent interview, which was later coded for levels of indiscriminate friendliness on a

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scale of 1 to 5 (Chisholm, 1998).ResultsGiven the skewness of the outcome variable (skewness= 1.18 kurtosis = .29), a poisson regression model was run. Higher levels of problems with inhibitory control at 24 months significantly predicted higher levels of indiscriminate friendliness at 48 months, controlling for problems with inhibitory control at 48 months (B = .01, p = .015). These results held when controlling for child gender, age, race/ethnicity, and intervention.ConclusionThese results suggest that early problems with inhibitory control in children adopted internationally may be associated with later indiscriminately friendly behavior. This helps to elucidate possible developmental underpinnings of these indiscriminately friendly behaviors. In addition, these results point to possible intervention targets to reduce indiscriminately friendly behavior, improve parent and child relationships, and improve children's later social development.

Session F-9

Biological and Agricultural Sciences (G) 1
Friday, February 28, 2025 9:00 AM
Montezuma Hall

9:00 AM   57

Preliminary Assessment on Agricultural Occupational Exposures in Relation to Acute Kidney Injury

Cynthia Abuede, Public Health/M.S. (M)

Agricultural exposure studies often fail to include women over 40 and adverse health outcomes. Farmworkers are frequently exposed to pesticides, herbicides, and fungicides, which often lack disclosure of individual or highly toxic chemicals in their formulations. Combined exposure to pesticides, extreme heat, inadequate hydration, and prolonged exposure periods makes the kidneys vulnerable to acute injury, increasing the risk of chronic kidney disease. This study aims to assess the risk of acute kidney injury among Latina farmworkers by analyzing levels of several kidney injury biomarkers, including specific gravity and Lipocalin-2. Urine samples were collected from 80 participants"40 farmworkers and 40 non-farmworkers"all Latina women over 40 years old residing in Imperial County, California. The collection was facilitated by promotoras de la salud, or community health workers. A single urine sample was collected from each participant. Participants provided informed consent and answered several questionnaires, including a demographic survey, environmental exposures, and the PREPARE Screening Tool. Key urine analytes, including blood, specific gravity, and protein, were assessed using CLIA-approved dipsticks to identify potential kidney dysfunction. The kidney biomarker Lipocalin-2 expression was quantified using the Human Lipocalin-2/NGAL Enzyme-Linked Immunosorbent Assay (ELISA) Kit. Farmworker women experienced more significant exposure to pesticides and extreme heat due to occupational factors than non-farmworker women. Initial findings indicate higher concentrations of specific

gravity and protein in farmworkers than non-farmworkers. Elevated levels of Lipocalin-2 were measured, mostly among farmworkers. Elevated levels in non-farmworkers may suggest indirect pesticide exposure from the region's intensive agricultural activities. Lipocalin-2 levels can be elevated due to acute factors such as medication use, dehydration, and inflammation, all of which are indicative of acute kidney injury.ï»¿The agricultural workforce is increasingly composed of women, predominantly Latinas. Substantiating evidence has shown differences in organ hormonal responses and metabolic panels based on sex. Female farmworkers face both acute and chronic exposure to occupational chemical hazards, often without awareness of the associated risks, which may contribute to adverse health outcomes such as dehydration and kidney damage. Since farming activities are continuously being linked to an increased risk of acute kidney injury, isolating by sex allows for necessary comparative risk analysis as well as contributing to the limited literature regarding Latina farmworker exposures. Future research should investigate additional urinary biomarkers of kidney function, such as IL-18 and KIM-1, to further elucidate exposure-related risks.

9:00 AM   58

Monitoring Changes in Plasticity Following the Introduction of Psychedelic Compounds in Cortical Organoids

Dylan Oates, Biology with a concentration in Molecular Biology (M)

There is a rising need to develop novel and more effective medication to treat depression and anxiety disorders, which impact a significant portion of the world's population. A potential solution can be found in neurotherapeutic psychedelic compounds, which have a rapid and enduring impact on synaptic plasticity and behavior. While the clinical efficacy of these molecules is being investigated, little is known about the precise mechanisms by which acute treatments leads to long-term structural and functional effects. For instance, the balance between excitation and inhibition plays a critical role in shaping cortical circuitry and underpins several neuropsychiatric and neurodevelopmental disorders. The spatio-temporal mechanisms by which excitatory and inhibitory activity regulate circuit refinement over different developmental windows is not well understood. Even less is known about how psychedelic compounds impact these crucial neurodevelopmental processes leading to long-term changes in neural circuitry and function. In this research, I will assess the impact of serotonergic psychedelic compounds on E/I balance and the synaptic development of cortical organoids derived from human induced pluripotent stem cells (iPSCs). I will investigate the biochemical pathways involved in regulating E/I balance and synaptic development across different stages of organoid maturation. I will then assess how exposure to psychedelic compounds at distinct developmental windows affects these processes. State-of-the-art techniques, including optogenetics paired with multi-electrode array (MEA) recordings, will be employed to monitor E/I balance. To further

(U)=Undergraduate; (M)=Masters; (D)=Doctoral

ABSTRACTS

explore how psychedelics impact synaptic development, I will use transcriptomic analysis and immunofluorescence imaging to assess neurite growth and synaptic connectivity. This research will help identify critical periods when neural circuits are most susceptible to disruptions in E/I balance and how these vulnerabilities differ across neurodevelopmental stages, such as axon guidance and synaptic formation.

9:00 AM   59

The Generation of HEK293T Cell Lines That Disrupt Binding Interactions of NEMO Using Prime Editing

Sally Luong, Chemistry (D)

NF-κB essential modulator (NEMO) is a necessary scaffold subunit of the Inhibitor of NF-κB Kinase (IKK) complex. IKK is central to the nuclear translocation of NF-κB, which is an inducible transcription factor that controls inflammatory gene expression. Activation of IKK catalytic activity in response to TNF-α and other canonical inducers of NF-κB requires formation of non-degradative linear polyubiquitin chains and their association with its NEMO subunit. Active IKK phosphorylates IκBα, an inhibitor protein of NF-κB, and triggers its degradation, thereby allowing NF-κB to enter the nucleus. Recent observations suggest that the IKK NEMO subunit, upon noncovalent association with linear polyubiquitin, mediates a second protein-protein interaction with the catalytic IKK2 subunit and primes the complex for activation. To investigate the direct involvement of NEMO in promoting catalytically active IKK, we have generated two engineered HEK293T cell lines in which NEMO has been mutated to lack its ability to bind to this secondary protein-protein interaction and to linear polyubiquitin, respectively. We used the CRISPR-Cas9 prime editing system to mutate the HEK293T cell line and verified the introduction of the mutation through Sanger sequencing and western blot. In future endeavors, the mutated cell lines will be used to compare to the normal wild-type and knockout NEMO cell lines to monitor NEMO-mediated signaling events.

9:00 AM   60

Exploring the role of ABC Transporters in the development of stem cells for future egg and sperm

Timothaus Haddad, Cellular and Molecular Biology (D)

Cellular defense systems are fundamental to life and dictate survival in an increasingly polluted world. The germline of an organism is the most important cell type to protect, as it propagates the next generation. The germline is first defined at the primordial germ cell (PGC) stage: the embryonic stem cells to future eggs and sperm. PGCs undergo many metabolic reactions that enable their specification and migration to the embryonic gonad. These are controlled by molecular signals and epigenetic modifications. However, little is known about the protection of PGCs from outside toxicants during their inception. Pivotal to the front lines of established cellular defenses are transporters of the ATP-binding cassette (ABC) transporter superfamily. The primary conserved function of

the exporting type of ABCB, -C, and -G transporters is to export xenobiotics, metabolic byproducts, and other small molecules out of the cell. In addition, the C-subfamily of ABCs export signaling molecules that are essential for the growth and proliferation of stem cells. Given the duality of transporter functions, I sought to identify which ABCs were utilized in human PGCs, using a cell culturing approach for inducing human PGC-like cells (hPGCLCs) from embryonic stem cells (hESCs) in-vitro. I first identified novel localization of ABCG2, -C4, and -C1 proteins in hPGCLC membranes, with ABCC1 being the most enriched compared to hESCs. Next, pharmacological inhibition of ABCC1 with the compound MK571 resulted in 50% less hPGCLC induction compared to vehicle controls. Furthermore, the addition of higher concentrations of the toxicant DMSO during the hPGCLC derivation protocol resulted in less than 10% induction of PGCs compared to control, but without significant cell death. Together these findings suggest that ABCC1 plays a developmental role in PGCs, likely for proliferation or growth, and that PGC induction is not efficient under a certain threshold of stress or toxicity. Future work will improve our understanding of how organisms use ABC transporters to initiate and/or protect their reproductive capability at the earliest germline developmental stage possible.

9:00 AM   61

Effects of Tris(4-chlorophenyl)methanol Exposure in the HTR8/SVneo Placental Cell Line

Gabriel Romo, Environmental Health Sciences (M)

Background and Purpose:Tris(4-chlorophenyl)methane 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, cell viability and cytotoxicity of TCPM and TCPMOH was assessed in placental cells.Methods:HTR-8/SVneo cells were seeded at 10,000 cells per well in a black, clear-bottom 96-well plate and incubated for 24 h. Cells were treated with medium plus DMSO (control) or TCPM or TCPMOH (100 nM - 1 mM) for 24-hours. Camptothecin was used as a positive control. Viability was measured using the MultiTox-Glo Multiplex Cytotoxicity Assay (Promega). Briefly, following exposure, GF-AFC wase added directly to the media and incubated for 1 h. Fluorescence signal (emission, 400 nm; excitation, 505 nm) for viable cells was measured with a microplate reader. After viability quantification, AAF-Glo was added to the media and incubated at room temperature for 10 min. Luminescence signal was also measured with a microplate reader.Results:Following exposure to 300 μM of TCPMOH, the live-to-dead ratio of placental cells decreased by 37% compared to controls (p= 0.03). Following

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exposure to 400 ÂμM, the live-to-dead ratio decreased by 59% compared to controls (p= 0.0005). Concentrations below 300 ÂμM did not yield a significant decrease in the live-to-dead ratio. Differential gene expression for 20 ÂμM concentrations yielded only no pathways at FDR that were not statistically significantly, and one pathway at FDR that were not statistically significantly for 100 ÂμM. TCPM concentrations as high as 1mM were not toxic to the placental cells.Conclusions:Overall, the placental cells were relatively resilient to exposure to TCPM and TCPMOH. It took a rather high concentration for TCPMOH to have a toxic effect. Moreover, TCPM had no effects at concentrations as high as 1 mM. Because lower concentrations of TCPMOH have been found to induce toxicity, we will screen other placental cell types for cytotoxicity.

9:00 AM   62
Deciphering the repressive pathway that controls precision of X chromosome dosage compensation
Kavana Gonur, M.S. Molecular Biology (M)

Dosage compensation is a process where one sex of a two-sex organism equalizes its sex chromosome expression to match the other sex. Currently, the dosage compensation mechanism utilized by the Drosophila melanogaster male remains incompletely understood. It is known to be an epigenetic mechanism, in which the male-specific lethal (MSL) complex binds to regions spanning most of the male's sole X chromosome, resulting in their two-fold upregulation to match the female's two X chromosomes. However, it is still unknown how this precise two-fold level upregulation is achieved. Our previous research has identified a nuclear pore protein called Megator (Mtor, known as Tpr in mammals), comprising the nuclear pore complex basket structure, to be involved in setting this two-fold level of male X upregulation. There, depletion of Mtor resulted in aberrant hyperactivation of the X chromosome, specifically in the male. This research aims to expand on this discovery in three aspects. The first aim is to use an RT-qPCR screen to identify interacting partners of Mtor that similarly regulate this pathway. This is being done by measuring dramatic increases in transcribed mRNA levels of specific X chromosome gene targets in candidate gene RNAi knockdowns in salivary glands. Secondly, any putative hits from this screen will be investigated through RNA sequencing, with the goal of seeing a similar expression profile to Mtor knockdown tissues. Finally, this research will elaborate on Mtor's function on chromatin. This is to be accomplished through screening for histone modifications that may appear/disappear in Mtor RNAi knockdown progeny compared to wild-type progeny through the visualization of salivary gland polytene chromosomes. This in-progress project hopes to uncover additional co-functioning partners of Mtor in achieving this transcriptional precision, as well as provide further insight into how dosage compensation of the male X chromosome is regulated at the transcriptional and chromatin levels.

9:00 AM   63
Cryopreservation of Marine Bacterial Secretion System: Metamorphosis-Associated Contractile Structures
Leah Ponce, Cellular and Molecular Biology (M)

Bacteria could potentially be used to treat common diseases like diabetes. While often seen as harmful, bacteria can also be beneficial. Like animals, bacteria are territorial and have developed unique ways to protect their space. Similar to how a lion defends its territory, bacteria have their own 'defense system' called secretion systems - microscopic syringe structures. In our research, we study these structures in Pseudoalteromonas luteoviolacea, a marine bacterium known to trigger metamorphosis in marine animal larvae, specifically Hydroides elegans. These syringe structures, called Metamorphosis-Associated Contractile structures (MACs), are released when the bacterium dies, injecting toxins into foreign bacteria, killing them and making more room for the survivors to grow. These bacterial secretion systems could be modified to deliver insulin directly into the cells of diabetic patients, providing a more targeted treatment approach. However, we first need to find ways to preserve these systems for storage in hospitals, similar to food preservation. The challenge is maintaining their function during preservation. Our current research shows promising results, with glycerol and trehalose proving to be the best cryopreservatives for these secretion systems.

Session F-10

Engineering and Computer Science (G) 1
Friday, February 28, 2025 9:00 AM
Montezuma Hall

9:00 AM   64
Alvarado Creek: Time Series Analysis of High-Frequency Fluorescence Spectroscopy Data in Urban Water Systems
Jesse Hurtado, Big Data Analytics (M)

Headwater streams act as natural filters for runoff, sediments, contaminants, and other particulate matter before they move downstream. Alvarado Creek is an urban headwater stream in San Diego, California that feeds into the San Diego River and is the current site for real-time water quality monitoring. Real-time water quality monitoring has been achieved through the deployment of an in-situ sensor platform equipped with a submersible fluorometer and a multi-parameter optical dissolved oxygen, specific conductivity, salinity, and temperature sensor, measuring at 10 minute increments. The presence of trends and sensor data artifacts in the data, due to occasional mechanical failures (e.g., wiper failure) and environmental complications (such as microbubble formation or movement of organisms) can both skew and distort time series data. The fluorometer is also prone to data drift due to biofilm build up on the lenses (biofouling), resulting in erroneous trends

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in the data that further obscure the signal. To correct real-time data for these issues, a full year (12 months) of water quality data was used to develop a library of functions and scripts in Matlab to remove anomalous spikes and sensor artifacts such that stationarity could be reasonably assumed. Additionally, a detrending method was developed to correct for the biofouling seen between routine sensor cleanings. With this, we are able to reconstruct the full waveform of the water quality parameters over 24 hours and observe the temporal distributions of the extrema for each parameter over the full year of data. Our findings will help assess the level of pollution in Alvarado Creek and the dynamics of pollutants in response to climate changes. The Alvarado Creek project is just one of many efforts being made by San Diego State University and the San Diego River Conservancy to preserve urban waterways and ensure water quality in San Diego County. The techniques, scripts and functions developed for this urban headwater stream can be used for other sites and projects to monitor water quality changes and assess water contamination.

9:00 AM   65

Molten Aluminum Thermal Energy Storage System (MATESS)

Jorge Balvaneda, Master of Science in Mechanical Engineering (M)

Growing concerns centered on climate change have driven the development of renewable energy sources. The Combustion and Solar Energy Laboratory continues to explore solutions for renewable energy through concentrated solar plants integrated with a thermal energy storage. The model presented here diverges from previous numerical solutions conducted in this lab, featuring the first lab-scale apparatus to study the behavior of the system. This model is equipped with a fluid heater to mimic solar heating, a molten aluminum silicide storage system using a concentric borehole design, and an ice bath to rapidly cool the expelled heat transfer fluid. Additionally, the model maintains pneumatics to service and study various blends of aluminum silicide, as done in the numerical models. Thermocouples and pressure transducers have been strategically placed to study the system's efficiency. Finally, PID controllers are utilized to control the fluid heater and the MATESS heater for ease of study.

9:00 AM   66

Miniaturized, Tri-Band (2.4 GHz, 5.2 GHz and 5.8 GHz), and Self-Matched Antenna Design for Body Wearable Applications

Pranav Yogesh Mahajan, Electrical Engineering (M)

Wireless body wearable devices have been widely popular since their launch due to their convenient design and enhanced mobility. Bluetooth (2.4 GHz to 2.4835 GHz) has been a standard technology adopted for body wearables until now, however, it comes with its limitations. These lack features such as high-resolution audio, simultaneous connection with more than one device, enhanced spatial sound technology implementation, and generally suffer from limited bandwidth. This gap can be

filled by the implementation of multi-band antenna design by the use of higher frequency bands such as the Unlicensed National Information Infrastructure (UNII) bands, mainly UNII-1 (5.150 GHz to 5.250 GHz) and UNII-3 (5.725 GHz to 5.850 GHz). The 5 GHz UNII bands offer more non-overlapping channels compared to the 2.4 GHz band and thus experience less congestion and interference from non-Wi-Fi devices while supporting higher data rates. This project focuses on the design of a tri-band miniaturized inverted F (IF) antenna, operating in Bluetooth (2.4 " 2.4835 GHz), Unlicensed National Information Infrastructure (UNII) bands, mainly UNII 1 (5.15-5.25 GHz), and UNII 3 (5.725- 5.85 GHz) bands. This design involves multiple antenna elements integrated into a single feed element thus, creating a tri-band design.

9:00 AM   67

Assessing the Role of Visual Distraction by Roadside Advertising onVehicular Safety in Traffic Incident:A Data-Driven Study on California's Crash Data

SAMIH SHAIKH, Computational Data Science (M)

Traffic crashes remain a pressing public safety concern in California, with a wide range of factors contributing to their frequency and severity. While variables such as road conditions, driver behavior, weather, and vehicle performance have been extensively studied, one potentially significant contributor has received comparatively little attention: the placement and nature of roadside billboards and advertisements. These visual elements are deliberately designed to capture the attention of drivers, but in doing so, they may inadvertently lead to visual distractions. Such distractions can impair a driver's ability to focus on the road, delay reaction times, and compromise decision-making, increasing the likelihood of accidents.Despite their prevalence along highways and urban roadways, the role of roadside advertisements and their contribution to traffic incidents has remained underexplored in academic research. This oversight leaves a critical gap in understanding the broader dynamics of traffic safety. By examining the potential link between billboard placement, advertisement types (static versus digital), the intensity of visual stimuli, and crash occurrences, this study aims to provide a comprehensive understanding of how these distractions impact road safe. This research leverages crash data from the Transportation Injury Mapping System (TIMS), a platform developed by UC Berkeley's SafeTREC, which provides detailed spatial and statistical information on traffic incidents across California. By integrating TIMS crash data with billboard location datasets, the study employs geospatial analysis and predictive modeling to identify high-risk zones and quantify the influence of advertisements on traffic safety. The TIMS platform's robust and reliable dataset enables a systematic exploration of crash patterns and contributing factors, ensuring the validity and relevance of the findings.The insights from this study could offer valuable guidance for policymakers, urban planners, and advertisers, enabling them to develop strategies that balance the economic benefits of roadside advertising with the imperative to reduce visual distractions and enhance traffic safety. Recommendations may include guidelines for safer

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advertisement placement, restrictions on digital billboards in high-risk zones, and redesigns to minimize potential distractions. This research addresses an overlooked factor in traffic safety, contributing to a deeper understanding of the interplay between roadside advertising and driver behavior to support safer roads across California.

9:00 AM   68

Managerial practices and construction workers mental health: an exploratory analysis.

Tejaswini Hegade, Civil Engineering (M)

This study investigates how management practices, specifically those based on Lean Construction approaches, affect the mental health of workers in the construction industry. Construction is well-known for being a physically demanding industry, whose workforce builds projects with tight funding, quality, and time constraints, and a strict regulatory environment. Recently, the Construction industry at large has been focusing on improving its work environments and the mental health of its workforce. Considering this background, a team of faculty and students from San Diego State University and Syracuse University, with support from an industry advisory board and the Lean Construction Institute, developed a survey to gather insights on various factors related to the workers' well-being and the managerial practices used in their projects. The survey addresses demographic background information alongside questions on stress, depression, belonginess, and psychological safety levels, followed by questions on team dynamics, decision-making processes, and workplace safety. The findings from this survey will provide insights on the prevalence of psychological distress among construction workers and how different occupational stressors impact their mental health. The study seeks to inform organizations within the construction industry about Lean management practices that can enhance worker well-being and productivity as well as those that might be detrimental to Construction workers' mental health. Ultimately, this research aims to contribute to the understanding of mental health challenges in the construction sector and guide the implementation of targeted interventions to support workers' mental health.

9:00 AM   69

AI for Menstrual Health: Detecting Disorders Through Period Pad Analysis' - HER HEALTH AI

Vineeta Khanna, MS in computational Science
Data Science (M)

Menstrual health is a vital indicator of overall well-being, yet it remains under-discussed and poorly understood in many regions. This research introduces an innovative AI-powered application that leverages image recognition and machine learning to analyze menstrual blood patterns and provide critical health insights. By allowing users to upload images of their period pads, the app evaluates visual data to detect potential indicators of bacterial infections, iron deficiency (anemia),

Polycystic Ovary Disorder (PCOD), and other menstrual health conditions.In addition to image analysis, the app incorporates a questionnaire covering symptoms like flow intensity, pain levels, fatigue, and associated health behaviors to enhance diagnostic accuracy. With an emphasis on educating women, especially in underserved regions where awareness of menstrual health is limited, the app aims to destigmatize conversations around menstruation and empower users with actionable health insights. The research highlights the potential of AI in promoting menstrual health awareness and improving early detection of reproductive and nutritional disorders, paving the way for better healthcare outcomes.

9:00 AM   70

A concentrate-&-destroy strategy enabled by an adsorptive photocatalyst for enhanced destruction of perfluorobutanoic acid in water

JIALI WANG, Joint PhD (D)

While the use of perfluorooctanoic acid (PFOA) has been restricted, the use of its short-chain alternative, perfluorobutanoic acid (PFBA), has gained momentum in recent decade or so. PFBA is also a common breakdown product from the many other per- and polyfluoroalkyl substances (PFAS). As a result, PFBA has been widely detected in contaminated waters. Mounting toxicological studies have revealed that exposure to high concentrations of PFBA can lead to various health problems. Yet, compared to legacy long-chain PFAS, PFBA is much less adsorbable to conventional adsorbents and more persistent to common water treatment processes. Consequently, cost-effective technologies are urgently needed to remove and degrade PFBA in water. To this end, we prepared a new adsorptive photocatalyst, referred to as Cu/TNTs@AC, by doping copper (Cu) on activated-carbon supported titanate nanotubes, and tested the material for adsorption and photocatalytic degradation of PFBA. Cu/TNTs@AC was able to adsorb 96.0% of PFBA (100 Î¼g/L, pH 7.0) in 2 hours in batch systems, and treat ~2,000 bed volumes (BVs) of PFBA-laden water (50 Î¼g/L, pH 7.0) before breakthrough in fixed-bed column runs. When the PFBA-laden Cu/TNTs@AC was subjected to UV irradiation (254 nm, 9 mW/cm2) for 4 hours, 49.6% of pre-sorbed PFBA on Cu/TNTs@AC was defluorinated (pH 7.0 and 48 oC). Moreover, the PFBA defluorination rate was boosted to 75.4% by adding 2 mM potassium iodide (KI) and 4 mM peroxymonosulfate (PMS) at pH 8.0 during the photocatalysis stage. The mechanisms underlying the synergistic effect of KI and PMS were explored though material characterization, scavenge tests, and analysis of the degradation pathways. The copper-modified adsorptive photocatalyst appears promising to enable the trap-&-zap strategy for more efficient removal and degradation of short-chain PFAS.

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Session F-11

Education (G) 1
Friday, February 28, 2025 9:00 AM
Montezuma Hall

9:00 AM   71

Math Students and Their AI Sidekicks:
A Look Into the Classroom
**Sunday Stein, Mathematics with a concentration
in Teaching Service Major (M)**

The rapid adoption of generative AI tools in education has sparked debates about their role in enhancing or undermining student learning. This study investigates how students in college mathematics courses use AI tools and whether they perceive these tools as enhancing their mathematical understanding. Through an online survey, 104 students responded to questions regarding their AI use and likelihood to use AI on particular mathematics problems. Exploratory factor analysis on the questions regarding AI use was conducted, and three key themes were found: students' positive use of AI for guidance and understanding, dishonest use of AI, and student perceived trustworthiness of AI-generated solutions. Results of this survey grouping showed that most students self-report using AI to support their learning, such as checking their work or clarifying unfamiliar concepts. However, there appears to be more reliance on AI when mathematical problems become more complex. Additionally, students expressed uncertainty about the accuracy of AI-generated responses, which may cause issues when relying on AI responses to clarify topics.

9:00 AM   72

Teacher Collaboration: The Influences and Components of Effective Elementary Grade-Level Teams When Planning Math Instruction
Bill Ricketts, EdD in Educational Leadership (D)

Elementary teachers come together and plan instruction for their students during grade-level collaboration. Researchers have identified several components that contribute to the overall effectiveness of elementary grade-level teams. However, there is little research about the components of elementary grade-level collaboration that are specific to math instruction. This qualitative study utilized surveys, interviews, and grade-level team observations to understand the elements of highly effective elementary grade-level teams with regard to math instruction. Twenty-five teachers responded to the survey. From the survey responses, five teachers who indicated that they were part of highly effective grade-level teams took part in interviews. Then, two highly effective grade-level teams were observed during their meetings to plan their mathematics instruction.The key themes of this research are still being analyzed. A key finding is that one important component of collaboration is establishing trusting relationships and being willing to work together and communicate. Another key finding is that over half of the teachers surveyed indicated that their principals played a critical role in influencing grade-level collaboration when planning for

math instruction, while most teachers indicated that their school culture had a positive impact on their grade-level collaboration for math instruction. This study provides educational leaders resources to help improve their math achievement at their schools. It highlights the importance of having designated math collaboration time. In addition, outcomes will include a set of practices that other elementary school grade-level teams could apply in order to utilize best practices to improve their collaboration meetings focused on mathematics.

9:00 AM   73

How Many Do You Have? Investigating Students' Counting Abilities Across Different Task Types
Carlos de Alba, Mathematics and Science Education (D)

Counting is often thought of as a basic skill that is easily assessed, but deciding how to assess young children is still a much discussed topic. In this study we investigated how young children respond to different types of counting tasks. The body of research on open-ended counting tasks has highlighted the affordances of presenting young children with problem solving opportunities via challenging tasks (Johnson et al., 2018). As such, we posit that providing students with a range of these tasks might allow us to observe notable patterns, strategies, and understanding that would otherwise be overlooked if accuracy was the sole measure of student work. We conducted 67 counting interviews with preschoolers aged 37-56 months that included many tasks including counting aloud, counting sets of various sizes, and counting subsets. Our preliminary analysis of these interviews was aimed at understanding the affordances of different counting tasks and uncovering variations in individual's counting across the tasks. Tasks involving small sets resulted in more conventionally correct responses and accuracy in applying the one-to-one and cardinal principles. Common tasks like counting aloud and challenging tasks like counting large collections had similar results for some students even when their counting sequences were unconventional. The variations we observed support the claim that giving students multiple opportunities to problem solve in various contexts can provide teachers and researchers a greater understanding of student knowledge and comfort.

9:00 AM   74

Benefits of a Paid Teacher Residency
Cheryl Bayley, Educational Leadership (D)

This study explored math and science pre-service teachers' experiences and self-perceived benefits of participating in a paid teacher residency. This study used a phenomenological methodology to explore the lived experiences of pre-service teachers during a paid teaching residency. I interviewed six math and science pre-service resident teachers. Math and science pre-service resident teachers in this study chose a paid teacher residency because of a) their desire to teach in the residency's community after becoming credentialed, b) their need for compensation across a full school year of student teaching, and c) support and mentoring in the residency programs compared to teaching internship positions. The math and science pre-service resident teachers reported they received the following benefits and in some cases compared the benefits to

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their teacher credential program peers not participating in the residency program: a) compensation, b) extra mentorship and layers of support, c) a full academic school year student teaching experience, d) experience and confidence in difficult-to-staff positions. Lastly, the math and science pre-service resident teachers shared an asset-based approach to teaching as they discussed their clinical student teaching experience and future teaching goals. These findings can have implications for educational practitioners, leaders, and policymakers.

9:00 AM   75

Transformative Teaching: Mentoring Preservice Secondary Math Teachers in Trauma-Informed Pedagogy

Claudia Pruitt, Ed.D. in Educational Leadership [PreK-12 School Leadership] (D)

This qualitative case study explored 1) in what ways, if at all, do supervisors, guide teachers, and preservice math teachers conceptualize trauma-informed pedagogy? and 2) in what ways do supervisors and guide teachers, if at all, support middle school math preservice teachers in enacting trauma-informed pedagogy? Guided by a TIP framework"the study includes two case studies of three participants: a supervisor, a guide teachers, and a preservice secondary math teachers for a total of six participants. Data from surveys, interviews, and classroom observations were analyzed to uncover patterns in participants' understanding and enactment of TIP. The findings revealed 1) supervisors, guide teachers, and preservice math teachers reported limited understanding of TIP, 2) Supervisors, guide teachers, and preservice math teachers enacted TIP beyond their self-reported understanding of TIP, and 3) by modeling principles of TIP through the collaborative structure and interactions of the student-teaching experience, a guide teacher, and supervisor supported a preservice math teacher in further developing his TIP understanding and skills. These findings highlights the importance of supportive environments, professional development, and mentoring to strengthen TIP integration. This study contributes insights into the integration of TIP in teacher preparation programs and provides recommendations for fostering TIP practices among preservice math teachers. The findings underscore the need for ongoing professional development and collaborative structures to enhance TIP implementation, ultimately supporting the creation of inclusive and responsive classrooms. The study concludes with implications for integrating healing-centered practices alongside TIP to address the holistic needs of students and educators.

9:00 AM   76

Co-teaching in the Secondary Science Classroom: A Case Study Exploring Parity and Collaboration in the Age of NGSS

Lindsay Goulet, Educational Leadership (D)

As schools in the United States see a rise in students receiving special services, educators must adapt to meet the learning needs of this growing population. To address this need, many schools are turning to the practice of co-teaching, or the partnership of a general educator and special educator serving the same group of students. By instituting co-teaching, many schools are attempting to provide rigorous content to students with disabilities in the least restrictive environment while also providing necessary accommodations and support. The ideal co-teaching partnership exhibits parity, or equal status, between co-teachers, and this parity can be influenced by factors like content and pedagogical knowledge, compatibility, and structural elements of the environment like scheduling and school expectations. With the introduction of the Next Generation Science Standards (NGSS) in 2013, science co-teaching teams were challenged to adapt to these new demanding standards and modify instruction accordingly to make the standards accessible for all students. This shift in standards also impacted those parity factors, and little is known about how NGSS science co-teaching teams, particularly at the secondary level, are functioning within this changed standards landscape. To understand the experience of NGSS secondary science co-teachers, the roles they assume in the classroom, and the parity and cooperation they exhibit and describe in their work, one pair of co-teachers was examined in a case study via questionnaires, video and audio recorded lessons, and teacher interviews. Specifically, this research addresses the following questions: (1) What roles do secondary science co-teachers assume in the NGSS classroom? (2) How do the demands of NGSS affect the experiences of co-teachers? and (3) How do secondary science co-teachers characterize their collaboration with one another in the NGSS classroom?

9:00 AM   77

An Investigation of How Eighth-Grade Students Solve Word Problems That Can Be Modeled With a System of Linear Equations

Stacy Roberts, Ed.D. in Educational Leadership [PreK-12 School Leadership] (D)

The purpose of this study was to investigate how 8th-grade students solve mathematics word problems that can be modeled with a system of linear equations. This information will be shared with teachers, school mathematics reformers, and educational leaders to further school mathematics reform. Findings revealed that regardless of strategy, structure, or task, if students attended to all six quantities they were successful; although the three problems seem more alike than different, the differences in the problem types influenced the strategies and the structures students successfully used; and 8th-grade math teachers' approaches to solving the tasks differed from their stated approaches that they would employ with their students when using word problems, or their stated purposes for these types of problems if asked by a pre-service or student teacher. This study has several important implications for educational leaders and practitioners as well as providing a foundation for additional research related to 8th-grade students' mathematical thinking.

Abstracts of Presentations

Session G

SDSU | San Diego State University

Session G-1

Behavioral and Social Sciences (U) 3
Friday, February 28, 2025 11:00 AM
Montezuma Hall

11:00 AM   1

Examining Autistic Young Adults Mindsets
Influencing Their Driving Performance
Elyse Simakaski, Psychology (U)

Background: Autistic individuals are less likely to pursue their drivers license and if they do, receive it at a significantly later time. This delay is related to challenges associated with autism including executive functioning difficulties, but with training in a safe environment driving is possible (Cox et al., 2017).Objective: This study examined how autistic individuals, who participated in the Cognitive Behavioral Intervention for Driving (CBID) program, mindsets impacted simulated driving performance.Methods: A total of 11 teens/adults participated in the CBID program, 54% males and all diagnosed with Autism Spectrum Disorder (ASD). Each participant participated in the CBID curriculum and five driving simulator sessions. Participants completed a post-intervention survey that included the question Have your thoughts about driving changed before you started the CBID program and now? (Select all that apply) and received final feedback on their driving performance, categorized into four categories: driving mechanics, attention shifting and contextual awareness, emotion regulation, and driving fluency determined by the facilitators.Results: It was found that all participants had positive thoughts about driving after having completed the CBID program. Furthermore, participants who checked the answer choice No change -- positive thoughts about driving before and after CBID had a higher average in overall driving performance (M = 1.22) compared to participants who answered Thoughts about driving changed from negative before CBID to positive after CBID (M = 0.89). Participants whose thoughts began and stayed positive about driving before and after the CBID program also had a higher mean in driving mechanics (M = 1) , attention shifting and contextual awareness (M = 1.42) , and driving fluency (M = 0.93). However, participants whose thoughts about driving began negative and ended positive after CBID had a higher average score for emotion regulation (M = 1.75).Conclusions/Future Implications: This study demonstrates that a pre-existing mindset in autistic individuals may enhance performance in the mechanical and cognitive aspects of driving, while those individuals who had a shift in mindset showed higher emotion regulation skills. The preliminary findings suggest an importance of psychological factors as mindset, in driving intervention programs for autistic individuals.

11:00 AM   2

Exploring Impairment Patterns and Language
Proficiency in Mandarin-English Bilinguals
with Aphasia
Emily Mu, Speech, Language, and Hearing Sciences (U)

Aphasia is an acquired language disorder characterized by impaired communication (NIDCD, n.d.; Worrall et al., 2011). Previous research has shown that the neural language networks overlap across the two languages in bilingual individuals and that most bilinguals with aphasia (biPWA) show similar (i.e., parallel) impairment in their two languages (Obler & Murray, 2004). We rely on previous findings that impairment patterns across the languages of a biPWA are qualitatively similar and are modulated by language history and experiences (Peñaloza, Barrett, & Kiran, 2019), and hypothesize that this is discernible across individual cases. Five Mandarin-English biPWA completed the Western Aphasia Battery (WAB-R, Kertesz, 2006) and equivalent Mandarin Aphasia Battery (MAB, Gao et al, 1993) which evaluates the presence, severity, and type of aphasia across various language domains. Testing revealed largely similar impairment patterns across English and Mandarin for the first two participants, but not the third, with analysis of participants 4-5 still in progress. P1 performed similarly across their languages in each language domain, with the exception of verbal expression where their Mandarin performance was stronger than English. Reasons for this difference may include acquiring Mandarin from an earlier age and increased exposure to Mandarin as compared to their English and to other participants. P2's overall Mandarin performance was similar to but slightly below English. This may be due to P2's decreased exposure to Mandarin compared to their English and to other participants. In contrast, for P3, testing revealed somewhat different aphasia impairment profiles across English (fluent speech with impaired comprehension) and Mandarin (halting speech with grammatical and lexical retrieval impairments). P3 performed worse across all language domains in Mandarin compared to English with the exception of auditory verbal comprehension. P3's generally lower performance in Mandarin is likely driven by their relatively lower proficiency in Mandarin compared to their English and compared to the other two participants. The obtained results confirm that most bilinguals with aphasia show similar impairment patterns across their languages. However, as we hypothesized, age of acquisition, exposure, and proficiency can influence aphasia impairment patterns for some biPWA. Therefore, focus should be placed on interpreting impairments in the context of language histories.

11:00 AM   3

The Right to Stay Cool: Coping with Extreme
Heat in the Imperial Valley
Emily Figueroa Salazar, Criminal Justice and Spanish (U)

The Right to Stay Cool: Coping with Extreme Heat in the Imperial ValleyEmily Figueroa Salazar, Klarissa Martinez, and Evelyn Suarez The Imperial Valley is one of the hottest places in California. It also has one of the highest poverty levels at 21.2

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% (EDD, 2023); with Hispanics being the majority population. This may result in environmental racism, where people of color and low-income communities are disproportionately affected by environmental challenges (Cole & Foster, 2000). For example, low-income people in extreme heat environments have been found to have less access to resources to keep cool (Chakraborty et al., 2019) and therefore are more likely to suffer from adverse health effects. In our study, we used semi-structured interviews to understand how these dynamics are at work in the Imperial Valley. We asked about the impact of heat on participants' daily lives to explore the impact of extreme heat across social classes. We also employed visual ethnography to illustrate the main themes we found. Our presentation will examine how extreme heat impacts routines in three main ways. 1.) Heat affects transportation in the county since not everyone has equal access to it and it is inadequate. Heat causes mechanical and cosmetic damage to transportation, which creates financial constraints. These economic situations also include taking risks to save money. 2.) Social isolation, anxiety, and feelings of hopelessness were the common themes found in interviews asking about how heat affects mental health. Participants have lost friends, seen coworkers collapse from heat strokes, and felt trapped in their homes because of the heat. 3.) Heat can alter people's daily routines; for example, those whose occupations are outdoors compared to those working indoors. Due to the Imperial Valley's high temperatures, everyone is vulnerable to experiencing heat illness, regardless of age. Indoor workers also endure heat issues in their office jobs, like not having control over the air conditioning because it is in another room. In sum, people's ability to stay cool within the region differed based on factors like their social support, employment, and socioeconomic status. These findings highlight the need to advocate for environmental justice in our community, including better infrastructure in transportation and buildings as well as social support services.

11:00 AM   4

Is Flagging Dead? The Cultural Significance of Visibility Behaviors to College-Aged Queer Youth In San Diego

Erin Petersen, Anthropology and Sociology Double (U)

During the 20th century, when engaging in homosexual sex and sexual contact necessitated secret, non-verbal conversations between prospective partners, covert visual behaviors like the hanky code were used as a shared symbolic language. Now, in an era of heightened acceptance of LGBTQ identities and growing visibility of queer people in society, the modern need for behaviors meant specifically for visibility among other queer people while being overlooked by society at large, hereby referred to as flagging, is up for questioning. Using original survey and interview data from queer-identified San Diegans aged 18-24, three questions will be examined:1) Do queer-identified youth know what visibility behaviors (flagging) are and what they mean?2) Do queer youth engage in flagging behavior?3) Do queer youth find flagging and

visibility important?Findings to these questions will outline the importance of flagging behaviors to queer youth in San Diego, further reflecting on the purpose of a shared queer identity in an era of generalized LGBTQ acceptance. This research opens avenues for deeper understandings of the queer identity as it stands with the youngest generation of queer-identified people, and whether assimilation into accepted societal groups through straight-passing appearances are still more important than overt expression of revolutionary queerness, or if some other objective of flagging behaviors has proliferated amongst queer youth.

11:00 AM   5

Exploring the Relationship Between Socialization and Substance Use Among Youth Experiencing Homelessness (YEH)

Irish Rhea Edusada, Public Health (U)

SignificanceSubstance use among youth experiencing homelessness (YEH) remains an ongoing public health issue, especially in large cities such as San Diego where homelessness rates have continued to increase over time. Beyond facing issues of limited housing, YEH lack resources to obtain daily necessities, as well as consistent social support. Because of these issues, YEH are more vulnerable to, and evidence disparities in, substance use, including nicotine and cannabis, compared to their stably-housed peers. Our community-academic team is working together to address tobacco and cannabis disparities among YEH through the development of a strengths-based, expressive arts intervention. Our goal is to support youth in having a healthier relationship with substance use and, ideally, decrease their use. To inform the intervention, we conducted formative qualitative research to understand how smoking, vaping or using other substances are affected by socialization-related factors.Methods:Between February 2024 and July 2024, we conducted semi-structured interviews with 32 youth aged 16-25 (n=23; English n=9 Spanish; average age = 20.7 years old) who reported past 30-day use of tobacco, nicotine, or cannabis, and 30-day housing instability or homelessness. To provide additional insights on the needs of YEH and intervention strategies, we also conducted interviews with 16 stakeholders, including social service providers and topical experts. We used a thematic analysis process to identify how youth describe their substance use as part of socialization involving multiple rounds of memoing, coding, and theme identification. To develop and refine the themes, members of the study team, including student and faculty researchers, reviewed coded data, engaged in discussion of overarching concepts and patterns across the data, and discussed preliminary findings with a group of youth co-researchers supporting intervention development. Results:Our analysis yielded three key themes related to socialization and substance use among YEH that can be used to inform our intervention: For theme 1, youth explained that although hanging out with their friends was already an enjoyable experience for them, adding substances in the mix

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allowed them to connect even more. In theme 2, YEH also promote the vibe, which is a positive atmosphere that sets the energy for connection, socialization and relaxation. Within theme 3, youth also discuss the importance of trust with their peers and how that affects their socialization, substance use, and how substance use is part of the vibe when socializing with one another.Conclusions:These findings elucidate YEH's descriptions of their substance use as part of socializing and relaxing with peers. These things also reveal how trust shapes substance use among YEH. Each of these findings will be used to develop our intervention to address substance use disparities among YEH. Future research should aim to utilize these findings to develop a substance use intervention for this population. Additionally, future research should also aim to further understand the unique socialization factors found in this analysis to further contextualize this unique, ongoing public health issue.

11:00 AM   6

Combined Prenatal Cannabis and Nicotine Exposure Impacts Hippocampal Development
Isabel Caballero, Psychology (U)

While nicotine use during gestation has been recognized as a potential danger for offspring, in recent years cannabis use has been gaining popularity among pregnant individuals. The psychoactive component, tetrahydrocannabinol (THC), is a growing concern due to its potential impact on fetal brain development and subsequent cognitive function. With polysubstance use being common as well, it is important to examine the combined effects of nicotine and THC on the developing brain, as these substances are often co-used. In particular, the hippocampus, a brain region crucial for learning and memory, is particularly vulnerable to these substances as it is rich in receptors for both nicotine and THC. Thus, this study used a rodent model to explore the effects of nicotine, THC, and a combination of both substances on the offspring's hippocampal PSD95 expression levels, a key synaptic protein that plays a vital role in hippocampal synaptic signaling and neural plasticity. From gestational days 5 to 20, pregnant Sprague-Dawley rats were exposed to nicotine (36 mg/mL), THC (100 mg/mL), a combination of substances, or propylene glycol (vapor vehicle control), via e-cigarette vapor chambers. Hippocampal tissue was then collected from offspring on postnatal day 65, comparable to early adulthood in humans. Levels of PSD95 were evaluated via Western blot analysis. Although neither prenatal nicotine or THC alone altered PSD95 levels, preliminary results show that the combination of nicotine and THC reduced the level of PSD95 by almost 25%. This suggests that the combination may influence long-lasting synaptic structure and function. As these data hold room for more exploration, understanding how substances such as nicotine and THC impact brain function and plasticity may provide insights into the long-term cognitive consequences of prenatal exposure and the risks associated with polydrug use during pregnancy. Supported by TRDRP 28IP-0026 " 587458

11:00 AM   7

AI and the Student Experience: Gender Perceptions and Student Fears in AI Platforms
Emma Puckett, Language, Culture, and Society/French/ Interdisciplinary Honors (U)

With the increasing presence of artificial intelligence platforms especially among younger generations, a new field of study has emerged in the intersection of AI and the student experience. This project explores two interconnected studies that examine two aspects of societal implications of AI: gender perception in generative AI and student experiences with AI advertising. The first analyzes survey responses to reveal the success of certain AI platforms at employing feminine language features to increase the humanness and acceptance of their product. Findings show how societal stereotypes influence users' perception of AI responses based on gendered social meanings of linguistic features. The second study uses the 5-minute interview method to explore the college student experience with AI targeted advertising revealing fears about AI's rapid advancements and influence on education. Participants express concerns about algorithmic bias, the ethical use of AI in education, and the increasing human-like language in AI products. Together these studies expose the relationship between AI, societal expectations, and student user experience to provide insight into how students are interacting with AI. Ultimately, this research informs how students can be better educated and equipped to take on an increasingly AI-driven world.

Session G-2

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11:00 AM   8

Making a Fresh Start: Reentry After Resentencing
Isabella Kalivas, Criminal Justice, Political Science, & Sociology (U)

The current project involves data collection and analysis related to an ongoing project with the San Diego County Public Defender's Grant Litigation Unit. This unit supports individuals who were sentenced to long terms in prison due to harsh sentencing policies and are now eligible for having their sentence reduced. The study involves opportunities for reviewing current California laws and policies, Public Defender's office legal strategies, court observations, and in-depth interviews with people who have been released about their reentry and resentencing processes. Additionally, the findings from this project are used to create a Reentry Resource Guide that is tailored to assist system impacted people in San Diego County. The Reentry Resource Guide serves as a tool kit that consists of resources available to previously incarcerated

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people living in the San Diego area. The resources are divided into sections, with lists of relevant organizations and their contact information, in order to bridge the connection between previously incarcerated individuals and the resources available to them in the San Diego community. The resource guide also features a visual roadmap that outlines the chronological steps that previously incarcerated individuals are recommended to take upon their release. This roadmap can serve as a checklist for individuals as they assess what their most pressing needs are and the best way to go about addressing them. In San Diego County, substance use and mental health assistance are some of the most prevalent needs amongst those recently released. The Reentry Resource Guide contains multiple sections that aim to address these needs, along with the following sections on: Housing, Overall Health, Food, Transportation, Legal Services, Education, Veterans Affairs, Immigration Services, and Career Services.

11:00 AM   9

When words collide: An eye-tracking study examining the impact of top-down and bottom-up input during bilingual picture-word matching

Jaime Antoshak, Linguistics (U)

Cross-linguistic similarities can lead to parallel language activation in bilinguals (co-activation of two languages simultaneously). Cognates (i.e., words in different languages with phonological/orthographic/semantic overlap such as tomate [Spanish] vs. tomato [English]) are identified more quickly than other words. False cognates, however, may not be identified as easily because they are phonetically/orthographically similar (i.e., in sound/spelling) but differ semantically (in meaning). Prior research has typically examined parallel language activation using single sources of linguistic input such as text or images in isolation, which may not reflect real-world language contexts.The goal of this study is to examine how parallel language activation in bilinguals is affected through reading and through implicit picture naming. Spanish-English bilinguals are given a visual world eye-tracking task in Spanish and are asked to respond yes or no based on whether or not the text and image in opposing quadrants of the screen match. The crosslinguistic overlap of images and text is altered across two studies (false cognate overlap in Study 1, e.g. text = horno and image = horn; cognate overlap in Study 2, e.g., text = tomate and image = tomato). Tests measuring language dominance (relative proficiency in each language) via rapid picture naming in both languages (Mint Sprint 2.0) and reading dominance via timed true/false reading comprehension questions (Woodcock-Johnson/MuÃ±os IV) are also assessed. To ensure there is no order effect, all tasks excluding the LEAP-Q are counterbalanced.Hypotheses of this study include: (1) Responses on the picture-word matching task will be faster and more accurate when text and image stimuli match (Study 1 and Study 2) showing the easiest way of processing when naming and reading converge. (2) Participants will respond fastest and most accurately if stimuli are cognates due to overlap in form across languages, followed by noncognates, and will be slowest and least accurate when stimuli are false

cognates due to semantic interference of conflicting meanings. (3) We expect these effects with both the reading and picture input, with some variation in these effects based on language dominance. Preliminary findings will be presented.

11:00 AM   10

Spilling the Tea About HIV: Health Films as Catalysts for Change

Jennifer Lothridge, Social Work/Gerontology (U)

A health communication film on HIV was developed based on Social Cognitive Theory and entertainment educational (E-E) methods in an effort to increase awareness and encourage protective behavior change related to HIV among older adults. The health communication film includes perspectives from racial- or ethnic-minority older adults living with HIV and those of health care providers, and was screened in several venues. Researchers of this poster-presentation conducted a thematic content analysis of anonymous, written, open-ended responses from 159 film viewers (emerging social work, psychology, public health, and medical students) who recounted what they learned after viewing the film. From these responses, 5 key themes emerged: (1) Epidemiology of HIV refers to the study of the distribution, patterns, and determinants of HIV/AIDS in populations. This field examines factors such as how the virus spreads, who is most affected, and the risk factors associated with transmission and infection rates, as well as HIV testing; (2) HIV Knowledge generally refers to an individual's understanding and awareness of HIV. This includes knowledge of how HIV is transmitted, methods for prevention, signs and symptoms, treatment options, and the impact of HIV on health and society; (3) Lack of HIV knowledge personally, professionally, medical or social service profession; (4) HIV stigma refers to the negative attitudes, beliefs, and discrimination directed toward people living with HIV (PLWH) or those perceived to be associated with the virus; and (5) Awareness of HIV-related sexual ageism is the unfair treatment or prejudice directed toward individuals with HIV due to their age. This domain may also include themes related to age-based judgements, biases, perceptions and/or ideas about those living with HIV. Findings suggest that a health communication film can be a resourceful, impactful, and gentle way to provide eye-opening information and awareness about how HIV is affecting racial- or ethnic-minority aging adults here in the United States.

11:00 AM   11

Primates and pollution: Macaca maura roadside garbage interactions in Bantimurung-Bulusaraung National Park, Indonesia

Joaquin Rafael Ramoso, Interdisciplinary Studies (Sustainability, Political Science, Psychology) (U)

Waste mismanagement causes adverse environmental effects, including degradation of wildlife habitats. Although much research has been conducted on the impacts of plastic pollution on marine ecosystems, its effects on terrestrial ecosystems and nonhuman primates, in particular, remain understudied. Roadsides represent areas where primates

ABSTRACTS

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encounter littered trash, especially in developing countries, such as Indonesia, where waste management systems are lacking. Our objectives in this study were to 1) investigate how an endangered primate species, the moor macaque (Macaca maura), interacts with garbage along the major road that bisects Bantimurung-Bulusaraung National Park in South Sulawesi, Indonesia and 2) identify what types of trash they are attracted to. We conducted observations across six days in August 2024, recording all occurrences of macaque interactions (i.e., physical contact) with garbage. We recorded the type of trash they interacted with: bottle, cup, wrapper, plastic bag, box, provisioned food, or unidentified/other. We documented each individual's age-sex classification, whether they encountered the trash briefly or if they actively manipulated it for over three seconds, and whether they found the trash already lying on the ground or if it was directly provisioned (i.e., thrown at them) from a human. We observed a total of 180 interactions, with 67.2% involving immature males. 81.1% of interactions lasted for a duration of over three seconds. Provisioned food was the trash type most commonly interacted with (36.7%), followed by bottles (19.4%) and wrappers (14.4%). Interactions were particularly frequent during traffic congestion when people were more likely to provision the macaques from their vehicles. These results suggest that immature macaques are becoming increasingly habituated to the presence of garbage and human provisioning. Our findings raise concerns as interaction with garbage can expose primates to physical harm, synthetic chemicals, and pathogens through entanglement, ingestion, and oral manipulation. It also disrupts their feeding behaviors, potentially undermining their role as seed dispersers and contributors to forest regeneration. Conservation efforts should be directed to improve waste disposal infrastructure, reduce production of single-use plastic, and educate the public on the dangers of littering and provisioning.

11:00 AM   12

Exploring Effects of Interactions between Socioeconomic Status and Sex on Early Language Development: An Intersectional Approach

Josie Hartford, Psychology (U)

Early language acquisition varies with socioeconomic status (SES) and predicts later vocabulary, academic achievement, reading outcomes, and numeracy skills (Golinkoff et al., 2018; Purpura et al., 2015; Duff et al., 2015). Many studies have found that children from lower-SES backgrounds had poorer language outcomes than higher-SES peers (Kluczniok et al., 2018; Pace et al., 2016). Similarly, the reading achievement gap between lower- versus higher-SES children has been increasing and is present before their preschool years (Reardon, 2013). Early language acquisition also varies with sex. For example, girls tend to acquire language faster and have larger vocabularies than boys as well as outperform boys in reading and writing achievement (Rinaldi, 2021; Reilly, 2019; Adani & Cepanec, 2019). To identify those most vulnerable to language delays and most in need of intervention, researchers argue for taking a more intersectional approach. Cole (2009) argues that categories of identity, difference, and disadvantage are jointly associated

with outcomes (p. 170). Very few researchers have considered interactions between SES and sex in language development. Giagtzoglou (2013) found no interaction between SES and sex in preschool children's language on a subscale of the Griffiths Scales (a measure that may not be sensitive to SES effects; Jacklin & Cockcroft, 2013). In contrast, Fischbein (1990) found an interaction between SES and sex on mathematics in two elementary school grades and Barbu et al. (2015) found an interaction between SES and sex on the production of obligatory liaisons in French-speaking children. Economists and sociologists have offered perspectives on why we might expect SES to interact with sex. Autor (2019) proposed that higher SES families invest more in their sons than daughters, and vice versa. Entwisle (2007) hypothesized that teachers are more likely to have lower expectations for boys from lower-SES households and that lower-SES parents are more likely to have lower expectations for daughters. We explore the interaction of SES and sex on early vocabulary in the first five years to shine a light on compounding effects that could not be seen by looking at either factor on its own.Our current sample includes 75 monolingual and bilingual children (Mage = 35.1 mos, range = 18 to 60, 34F, 20 Spanish-English bilingual). Parents reported annual income, caregiver years of education, and child sex and age. We measured conceptual vocabulary using the Web-based Computerized Comprehension Task in English and Spanish (Web-CCT; Friend et al., 2023), the MCDI and IDHC (Maldonado, et al., 2003; Marchman et al., 2023), and the ROWPVT or ROWPVT-SBE (Brownell, 2012; Martin & Brownell, 2011). We created a conceptual vocabulary factor for all measures completed and an SES factor including income and primary caregiver education. We regressed conceptual vocabulary onto Age, Sex, SES, and the SES X Sex interaction term. All models were significant (all ps <.001). However, despite a clear descriptive interaction trend, the SES X Sex interaction did not reach significance (p = .357). Limited representation on the lower end of the SES scale may have suppressed this effect. As data collection continues, we plan to focus recruitment efforts on lower SES families to fill this gap.

11:00 AM   13

International declines in academic performance and increases in loneliness are linked to electronic devices

Julia Lima, Psychology (U)

Teenager's experiences of loneliness at school and academic performance are critical indicators of their well-being and future success. Analysis of the PISA data set reveals a concerning trend: between 2000 and 2022, the prevalence of loneliness at school increased by 68%, accompanied by a decline in academic performance. The current study investigates whether the rising use of smartphones is a contributing factor to these changes. Using data from the PISA survey, a natural experiment was conducted examining responses related to feelings of loneliness, standardized test scores, and smartphone access and use.Findings suggest a significant relationship between increased smartphone access and heightened feelings of loneliness. Among countries with the

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largest increases in smartphone access, the percentage of teens reporting loneliness at school more than doubled, rising by 126%. In contrast, countries with smaller increases in smartphone access experienced a more modest 12% rise in loneliness. These trends suggest that excessive smartphone use may isolate adolescents socially, contributing to emotional and academic challenges.Preliminary results support the hypothesis that heightened smartphone use at school is linked to increased loneliness and poorer academic outcomes. These findings underscore the importance of addressing the role of technology in adolescents' lives to foster healthy social and educational environments.

11:00 AM   14

Lower social communication skills in children with autism are associated with reduced synchrony of brain responses while watching an engaging movie

Julia Valois, Psychology with Emphasis in Neuroscience (U)

Background: Social communication requires a shared perception and understanding of the world. Differences in how information is represented in the brain may thus explain the challenges with social communication characteristic of autism spectrum disorders (ASD). To test how social information is processed by children with ASD compared to typically developing (TD) peers, participants completed a functional magnetic resonance imaging (fMRI) scan while watching an engaging brief movie featuring interactions between two characters experiencing various emotions.Methods: 21 children with ASD (mean age=8.1 years, SD=1.8, 9 female) and 31 TD children (mean age=7.7 years, SD=1.6, 16 female) completed a 6-minute fMRI scan (Siemens 3T Prisma, TR=1.125s, resolution=2.5mm3) while watching the animated movie Partly Cloudy, as part of a larger study. The Social Responsiveness Scale (SRS-2) " a standardized caregiver questionnaire " was administered to quantify social communication skills. Brain activity in 30 cortical regions from 7 functional networks were subjected to Inter-Subject-Correlation to quantify how similar responses to the movie were across participants. Permutation tests assessed if response similarity differed between children with ASD and TD children. Associations between the SRS-2 Social Communication Index (SCI) and response similarity in the ASD group were examined with partial correlations (controlling for age and in-scanner motion).Results: Children with ASD did not differ from TD children in age, sex, non-verbal IQ or in-scanner motion. 17/30 regions showed reduced response similarity to the movie in children with ASD (p<.05, FDR-adjusted). These regions were part of the default mode, salience, dorsal attention, executive and language networks. There were no differences in response similarity for the visual network. Additionally, in children with ASD, lower response similarity in 8 regions was significantly associated with higher SCI scores (indicating greater symptoms).Conclusions: Replicating results from previous studies, we found that responses to an engaging movie that requires emotion processing and theory of mind were less synchronous in children with ASD, and that this reduced similarity to their peers was related to lower social communication skills.

Session G-3

Biological and Agricultural Sciences (U) 2
Friday, February 28, 2025 11:00 AM
Montezuma Hall

11:00 AM   15

Scents and Scent Ability: Can Prairie Rattlesnakes Identify Conspecifics Using Volatile Semiochemicals?

Elisa Paider, Biology (U)

Microbiomes are symbiotic microbial communities that live on and in animal's bodies and help perform essential functions. Skin microbiomes of many vertebrates are known to play important roles in both pathogen resistance and in the production of semiochemicals (or scent) - chemical cues that elicit physiological or behavioral responses in other individuals. Currently, snake populations across North America are facing increased mortality due to a rapid spreading snake fungal disease caused by Ophidiomyces ophidiicola that infects the skin. Past research has shown that the skin microbiome is altered in infected individuals (leading to a state of dysbiosis), potentially changing how they are perceived by conspecifics. Snakes rely extensively on chemosensory information, and have a highly derived tongue vomeronasal sensory system that is activated when exploring novel chemical cues. Our research group is developing a novel dishabituation bioassay to determine if snakes can identify volatile semiochemicals from other organisms in order to further explore the relationships between skin microbiome dysbiosis and social behavior. A previous test using this bioassay demonstrated that prairie rattlesnakes (Crotalus viridis) can discriminate between chemical cues from conspecifics (other prairie rattlesnakes) and heterospecifics (gopher snakes). Here, we used this same pull-through airflow system to determine if prairie rattlesnakes can use volatile semiochemicals to discriminate between different conspecific individuals. Initial results indicate that prairie rattlesnakes cannot distinguish between individual conspecifics based on volatile chemical cues alone, indicating that they may rely on non-volatile chemical cues (i.e. heavier proteins and lipids) for individual discrimination in social contexts.

11:00 AM   16

Exploring the Role of Molecular Chaperone Hsp83 in Muscle Function and Integrity

Ivan Leon, Kinesiology (Pre-PT) (U)

Inclusion Body Myopathy Type 3 (IBM-3) is a rare autosomal dominant muscle disorder caused by a missense mutation in the myosin heavy chain IIa gene. This mutation leads to progressive muscle atrophy, weakness, inclusion body formation, and disorganized myofilaments. To better understand IBM-3 pathology, our lab developed a Drosophila melanogaster model (E701K) that closely mirrors the disease's key features. Proteomic analysis of the insoluble fraction from

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indirect flight muscle (IFM) homogenates of E701K mutant flies revealed a significant reduction in heat shock protein 83 (Hsp83), the invertebrate analog of Hsp90, a critical chaperone required for proper myosin folding and function. This study aimed to elucidate Hsp83's role in muscle development and maintenance, using RNA interference (RNAi) and UAS overexpression (OE) constructs driven by the Act88F IFM-specific promoter. Western blot analysis confirmed the efficiency of these constructs in achieving knockdown (KD) and OE of Hsp83. Act88F-Gal4-driven KD experiments in wild-type flies demonstrated that reduced Hsp83 levels alone were sufficient to induce significant muscle defects, suggesting that the diminished Hsp83 levels observed in IBM-3 aggregates may exacerbate the mutant phenotype. This indicates that restoring or increasing Hsp83 levels could counteract the pathology. Preliminarily to this, the DJ694-Gal4 driver, active in adult muscle, was used to investigate Hsp83's role in muscle maintenance during aging. DJ694-Gal4-driven Hsp83 OE initially supported muscle function in aging wild-type flies. However, prolonged OE led to deleterious effects, highlighting a nuanced role for Hsp83 in maintaining muscle integrity over time. In addition, KD of Hsp83 with the DJ694-Gal4 driver caused severe functional impairments, as was observed with the Act88F promoter that is active beginning during early muscle development. These findings underscore Hsp83's indispensable role in muscle development and suggest its potential as a therapeutic agent for IBM-3 and related muscle disorders. Further studies are warranted to refine our understanding of its involvement in long-term muscle maintenance and its interplay with age-associated cellular mechanisms.

11:00 AM   17

Phylogenetic and Demographic Modeling of the Endangered Pacific Pocket Mouse Using Mitochondrial Genomes

Jackson Wolfe, Biology (U)

Genomic data has become a powerful resource to aid the development of conservation management strategies for endangered species Perognathus longimembris pacificus (PPM), is an endangered heteromyid rodent found in only three locations along the coast of southern California. Genomic analysis of mitochondrial DNA can provide insight into the short term consequences of habitat destruction from urbanization in Southern California. We assembled de novo whole mitochondrial genomes and constructed a phylogeny using both contemporary and historical samples. Contemporary and historical samples from the same locality did not form clades, instead samples from historical Dana Point formed a clade with a nonsister taxon. We used the phylogenetic tree to test XX models of demographic history with scenarios including migration, and population size changes. Using the generated phylgeny, we are running demographic models to to test hypotheses of the evolutionary history of PPM.

11:00 AM   18

Investigating Mechanisms Underlying Planarian Sensory Neuron Differentiation and Function

Jennifer Severance, Biology (U)

Studies have shown that POU4 transcription factor homologs have conserved roles in the differentiation and maintenance of sensory neurons across diverse species, including human inner ear cells. The freshwater planarianSchmidtea mediterraneais an excellent regeneration model organism for studying conserved mechanisms involved in neuronal differentiation. These organisms possess a large pluripotent stem cell population that enable them to regenerate an entire organism from small body fragments. Our lab found that theS. mediterraneagenome encodes two POU4 homo-logs,pou4-1andpou4-2. Expression and functional analyses have shown thatpou4-1andpou4-2are ectodermal lineage terminal transcription factors, directing the differentiation of epidermal and neuronal cells. The sustained activity of the POU4 homologs is required for mechanosensation, which refers tothe planarians' neuronal responses to vibration, water flow, and touch. The terminal genes associated withpou4-1andpou4-2are-polycystic kidney disease 1-like-2(pkd1L-2) andhemicen-tin-1-like(hmcn-1-L).pkd1L-2is directly regulated bypou4-2and is required for mechanosensation. Double-stranded RNA-mediated interference (RNAi) silencing ofpkd1L-2leads to prominent mechanosensory defects.hmcn-1-Lis regulated by bothpou4-1andpou4-2.hmcn-1-L+cells are predicted to have an accessory role in mechanosensation, but their specific function is unknown. My research involves RNAi silencing ofhmcn-1-Land behavioral assays to quantify the mechanosensory disruption in the absence of this gene's expression. My results will aim to clarify the function ofhmcn-1-L+neurons in S. mediterranea, which could provide insights for comparative analysis of how organs perceive mechanosensory stimulation, such as in human auditory perception.

11:00 AM   19

How Giardia Shapes Host Metabolism: A Metabolic Investigation

Jordan Edens, Chemistry with an emphasis in Biochemistry (U)

Giardia duodenalis (syn. G. lamblia and G. intestinalis) is a waterborne parasite capable of causing severe diarrheal illness. Giardia infection occurs worldwide but is endemic to regions with poor sanitation and a lack of water treatment facilities. Giardia's influence on host metabolism remains poorly characterized. Understanding Giardia's disease progression through a metabolic lens can provide valuable insights for drug development, particularly as resistance to conventional nitroimidazole treatments, such as metronidazole, continues to rise. To investigate this, we analyzed metabolite profiles from mouse tissue samples infected with one of two Giardia strains"WB or GS/M"and compared them to uninfected controls. Metabolites were extracted and analyzed using high-performance liquid chromatography-mass spectrometry

(U)=Undergraduate; (M)=Masters; (D)=Doctoral

(HPLC-MS). Raw HPLC-MS data were processed using MzMine2 and visualized with QIIME2. Principal coordinate analysis (PCoA) was performed to evaluate overall metabolite differences between infected and uninfected tissue samples. Giardia infection had the greatest impact on the GI tract (p < 0.05), particularly the colon, a segment of the small intestine, and fecal samples. Our results indicate that metabolic perturbations during the acute stages of infection are primarily localized to the GI tract, the site of Giardia colonization in the host. Future studies are needed to determine whether metabolic perturbations extend to surrounding tissues during chronic infection.

11:00 AM   20

Changing the Menu: Altering Microalgae Diet for Effective Lytechinus Pictus Husbandry

Kaelyn Nguyen, Biology with an Emphasis in Cellular and Molecular Biology (U)

Rhodomonas lens/salina has been trusted as an optimal microalgae for Lytechinus pictus husbandry and growth, but alternatives have not been explored in recent years. This study seeks to investigate microalgae diets for larval L. pictus to increase growth rates and promptly achieve metamorphosis. Two days post-fertilization, larvae from a single mating pair will be separated into three treatment groups: Rhodomonas salinas diet, Dunaiella salinas diet, and a Tisochrysis lutea diet. Each treatment group will be fed 2500 cells/mL of the surface area equivalent to Rhodomonas, taking weekly measurements of body dimensions, including mid-line length, stomach length, and skeletal rod length. We expect that D. salinas will show the fastest transition through growth stages, contributed by its beta-carotene features. This project will increase our understanding of larval husbandry practices, allowing us to grow L. pictus into adult stages for sustainability within the lab and germ-line research.

11:00 AM   21

Investigating the Role of Nup93 Interacting Partners in Developmental Gene Mis-expression and Polycomb-Linked Histone Modifications

Kameneff Bojorquez Gastelum, BA Biology (U)

The nuclear pore complex (NPC) is a conserved macromolecular structure in the nucleus that facilitates nucleocytoplasmic transport. The NPC is organized into distinct sub-complexes, including the inner ring, outer ring, FG-rich channel, and nuclear basket. Recent research shows that nuclear pore proteins (nucleoporins/Nups) play roles beyond transport, directly interacting with chromatin to regulate active transcription and gene silencing. Defects in Nups are linked to diseases such as ataxia, autoimmune disorders, and breast cancer in humans. Among the NPC components, Nucleoporin 93 (Nup93), named for its molecular weight, is associated with Polycomb-silenced domains critical for developmental gene regulation. However, it remains unknown whether its interacting partners within the NPC co-function in these pathways. Furthermore, in Drosophila melanogaster, the existence of two

Nup93 paralogs (Nup93-1 and Nup93-2) offers a unique model to explore functional divergence, as many species have only one copy. It is hypothesized that Nup93 binds to chromatin regions silenced by Polycomb, and its interacting partners influence the silencing activity of Polycomb group (PcG) proteins during specific developmental points.My research examines how Nup93-interacting partners and structurally neighboring Nups influence the expression of developmental genes and Polycomb-linked histone modifications. Using the Gal4-UAS system (Nub-Gal4 and Ey-Gal4), immunofluorescence, and in vivo developmental assays, I have identified that while certain Nups play crucial developmental roles in association with one or both homologs of Nup93, many others do not. For example, RNAi knock down (KD) of Nup62, located in the FG-rich channel and bound to Nup93 via its C-terminus, leads to misexpression of specific genes late in development. This suggests a closer functional relationship between Nup62 and Nup93-1 in maintaining Polycomb domain interactions. Similarly, KD of Nup205, positioned in the inner ring and tightly associated with Nup93, results in lethality and malformation phenotypes closely resembling those observed with Nup93-2 disruption. Interestingly, phenotypic variability of other Nups in wing imaginal discs versus eye-antennal discs suggests that their functional roles vary across different developmental tissues. In the future, I aim to further investigate the roles by which Nup93 associated Nups regulate chromatin state interactions, influence Polycomb-mediated gene silencing, and contribute to tissue-specific developmental processes.

Session G-4

Engineering and Computer Science (U) 3
Friday, February 28, 2025 11:00 AM
Montezuma Hall

11:00 AM   22

Ehancing Access to Medical Care in the Imperial Valley

David Aguilar, Mathematics (U)

Existing websites that help medical users find specialists near them often fail to show what provider the specialist is covered under or include counties such as the Imperial Valley. To address these problems, data from California Health and Human Services and the National Uniform Claim Committee was gathered to create a dataset connecting each provider to a taxonomy code. A user-friendly website was then created using maps made from the created dataset that directs medical users to see specialists in Imperial Valley County under a specific provider. If no specific specialist is available in Imperial Valley County, the user can look at neighboring counties such as San Diego for the desired specialist. By improving access to specialist information for medical users in the Imperial Valley, diabetes and asthma rates may be decreased by showing users what specialists are available in their area or neighboring counties.

ABSTRACTS

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11:00 AM   23

Developing Computational Tools to Map Neural Connectivity and Measure Influence in the Fruit Fly Brain

Isabelle Bernal, Computer Science (U)

Understanding how neural networks process sensory information is crucial for enhancing our knowledge of neuroscience. This research focuses on computational tools to mine the large FlyWire database, which contains detailed information on every neuron and all the interconnections present in the fruit fly brain. These computational tools help investigate neural pathways and lay a foundation for studying the fruit fly brain's visual system.A benchmark test in this research project helped to determine how Mi1 neurons in the medulla contribute to the activation of lobula neurons through projection neuron pathways. Using FlyWire's application programming interface, projection neurons that connect to a target lobula neuron were identified. For each projection neuron, the number of connections (synapses) it made with the lobula neuron and its total number of inputs received were calculated. Next, the Mi1 neurons' input connections were identified and analyzed to create an influence matrix for the Mi1-to-lobula neuron projection. The influence matrix consisted of rows representing the projection neurons and columns of the Mi1 neurons. Each entry was calculated based on the strength of connections each Mi1 neuron made with projection neurons and the projection neuron's influence on the lobula cell.Although studying the Mi1 influence is the main target of this research, the primary contribution of this work lies in developing a versatile toolset. These tools enable the analysis of the influence of other medulla cell types which expands the scope of future research on the fruit fly brain's visual processing network.

11:00 AM   24

Computational Modeling of Grain Structures with Boundary Lacerations

James Burns, Mechanical Engineering (U)

This project explores the computational modeling and simulation of grain structures to better understand the effect of grain boundary geometry on material properties. Grain boundary lacerations, which influence mechanical behavior, are a key focus of the study. A MATLAB simulation program was developed to generate and analyze grain structures by generating random grain centers within a fixed boundary, ensuring a minimum separation between points to avoid overlap. The program introduces grain boundary lacerations through a random edge-selection process, creating irregularities representative of material behavior. To evaluate the effects of these lacerations on material performance, finite element analysis was conducted using COMSOL.

11:00 AM   25

Numerical Modeling Of Cross-Laminated Shear Walls

Jefferson Young, Mechanical Engineering (U)

Cross-laminated timber (CLT) is gaining popularity within the construction industry due to exhibiting favorable structural properties and reduced environmental impact compared to traditional materials. As such, the application of numerical modeling during the design and validation of CLT structures remains a significant topic of interest. However, current methodologies from existing literature show considerable variability in focus and application, generating difficulty in creating reliable design approaches for CLT structures. This study focuses on the development of a system-wide finite element model methodology within Abaqus to simulate the response of CLT wall connections under seismic loads. This model is developed in the pursuit of a methodology that is inclusive of the complex interactions of the CLT wall connection system. Additionally, it seeks to assess it's viability of simulating different configurations altering ductility and rotational capacity, targeted towards developing reliable design methodologies. The model consists of simplified connector segments defined by the data derived from explicit isolated simulations between various components of the wall connection. Modified versions of the model following this methodology are then verified against existing experimental data from previous literature.

11:00 AM   26

Investigating the Photodegradation of Organic and Fluorescent Contaminants in Wastewater and Its Impact on Human Fecal Indicator Bacteria

Mia Pollasky, Environmental Engineering (U)

Untreated wastewater and other pollutants are being consistently released into the Tijuana River due to inadequate treatment infrastructure in the City of Tijuana, and the inability of the International Wastewater Treatment Plant (IBWC) to handle the cross-border flows. The polluted cross-border flow poses a significant threat to environmental and public health. Untreated wastewater is plagued with harmful bacteria and viruses, which are a major concern due to their pathogenic nature. Sewage has been identified as the primary source of elevated concentrations of fecal indicator bacteria (FIB) in the estuary.From the US-Mexico border, the Tijuana River laden with wastewater travels approximately 10.35 km northwest to the river mouth where it is released into the Pacific Ocean. Due to physical, chemical, and biological factors, FIB in polluted surface waters may degrade over distance or time or may be shielded from degradation by particles and light-absorbing compounds also present in the water. There is limited knowledge on how FIB change in polluted riverine settings compared to other markers of sewage pollution. This experiment will investigate how wastewater fecal indicator bacteria, tryptophan (TRP) fluorescence intensities, and colored dissolved organic matter (CDOM) intensities degrade when exposed to sunlight (simulated) over time. TRP fluorescence,

ABSTRACTS

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with excitation and emission wavelengths at 270-280 nm and 350-355 nm, respectively, has been used as a surrogate for untreated wastewater.Untreated wastewater will be collected, diluted, and split into four samples. Two samples will be exposed to the SunTest CPS+ solar simulator while two control samples will remain in a dark box. The samples will be taken out at set time increments and tested for human fecal indicator bacteria listed above as well as total dissolved nitrogen (TDN), and water quality levels. Trends in the photodegradation of bacteria and the reduction of water quality levels such as turbidity, salinity, TSS, and dissolved nitrogen will be analyzed under simulated sunlight and dark conditions. The results will aid in understanding the extent to which sunlight exposure contributes to the degradation of bacteria levels in the estuary under different conditions and how well fluorescence-based surrogates track these changes.

11:00 AM   27

Enhancing Material Property Prediction In High Entropy Alloys Through Machine Learning

Oscar Osuna, Mechanical Engineering (U)

The intricate nature of novel materials, particularly non-equiatomic High Entropy Alloys (HEAs), presents sig-nificantchallenges in material design. Leveraging Machine Learning(ML) techniques, particularly Support Vector Machine (SVM)models, offers a promising avenue for addressing thesechallenges. This study explores the application of ML inpredicting material properties of HEAs, focusing on thecomparison of different ML models and methodologies. Through systematic analysis, SVM models demonstratesuperior performance in predicting material properties, withnotable distinctions between the predictability of Young's-modulus and yield strength. This research underscores theefficacy of ML techniques in advancing material propertyprediction in HEAs, offering insights into the design andoptimization of these complex materials.

11:00 AM   28

Investigating Transition Temperature and Aggregation of Elastin-Like Polypeptides for Enhanced Scaffold Design in Tissue Engineering

Praneel Singla, B.S. Mechanical Engineering (U)

Tissue engineering utilizes biomaterials to develop medical constructs, with elastin-like polypeptides (ELPs) emerging as promising candidates due to their biocompatibility, biodegradability, and temperature responsiveness. ELPs offer excellent adhesive properties, making them ideal for scaffold design, yet the mechanisms underlying their thermal and structural behavior remain misunderstood. Our research focuses on explaining the temperature-dependent phase transitions and aggregation of ELPs at different chain lengths to further be optimized in scaffold design.

Using multiscale material modeling, such as molecular dynamics (MD) simulations with GROMACS, we investigate the temperature-dependent behavior and properties of ELPs, providing insights into their thermal transitions and molecular interactions. These findings lay the groundwork for designing enhanced scaffolds that mimic the extracellular matrix (ECM) by leveraging ELP behavior to optimize scaffold stability, strength, and cell adhesion under physiological conditions. By tuning ELP properties, we aim to create adaptable scaffolds that facilitate nutrient delivery, waste removal, and cell differentiation—key factors for successful tissue regeneration. This work bridges molecular insights with the broader application of scaffold design, contributing to the development of next-generation biomaterials for regenerative medicine.

Session G-5

Physical and Mathematical Sciences (U/G) 1
Friday, February 28, 2025 11:00 AM
Montezuma Hall

11:00 AM   29

Photochemical tuning of silver nanoprism sizes for energy and sensing applications

Rocco Ammirata, Bachelors of Science Biochemsitry (U)

Silver nanomaterials continue to attract attention in many fields such as sensors, solar energy, optics, and biomedicine due to their unique physicochemical properties. One of silver nanoparticles' most important properties is their ability to absorb and scatter light in the visible and near-infrared more efficiently than any other known material. This ability is due to the phenomenon known as localized surface plasmon resonance (LSPR), and allows for new applications for the particles such as detecting shifts in resonant frequency commonly used in nanoscale sensing applications. A range of methods currently exist to synthesize stable and cost effective silver nanoprisms, but no single method is universally recognized as the most effective. This study seeks to develop a method to effectively synthesize 2-D nanoprisms that absorb light in the visible to near-infrared in order to take advantage of the LSPR for greater potential applications. Our method takes a two step approach in which we first chemically synthesize polydisperse nanoprisms using only four chemical reagents; silver nitrate, sodium borohydride, trisodium citrate and hydrogen peroxide. We reduce silver ions in aqueous solutions with sodium borohydride in the presence of trisodium citrate and hydrogen peroxide. We vary the concentration of silver nitrate in order to control the average size of the nanoprisms. We then use the inherent photoredox chemistry of the nanoprisms to selectively narrow the particle size distribution by exposing the samples to inexpensive Light Emission Diodes (LEDs). UV-Visible spectroscopy and Dynamic Light Scattering(DLS) were used to characterize the LSPR wavelength, stability, and particle size distribution before and after the LED photuning of the nanoprism samples. Thus far we have made particles in the range of 35 nm to 40 nm and arecurrently working on extending this range by changing the light color of LEDs. We find that this approach offers an economical and scalable route to synthesize such uniform nanoprisms for practical applications.

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11:00 AM   30
Peroxide Driven Seedless Synthesis of Silver Nanoprisms of Tunable Size
Timothy Mai, Chemistry (U)

Silver nanoparticles show increasing use in multiple areas of critical research and technology, such as chemical catalysis, sensor technology, and solar energy conversion. A key feature of these particles that enables their use in these areas is their ability to absorb light exceptionally strongly, and when coupled to solar cells, can improve quantum efficiency. In our lab, we are working to improve the efficiency of silicon solar cells by coupling nanoparticles of specific sizes and shapes to them. In the work described here, we present a peroxide driven seedless method of synthesizing silver triangular nanoprisms with tunable sizes, and therefore tunable wavelengths of light they absorb. In this method a solution of silver nitrate and sodium citrate is simultaneously oxidized with hydrogen peroxide and reduced by sodium borohydride to achieve silver nanoprisms without the need of pre-existing seeds (small clusters of silver atoms). We have found that by decreasing the initial amount of silver that is added in each synthesis, the nanoprisms final size grows and absorbs at longer wavelengths, extending into the IR region. This method of synthesis is sensitive to mechanical stirring and minor differences in concentration on the millimolar scale, and we are working to control these factors. UV-visible absorption spectroscopy and dynamic light scattering were used to determine the optical absorption properties and size distribution of the prisms. We initially report the tuning of 2D triangular nanoprisms that absorb at wavelengths from 400 nm well into the Near IR (NIR) region. A robust peroxide driven approach to the synthesis of silver nanoprisms reduces the lead and labor time, as well as resources required when compared to the typical seeded growth.

11:00 AM   31
Spatial analysis of water potential between dominant tree species along a hill-slope in the Eel River Watershed
Antonio Estudillo, Environmental Sciences (U)

Tree water potential is a measurement known to give insight into the strain trees undergo when performing transpiration. Our group aimed to gain more insight into drought effects on water potential by observing how the summer heat impacts the water potential of dominant tree species in the Elder Creek watershed at the Angelo Coast Range Reserve. Different tree species are known to have unique fluctuations in water potential due to factors such as location and physiology. Measured differences in water potential will provide insight into transpiration patterns for these species as climate change continues to affect water availability and environmental conditions throughout the watershed. We measured this potential by observing the pressure in megapascals (MPa) it takes to release the tension from the vascular system of leaves. We sampled leaves from three native tree species: madrone (hardwood), Douglas fir (softwood), and tanoak (hardwood) at four different elevation levels on the Rivendell hillslope. Our

hypothesis states that trees lower on the north-facing hillslope have increased access to water resources due to the proximity of the water table. Measurements were recorded at multiple time points throughout the day, including predawn (~6-8 am) and peak sun exposure times (2-4 pm), to examine the contrast in water potential when trees underwent variations in tension and stress. Our hypothesis was not supported as there was no statistically significant difference in pressure across all species, levels, and times throughout the day. During predawn times, Madrone and Oak trees had pressure readings of -1 or higher. For Firs, the predawn measurements were more than -2. This suggests variability between species and levels at predawn, with there being less correlation among each species's water potential depending on their levels. For peak times, all species had readings between -2 and -1. This suggests there may be a correlation between temperature and water potential; as trees get more sunlight exposure, they have to work harder. Also, as the temperature rises, trees have to transpire more to try and maintain hydration. We were able to identify that all three tree species across the hillslope revealed a consistent spike in water potential at midday between 2-3 pm, indicating a relationship between temperature and water potential. This point also leads us to conclude that position on the hillslope does not play a direct role in a tree's ability to access water since the tree groups had similar daily water potential patterns and value ranges, despite testing different elevation levels. These findings indicate that there is a need for further testing due to the high variability found within our data.

11:00 AM   32
Mathematical Model of Salmon Populations
Caleb Molina, Mathematics Major (U)

There is increasing evidence that trends in pacific salmon abundance are linked to large-scale environmental changes in climate/ocean conditions through their impact on the salmon life cycle. In this study, we use a mathematical model to quantitively study these impacts by investigating how the changes in spawning age and vital rates affect the inherent growth rate and the net reproductive number of salmon.We use a four-stage discrete time model to describe the salmon life cycle: juvenile, 1-year adults, 2-year adults, 3-year adults. Three different adult stages are used to model the heterogeneity in the spawning rate in adult salmons. We then compute the population growth rate and investigate the sensitivity and elasticity of the vital rates and spawning age on the population growth rate.Our results show that the population growth rate is most sensitive to the juvenile survival rate, then followed by the adult spawner survival rate. The growth rate increased for both sensitivities. In comparison, fecundity had a minimal impact on the growth rate. The sensitivities of the net reproduction number respective to these vital rates follow the same relationship pattern.We also found that the elasticity of the growth rate respective to juvenile survival, adult spawner survival, and fecundity all had equal effects and increased the growth rate. Under a growing general population scenario, these elasticities are higher for salmon species with greater variance from the mean spawning age (2-year adult). Under a declining general population scenario, these elasticities are higher for salmon species with lower variances from the mean spawning age.Our

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future work involves evaluating future populations of salmon species while accounting for probable reoccurring disturbances in their environment in which the population's growth is disturbed. We want to model the impacts of environmental change on pacific salmon populations with contemporary disturbances caused by urbanization and pollution.

11:00 AM   33
Determining Reproduction Number using Physics Informed Neural Networks
Peter Lenz, Applied Math (M)

AbstractWe propose a method to predict the basic reproduction number using Physics-Informed Neural Networks (PINNs). By integrating the governing differential equations of epidemiological models (e.g., SIR, SEIR) into the learning process, PINNs leverage both data and underlying disease dynamics. This approach enables accurate estimation of and related parameters even with limited or noisy data, ensuring physically consistent and interpretable results. The method provides a robust framework for real-time monitoring and intervention assessment during infectious disease outbreaks.

11:00 AM   34
Modeling HIV Latent Infection Under Drugs of Abuse
Tim Liang, Applied Mathematics Dynamical Systems of Chaos (M)

HIV is a global issue with approximately 27 million people with HIV+ reported by CDC 2019. Of the total infected population, over 30% are related to drug-abuses. To control HIV infection, tremendous efforts are applied to prevent the spread of HIV through antiretroviral therapy (ART), however, there is no cure for HIV especially due to the establishment of latently infected cells. In addition, the contributing factors from drugs of abuse, such as opiates or fentanyl, have been shown to increase the viral load, and how drugs of abuse affect the HIV latent infection is not well-understood. In this study, we develop a mathematical model to investigate the pharmacodynamic efficacy of the drugs of abuse and how they can affect latent infection dynamics. The model is validated using experimental data from HIV infection of humans and Simian Immunodeficiency Virus (SIV) infection of morphine-addicted macaques, and using parameters that are obtained via research or studied from published articles. Our model shows that the dynamics of latently infected cells can be significantly altered due to the presence of the drugs of abuse while accounting for the logistic drug degradation factor with time.

11:00 AM   35
Investigation of Reaction Pathways of Ethylene Glycol Upcycling via a Pd doped Ni Catalyst
Vayle Vera Cruz, Chemistry (M)

Polyethylene terephthalate (PET) is one of the most used plastic materials in the world, which generates a large amount of waste, but can be depolymerized via hydrolysis into terephthalic acid (TPA) and ethylene glycol (EG). EG can then be

further reduced into value-added products via electrocatalytic oxidation reaction in a process known as ethylene glycol oxidation reaction (EGOR). The EGOR has a low product selectivity, forming a multitude of C1 and C2 products, and therefore the development of selective catalysts remains a frontier area of research. A recent Cu-doped Ni catalyst has been shown to selectively produce formate, a C1 product, and computational studies into the role of Cu in the EGOR suggest that it is heavily involved in the C-C bond cleavage. With this understanding, the question of how different metal dopants affect selectivity of products arises. Inspired by a recent study using Pd nanoparticles on Ni(OH)2 to achieve selectivity for glycolic acid, a C2 product in the EGOR, here we use computational methods to investigate the catalytic performance of Pd-doped Ni catalyst and to elucidate Pd's role in determining the selectivity of EGOR. Specifically, we use density functional theory (DFT) calculations to determine adsorption energies and Gibbs free energies of the intermediate species along the reaction pathway for both Ni and Ni/Pd catalysts. Gibbs free energy diagrams for the C1 and C2 pathways were constructed based on the computational results in an attempt to understand the potential viability of a Pd-doped Ni catalyst.

Session G-6

Health Nutrition and Clinical Sciences (U) 2
Friday, February 28, 2025 11:00 AM
Montezuma Hall

11:00 AM   36
The Role of Tactile Feedback Congruence in Rapid Reaching Corrections
Emily Reeder, Microbiology (U)

Reflexes play a large part in our everyday lives, including protecting our bodies from falling and helping us respond to unpredictable situations quickly and rapidly. While they are often considered to be unchanging and biologically set, this research aims to address how sensory feedback affects the speed and accuracy of reflexes. This project explores whether congruence of a tactile stimulus signifying the location of a moving target and the target itself affect tactile-motor responses. We will test this by having participants reach toward a moving target while simultaneously receiving tactile sensory feedback provided to the index finger on their opposing hand. This feedback will be provided while the participant's finger is in three different locations and will indicate the direction the target is moving in. We predict that when the feedback is received closer to the midline of the body, speed and accuracy at which the target is approached will be higher because the tactile cue will be perceived as the same object as the moving apparatus. Tactile feedback has been shown to produce reliable but less automatic responses than visual stimuli, demonstrating ability for the tactile-motor reflex to be flexible and changing (Pruszynski et al. 2016). Studying the relationship between position in space and the tactile-motor reflex response allows us to better understand

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how our bodies may react to our changing environment and how motor control utilizes sensory information to make swift decisions. Determining the position in space at which these sensory cues are the most accurate is crucial in predicting how one may respond to the environment when lacking visual awareness. Results from this research can be implemented in the design of tactile displays for many professions with the goal of increasing and remodeling the accuracy of reflexes.

11:00 AM   37

Does neighborhood walkability associate with walking function?

Farah Basmagi, Kinesiology- Pre-Physical Therapy (U)

IntroductionWalking is essential to quality of life and an indicator of health. Rehabilitation approaches often focus on simple measures of walking function in a controlled clinical setting, yet environmental factors play a crucial role in patient rehabilitation and mobility.We hypothesize that greater neighborhood walkability (often outside scope of clinical assessment) is associated with better walking function.MethodsParticipants provided written informed consent. Helen Hayes' marker set motion was tracked by 9 cameras (Qualisys). Walk Scoreâ„¢, between 0-100, evaluated neighborhood walkability among participants. Preferred walking speed (PWS) was found with a standardized protocol, and participants walked on a treadmill (Treadmetrix) for 3 minutes. The first and last 30 seconds were excluded from analysis. We obtained spatiotemporal parameters, such as step length, step width, and double support variability from Visual3D and custom MATLAB scripts. To assess the effect of neighborhood on walking function, we conducted independent t-tests and Pearson's correlations in SPSS. Significance was set at the level p<0.05.Results & Discussion15 participants were included in the study (age: mean Â± 40 SD; BMI 27.6 kg/mÂ² Â± 5.05 SD), with an average 11989.3333 Â± 9198.83058 SD MET-minutes per week (from International Physical Activity Questionnaire). Walk Scoreâ„¢ among participants ranged from 0 to 95. Participants living in more walkable neighborhoods tended to have higher levels of physical activity (R = 0.537, p = 0.039). However, no significant relationships were observed between Walk Scoreâ„¢ and walking speed, double support time, step width, or step length (all p > 0.05). Participants were categorized into high (>47.8) and low (<47.8) -walkable neighborhoods based on median Walk Scoreâ„¢. There were no differences in walking function between groups (Table 1), yet interestingly, the mean difference in walking speed was 0.12 m/s. While not statistically significant, this exceeds the minimal clinically important difference (0.1 m/s). Even subtle differences in walking speed could have meaningful implications for an individual's ability to navigate the community effectively. Our results suggest living in a walkable neighborhood does not impact walking function, yet walkable environments may encourage more physical activity.Table 1Variable High Walkable Neighborhood. Low Walkable NeighborhoodStep Length 0.52 Â± 0.07 0.54 Â± 0.10Step Width 0.13Â± 0.04 0.11Â± 0.04Double Support Time 0.38 Â± 0.01 0.37 Â± 0.04(% gait cycle)Walking Speed 1.16 Â± 0.19. 1.28 Â± 0.20Physical Activity Level (METmins/week) 17,587.14 Â± 9,627.19 7,959.57 Â± 5,401.55

11:00 AM   38

Knee Brace Induced Muscle Recruitment Among Knee Osteoarthritis Patients

Justin Kim, Kinesiology (U)

Knee osteoarthritis is a degenerative joint disease characterized by the gradual degradation of articular cartilage. Unloading knee braces are often prescribed to reduce painful bone contact and enhance mobility. Recent research shows that wearing a Guardian rehabilitative knee brace for 90 days improves quadriceps strength, reduces knee pain, and normalizes unbraced gait. It remains unclear if strength improvements result from increased daily step count, enhanced step quality (greater muscle activation), or both. This study examines the effects of two unloading knee braces, Guardian and Ossur, on lower limb muscle activity (EMG) during treadmill walking. We hypothesize that the Guardian braces will increase quadriceps activation and reduce quadriceps-hamstring co-contraction in OA patients. Participants (Guardian Brace: n=7, mean age 57 years ; Ossur Brace: n=8, mean age 62 years) were recruited from a population diagnosed with moderate or severe unilateral medial knee OA. Inclusion criteria included a diagnosis confirmed by imaging and clinical evaluation as well as the ability to walk for 5 minutes unaided. Average electromyography (EMG) was recorded from three quadriceps muscles (VL, RF, VM) and two hamstrings muscles (ST, BF) during early stance period on the arthritic leg while subjects walked with the brace at one of two speeds: 1) preferred speed with no brace (NBP) or 2) preferred speed while wearing the brace (BP). Co-contraction index was quantified for the medial (ST/VM) and lateral (BF/VL) knee antagonists during early stance. A repeated measures ANOVA compared EMG and co-contraction measures between brace groups and treadmill conditions. VM EMG and VL EMG both increased at BP speed (both $p<0.005$) and increased more for Guardian users (both $p<0.047$). RF EMG activity increased at BP speed ($p<0.024$), but potentially increased more for Guardian users ($p=0.053$). ST/VM co-contraction did not change ($p=0.281$) with treadmill condition while BF/VL co-contraction increased at BP speed ($p=0.009$) for both braces ($p=0.623$). The Guardian brace demonstrated superior quadriceps activation compared to the Ossur brace, suggesting that its rehabilitative benefits may be attributed to improved step quality.

11:00 AM   39

Creatine Supplementation in Concussion Recovery

Michaela Renfro, Foods and Nutrition (U)

Creatine Supplementation in Concussion RecoveryMichaela Renfro, Shirin Hooshmand, Mark Kern, Michelle L. Weber RawlinsContext: Concussions are a significant public health concern, with millions diagnosed every year. Concussion recovery can vary between person to person and many variables are proposed to influence recovery, including nutrition. Creatine is a nutrient proposed to play a role in brain health, however, the influence that creatine may have in concussion recovery has not been examined. Therefore, the purpose of this study was to compare concussion recovery between

ABSTRACTS

(U)=Undergraduate; (M)=Masters; (D)=Doctoral

individuals supplementing creatine to those not supplementing creatine. We hypothesized that individuals taking creatine would recover sooner than those not taking creatine.Methods: Participants were recruited from a large public academic institution. Inclusion criteria included concussion diagnosis and initial assessment within 72 hours post-injury, 18-35 years old, no history of mental health disorders, learning disabilities, or migraines, and no creatine use currently or within the last 6 weeks. Participants were randomly assigned to the creatine (intervention) or no creatine (control) group prior to their initial assessment. The intervention group consumed their usual diet plus 5 grams of creatine for the first 4 days following the initial assessment, and then 3 grams of creatine once per day thereafter until asymptomatic. The control group consumed their usual diet. Participants completed two assessments (initial and once asymptomatic). We calculated descriptive statistics for all demographics and days to asymptomatic. We also calculated a Mann-Whitney U to determine if days to asymptomatic differed in those taking creatine vs. those not taking creatine.Results: Our project included 3 participants (2 intervention and 1 control group; age=22.0±3.6 years; male=1, 33.33%, female=2, 66.67%). The average days to asymptomatic were 17.67±20.21 (intervention group=23.50 days, control group=6.00 days). Results indicated that days to asymptomatic did not differ between the intervention and control groups (p=0.667).Conclusions: Our preliminary results indicate that creatine use does not influence concussion recovery, however, future studies should consider a larger participant sample number to increase generalizability and accuracy. Further research is needed to evaluate additional roles creatine may play in concussion treatment and management, such as in patients with persisting concussion symptoms. While creatine supplementation may improve brain health, its effects on concussion recovery require additional research.

11:00 AM   40

Over-the-Counter Hearing Aids:
How Much Are Consumers Willing to Pay?

Lluvia Vazquez, Speech Language and Hearing Sciences (U)

In October 2022, the Food and Drug Administration introduced over-the-counter (OTC) hearing aids (HAs) to improve access and equity of hearing healthcare. OTC HAs are designed for adults with perceived mild to moderate hearing loss. These devices are available at consumer electronic stores, pharmacies, and online, and, unlike prescription HAs, they do not require consumers to visit a professional, such as an audiologist. The goal of this project is to explore what individuals with and without HA experience are willing to pay for OTC HAs. This is part of a larger study on the usability of OTC HAs. Individuals ages 55 years and older were recruited for a two-hour study at SDSU. The visit included surveys and an OTC HA skills task. The main outcome was willingness to pay (WTP); participants named a dollar amount they would feel comfortable paying for OTC HAs. We compared WTP (dollar amounts) between experienced HA users and new HA users. We predicted that experienced HA users would be willing to pay more for OTC HAs compared to new HA users. A total of

83 participants (mean age: 71 years) completed this study, 69 of whom provided a specific WTP dollar amount. Across all participants, the mean WTP was $639 (range: $30 to $4,500) and the majority (72%) were willing to pay less than $1,000. The experienced HA group (n = 28) had a slightly higher mean WTP versus the new HA group (n = 50) (Experienced: $553, SD =$780; New: $811, SD = $735). One-fourth (25%) of experienced HA users reported a WTP of $1,000 or more. In contrast, only 5% of new HA users reported a WTP of $1,000 or more. The large variability in responses is reflective of the actual range of OTC HA prices. More research is needed to understand the participant-related variables that are associated with the price they are willing to pay for OTC HAs (e.g., satisfaction, income level), including as part of longitudinal studies, and studies that compare OTC and traditional prescription HAs.

11:00 AM   41

Integrating Social Determinants of Health Data:
Developing a Machine Learning-Based Predictive
Public Health Index

Sathvika Musuvathy, Public Health (U)

The social determinants of health encapsulate the intricate interplay of environmental, economic, and sociocultural factors that significantly influence individuals' well-being and health outcomes. The World Health Organization publishes data on social determinants of health factors (https://www.who.int/countries/), referred to as indicators for every country, offering insight into the multifaceted nature of social determinants of health. The National Institutes of Health also publishes similar data under the All of Us research program, which includes genomic information, economic indicators, environmental, and behavioral information (https://allofus.nih.gov/). However, there are limited applications of machine-learning approaches to synthesize these large datasets to make sense of (a) genetic determinants of health variables, (b) environmental determinants of genetic predispositions to health issues, and (c) the complex interplay of the genetics and environment in determining human health. My project will therefore involve developing a novel predictive public health index that integrates these extensive datasets using machine learning. The Sethuraman Lab at SDSU has obtained access to these data, which I will use to train a random forest/decision tree-based framework to (a) visualize relationships and correlations between lifestyle variables and genetic variants and (b) summarize these correlations into an all-encompassing metric that will describe the health of an individual and a population.

11:00 AM   42

Effect of Oropharyngeal Cancer Tumor Burden
on Speech Production

Sydney Coleman, Speech, Language, and Hearing Science (U)

Patients diagnosed with oropharyngeal cancer (OPC; aka head and neck cancer) are commonly prescribed radiation therapy. However, these patients experience lower intelligibility rates, significant physical defects, and poor quality of life measures

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after treatment. Patients report changes to their eating, drinking, and speaking after radiation therapy, which negatively affect their quality of life. No known study has examined speech movements of patients with OPC prior to or after radiation therapy. Therefore, it is unknown if tumor burden and/or radiation therapy could cause the reported speech difficulties after radiation therapy. To better understand the mechanism of these speech changes after treatment, the goal of this study is to compare speech movements in people diagnosed with OPC before radiation therapy to young healthy controls to determine the effect of tumor burden on speech movements. In our study, speech movements were recorded using electromagnetic articulography in 10 patients (4 males, 6 females) diagnosed with oropharyngeal cancer. Speech movements were compared to 25 healthy young adults (23 female; 2 male) who served as controls. All participants were asked to repeat the sentence Dad told stories today. Preliminary results indicate that the tumor burden does not change speech movement characteristics of the tongue, including range of movement (mm), average speed (mm/s), and duration (s). This finding suggests that tumor burden likely does not impact speech movements in these patients before or after radiation therapy. Future directions include examining speech movements in these same patients after radiation therapy.

Session G-7

Education (U/G) 1
Friday, February 28, 2025 11:00 AM
Montezuma Hall

11:00 AM   43

Bridging the Digital Divide: Addressing AI Accessibility for Black High School Students
Abir Mohamed, Africana Studies (U)

This study explores the intersection of Artificial Intelligence and its implications on education and the student experience. The integration of AI into education and daily life has amplified concerns about the digital divide that has been precedent in underserved communities for many years and what is now being coined as the AI-divide, which creates a further gap in technological disparities particularly in these communities. My research focuses on AI accessibility among high school seniors in City Heights, San Diego, a predominantly underserved community, and compares their experiences with those of students from more affluent schools in La Jolla. Using a qualitative methodology, 25 high school seniors from three City Heights high schools"Hoover High, Crawford High, and City Heights Prep Academy"will be interviewed to explore their access to and use of AI tools, particularly in the context of college application processes. A key focus will be examining whether students leverage AI for tasks such as drafting personal statements, as well as identifying barriers they face in accessing or effectively using these tools. These findings will be juxtaposed with data from 25 high school seniors at three

La Jolla schools"University City High, La Jolla High, and The Preuss School"to uncover potential disparities in AI adoption and its impact on their college preparation. By contrasting these two groups, the research aims to shed light on how systemic inequities, such as limited technological resources or lack of AI literacy, may hinder City Heights students from fully benefiting from AI advancements.

11:00 AM   44

AI and the Student Experience:
How Advertisements Are Promoting AI-Powered Educational Services to Target the Student Market
Rosabel Ibrahim, Information Systems (U)

The overarching theme of this research project is to explore the intersection of artificial intelligence and students' experience in education, with a specific focus on understanding how advertisements for AI-powered educational services utilize marketing and persuasive tactics to target students. With the rapid growth of AI integration within student spaces, there is a need to critically evaluate how these technologies are marketed, their potential impact on learning behaviors, and the ethical considerations surrounding their promotion. This research involves collecting a dataset of advertisements, including both images and videos, and analyzing their content to identify patterns in the language, keywords, and marketing strategies employed. Data sources are taken from a multitude of ad libraries, including Google Ads Transparency Library, LinkedIn Ad Library, and Meta Ad Library. This research seeks to uncover how these advertisements appeal to students' pain points, leverage emotional triggers, and position AI tools as indispensable for academic achievement. By dissecting these advertising strategies, the project aims to provide insights into the influence of AI marketing on the student experience and contribute to broader discussions about ethical advertising practices.

11:00 AM   45

Optimizing Habitat Suitability for Salmonids in the Eel River: A Study of Temperature and Dissolved Oxygen Dynamics
Babette Romano, Sustainability (U)

This study examines habitat suitability for salmonids in the South Fork of the Eel River in the Angelo Coast Range Reserve by analyzing temperature and dissolved oxygen (DO) levels. Wehypothesize that both temperature and DO will decrease with depth, and therefore the most suitable places will be found at moderate depths, where temperature is low enough and DO is high enough. Using handheld sensors and data loggers, we measured depths, temperature, and DOin theWilderness Pool and two connected creeks. Our findings showed that middledepths consistently provided ideal conditions for salmonids, while variations in DO and temperature may have been influenced by factors like algae and water mixing.This research offers important insights for preserving salmonid habitats and supporting conservation efforts.

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11:00 AM   46

Cultural Competency Preparedness-Student Readiness for Self-Actualization as an Undergraduate

Shaye Phung, Liberal Studies, Elementary Education (U)

Instruction in multicultural education has been steadily increasing in postsecondary settings, broadening students' perspectives and fostering greater understanding of cultures beyond their own. One prevalent approach to multicultural education is through Ethnic Studies courses (e.g., Asian American Studies, Women's Studies, Africana Studies, etc.). However, many students lack access to coursework that equips them with the skills to apply this knowledge through a lens of cultural competency. An undergraduate minor at San Diego State University (SDSU) seeks to address this gap by empowering students with practical and theoretical tools. This curriculum not only distinguishes between concepts such as diversity, equity, and inclusion but also equips students to apply these principles across various contexts and disciplines. As workplaces become increasingly diverse, the demand for culturally responsive professionals has grown proportionally. This underscores the need for multicultural education tailored to the rising generation of professionals. The program's learning objectives are designed to prepare students to excel in the workforce by fostering environments of belonging and fulfillment for their colleagues. While this goal aligns with broader societal needs, it also challenges students to derive personal meaning from their learning, often in unfamiliar contexts. The Cultural Proficiency Minor coursework encourages extensive self-reflection (Phung, 2024). Students are prompted to examine their identity's role in society, envision its place, and identify gaps. This approach has the potential to address Maslow's higher-level needs (Maslow, 1943)"belonging, esteem, and self-actualization"skills that are essential for post-undergraduate success. According to Maslow's hierarchy, students can only achieve these higher-level needs once their foundational needs are met. As a microcosm of society, SDSU supports initiatives to meet students' basic needs and offers opportunities to fulfill higher-level needs. This study will explore the relationship between access to university-provided resources and the attainment of self-actualization.

11:00 AM   47

Rasquachismo: Leveraging the Resourcefulness of First Generation Latino Parents and their Contributions to their Children's Wellbeing

Stephania Uribe Garcia, Child and Family Development (U)

Students are deeply influenced by their educational settings, which involves their teachers and parents. American educational curriculums have been known to be eurocentric focused. This focus creates many limitations for non-white parents and students who have different cultural backgrounds. Parents who attended school in the United States could be more comfortable with assisting their children on a curriculum that they may already be familiar with, but this isn't always the case for all parents. First-generation non-white parents aren't familiar with the eurocentric focused curriculum that is highlighted in schools throughout the United States. This can cause barriers between parents and children when it comes to their educational teachings. However, this study proposes a different point of view. Rasquachismo is surviving oppressive financial and structural conditions by being proudly resourceful and innovative. We'll specifically focus on the resourcefulness of Latine immigrant parents from low socioeconomic backgrounds and the impact they can have on their adolescent children. Rashquachimso emphasises and recognizes the cultural influence of Latine students and their families, while also empowering them. Communities will benefit from having a supportive school system that drifts from the eurocentric perspective. Many non-white students often learn the eurocentric perspective of their materials in school; science, history, math, english, etc; School systems should curate their teachings depending on their students' cultural backgrounds. Not only focusing on the eurocentric perspective of the materials, but their cultural standpoint as well. While teachers apply their students' cultures to assignments and methods of teaching, Rashquachismo will potentially encourage students and families to feel proud of their individuality and ingenuity. Which can cause Latine parents of First-generation students to feel empowered in their cultural backgrounds by being recognized for their resourcefulness and identifying their STEAM skills. Skills that revolve around STEAM, like fixing shoes with rubber tires, using herbal medicine to help with illnesses, repairing automobiles by using at home appliances, to name a few. There are studies that hone into the importance of using Latine skills and knowledge to educate young minds by using familiar cultural techniques, but very few are identified as STEAM skills provided by parental guidance. For that reason, this study will allow for low-income Latine families to not only identify their cultural teachings as STEAM focused techniques, but they'll also gain the confidence to continue to build on their cultural knowledge instead of accommodating to a new way of teaching and learning. It's important for not only children to feel confident in their identity, but for their families to feel it as well. This study has the capability of developing cultural confidence when it comes to STEAM within schools, families, and communities.

11:00 AM   48

The Role of Mentoring in a Community College Undergraduate Research Program

Jahaziel Sanchez, Accounting Information Systems (M)

This research particularly focuses on the transformative role of culturally responsive mentorship in advancing the academic success of Latinx, Chicanx, and Hispanic students in higher education.This study explores the role of culturally responsive mentoring in shaping community college students' perceptions of and experiences with undergraduate research, as part of the SEMILLAS Research Fellowship Program. The project addresses the gaps in traditional undergraduate research (UR) programs, which often fail to engage community college students or center their racial and ethnic identities. Using semi-structured interviews with 19 fellows from three cohorts, the study reveals three key findings. First, shared

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lived experiences between mentors and mentees demystify academic expectations and broaden perceptions of scholarly identity. Second, the mentoring relationships foster students' confidence in conducting research by enabling collaborative learning and meaningful dialogue. Third, culturally responsive mentorship inspires long-term academic aspirations, encouraging students to envision futures in graduate studies and beyond.This research emphasizes the transformative impact of mentoring, highlighting the value of integrating students' diverse identities and experiences into UR programs to enhance their academic trajectories. These findings challenge traditional notions of knowledge production, validating personal narratives ('me-search') as meaningful scholarly contributions.

11:00 AM   49

Bridging Values and Science:
The Role of Faculty Communication in
Shaping Students' Research Engagement

Rosalva Romero Gonzalez, MA Psychology (M)

Many students' first applied science experience happens in faculty-led STEM research labs, where they work closely with a faculty mentor. These interactions with mentors shape students' perceptions of science, including its values, expectations, and behaviors. While learning fundamental science skills is important, students also benefit from understanding how research connects to their daily lives and its broader impact. While STEM often promotes independent values that present science as objective, students come with a variety of core motivations. Students who prioritize communal values, focusing on fostering community and considering the needs of others, may feel alienated from pursuing STEM careers if they do not see their values reflected in the work or from mentors. Previous work shows that students with mentors who affirm their values are more likely to stay engaged in science. But how do faculty communicate these values to their mentees? In this study, we analyzed archival data from a larger project involving students and faculty in STEM labs at three Southern California universities. In addition to a survey study, we asked faculty mentors to share their lab email announcements to examine how faculty connect with students' communal values and whether this impacts students' research engagement. A total of 14 labs comprising 110 research assistants, shared these communications. The emails were read by research assistants from our lab trained to score the email as expressing the benefit of science to others (1) or not (0). Multilevel analysis was conducted with students nested within faculty-led research labs. On average, students were motivated when faculty sent emails about benefiting others ($\hat{I}^2$ = .46, 95%CI = [.02, .91]). However, students with higher communal values were even more engaged in research when their faculty mentor sent out such emails ($\hat{I}^2$ = .40, 95%CI = [.04, .75]). While these communications did not impact students with lower communal values, they significantly increased engagement among those who prioritize communal contributions in research. This could indicate that by simply

sending an email emphasizing broader impact, faculty mentors can not only enhance student motivation, but also increase retention of students in science.

Session G-8

Behavioral and Social Sciences (G) 2
Friday, February 28, 2025 11:00 AM
Montezuma Hall

11:00 AM   50

Exploring Gender-Based Attitudes Toward Perinatal Depression: Implications for Treatment and Support

Emily Leslie, MPH Health Promotion and Behavioral Sciences (M)

Background: Perinatal depression (PND) is one of the most common complications occurring during and after pregnancy. Although it affects roughly 24% of mothers and 10% of male partners, many individuals remain undiagnosed and untreated. Stigmatizing attitudes and lack of knowledge regarding PND can reduce conversations between partners about PND and ultimately impact treatment-seeking. It is therefore critical to identify factors that could influence symptom identification and treatment seeking. This study explores gender differences in attitudes toward PND, highlighting potential implications for health education and clinical interventions.Method: Participants (N=179; 50.8% female; 49.2% male) completed an online questionnaire. PND-related knowledge, attitudes, and beliefs were assessed using the Attitudes about Postpartum Depression Scale and an adapted version of the Mental Health Literacy Scale. Data was summarized using descriptive statistics and comparison tests (t-tests, chi-square tests) were computed to examine differences in PND-related attitudes between male and female respondents.Results: Gender comparisons revealed numerous significant differences in PND-related attitudes and beliefs. Female participants perceived PND as being more common (t[177]=-2.05, p<.05) and serious (t[173.52]=2.54, p<.05) than male participants. Male participants reported more negative attitudes about PND overall compared to females (t[172.7]=4.16, p<0.001). Males also held more potentially harmful beliefs about the causes and treatment needs for PND. For instance, male participants were more likely to attribute PND to a lack of preparedness for parenthood (t[166.49]=2.88, p<.01) or certain personality traits (t[169.37]=2.25,p<.05), and were also more likely to believe that PND would go away with time (t[173.24]=3.23, p<0.001) and individuals should be able to cope with their symptoms without needing treatment (t[166.81]=3.82, p< 0.001).Conclusion: Males were more likely to underestimate the severity of PND, exhibit a false understanding of disease causes, and unfavorable perceptions of treatment. These misperceptions can adversely impact support and treatment seeking throughout pregnancy, leading women to cope with the condition on their own, further impacting their mental well-being. Public health campaigns and clinical education interventions are needed to stop the perpetuation of PND-related stigmas.

ABSTRACTS

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11:00 AM   51

Does ability to pay matter? Analyzing post-Humphrey pretrial decision-making in Southern California

Emma Bailey, Criminal Justice (M)

In 2021, the California Supreme Court ruled that detaining an individual pretrial, simply because they cannot afford to pay the bail set in their case, violates the 14th Amendment (In re Humphrey, 2021). Although the Court did not abolish money bail, it did rule that in order to set money bail, courts must consider a) whether nonfinancial conditions would protect public and victim safety and assure court appearance, and b) the defendant's ability to pay. This study examines whether In re Humphrey has changed bail imposition practices and, relying on systematic court observations of felony arraignments in Los Angeles and Orange counties in 2023, examines the factors considered by judges in making pretrial release decisions. Specifically, it looks at how often money bail is imposed, relative to nonfinancial conditions and pretrial detention, and investigates whether, and if so, how, judges consider a defendant's ability to pay.

11:00 AM   52

Griefbots, Deadbots, and Postmortem Avatars: A Technological Shift in Communication and Grieving

Eric Uhden, Mass Communication (M)

AbstractGriefbots represent a groundbreaking innovation at the intersection of artificial intelligence (AI), communication, and mourning, offering new ways to navigate loss and preserve emotional connections. Despite their potential, grief bots highlight a significant gap in literature regarding their psychological, cultural, and societal implications. This review explores how grief bots foster parasocial relationships, enable emotional bonds, and challenge perceptions of authenticity and intimacy in mourning practices. By synthesizing research across communication, ethics, and psychology, the review identifies both the benefits, such as emotional relief and continuity, and the risks, including ethical dilemmas surrounding data privacy and emotional exploitation. Methodologically, this review relies on peer-reviewed studies, incorporating case studies, and theoretical frameworks like Social Presence Theory, Parasocial Relationship Theory, and Computers as Social Actors (CASA). Findings emphasize the dual-edged role of grief bots in reshaping human interactions with loss, urging ethical regulations to ensure responsible application.

11:00 AM   53

Trash2Treasure: An AI-Powered Educational Platform for Marine Pollution Awareness and Action

FNU Dipsy, Big Data Analytics (M)

Marine pollution, particularly plastic waste, is one of the most pressing environmental challenges of our time. To address this issue, Trash2Treasure is an innovative platform designed to educate, engage, and empower individuals to take action against marine pollution. This platform integrates artificial intelligence (AI), citizen science, and community engagement to create a comprehensive approach to environmental sustainability.At the heart of Trash2Treasure is a user-friendly AI-powered chatbot, which provides real-time, interactive responses to questions about different types of trash, their environmental impacts, and the best practices for waste disposal. This chatbot acts as both an educational tool and a resource for users to understand the significance of their actions in the context of broader environmental challenges.In addition to the chatbot, the platform offers a range of features designed to facilitate beach cleanup events, volunteer signups, and marine litter data collection. Users can browse and register for upcoming beach cleanups, while simultaneously contributing to an open database that tracks marine litter data. This feature not only supports global data collection but also provides valuable insights into pollution patterns, helping to shape more effective solutions. Furthermore, users can submit photos and detailed reports of trash collected during events, enhancing the database's accuracy and the platform's impact.By leveraging the power of AI and citizen science, Trash2Treasure demonstrates the potential to foster sustainable behavior changes, engage marginalized communities, and support the UN Sustainable Development Goals (SDGs), particularly those related to ocean conservation and responsible consumption.As the platform continues to evolve, the goal is to expand its reach and impact, driving positive environmental change at the local, national, and global levels.

11:00 AM   54

Cerebellar white matter tracts in young children with autism spectrum disorder

Giovanna Arantes de Oliveira Campos, Psychology (M)

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder characterized by social communication challenges and the presence of repetitive and restricted behaviors. Symptoms of ASD emerge in the first years of life and can be reliably identified during the second year of life. Despite the general consensus that children with ASD have atypical brain development, there are currently no meaningful or clinically relevant brain markers of autism. One structure thought to be implicated in autism is at the base of the skull: the cerebellum. Although studies have found altered functional connectivity between the cerebellum and cortex in autism, less is known about the underlying white matter connectivity, particularly in early childhood. Utilizing existing diffusion magnetic resonance imaging (dMRI) data (which allows the reconstruction of white matter tracts) acquired during natural sleep for the SDSU Toddler MRI Project, we aimed to examine microstructural indices (fractional anisotropy [FA]) of the superior and middle cerebellar peduncles, the main cortico-cerebellar output and input white matter tracts, respectively, in a cohort of 36 toddlers and preschoolers with ASD and 26 typically developing (TD) young children (ages 18-69 months; mean age 43±15 months). Following standard image preprocessing, the cerebellar peduncles were estimated via automated tract segmentation (performed by TractSeg), and FA values for each tract were extracted. FA indicates the degree to which diffusion in axons that comprise white matter is directional, considered an indicator of mature white matter microstructure. Preliminary

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analysis using linear regression models suggested that average FA of the middle cerebellar peduncles was significantly reduced in the ASD group compared to the TD group while controlling for age, biological sex, and in-scanner head motion ($\hat{I}^2$ = -0.008, p = .04). There were no significant age by group interactions, indicating that the tract microstructure varied similarly across the sampled age range in children with ASD and TD children. No significant results emerged for the superior cerebellar peduncles. The results may offer further anatomical evidence of altered white matter in the cerebellum in the first years of life in ASD.

11:00 AM   55

Exploring Cognitive and Olfactory Differences in APOE e4 Carriers

Hector Reyes, Psychology MA (M)

Objective: APOE e4 carriers are at heightened risk for Alzheimer's Disease (AD), exhibiting cognitive and olfactory deficits associated with AD pathology (Corder et al., 1993; Michaelson, 2014; Murphy, 2019; Saunders et al., 1993; Small et al., 2003) . This study investigates whether APOE e4 carriers perform differently on cognitive and olfactory tests compared to non-carriers and explores potential moderating effects of tau and amyloid biomarkers.Participants and Methods: Sixty-five cognitively unimpaired adults completed the Alzheimer's Disease Assessment Scale Cognitive Subscale (ADAS-Cog) and olfactory assessments. All variables were converted to z-scores for comparability. Separate ANOVAs tested group differences for cognitive and olfactory assessments, while linear regressions examined biomarker moderation effects.Results: Results revealed significant group differences in odor familiarity (p = .0031), with e4 carriers outperforming non-carriers. Plasma biomarkers did not significantly moderate the relationship between APOE status and odor familiarity scores. However, exploratory plots revealed important trends. Odor familiarity decreased as pTau 181 increased across groups, while AB42/AB40 ratio showed opposing trends for carriers and non-carriers.Conclusions: These findings reveal complex relationships between olfactory performance, APOE status, and AD biomarkers. The observed results may reflect underlying mechanisms not yet fully understood. Further investigation is needed to clarify the implications of these findings and the role of odor familiarity as a marker of olfactory performance in AD risk.Supported by NIH grant # R01AG062006 from the National Institute on Aging to CM. We thank Jaime Mondragon, Conner Frank, Abbey Albertazzi, Taline Bicakci, Aaron Jacobson and Doug Galasko for their contributions.

11:00 AM   56

Objects, Mementos, and Artifacts: How Cultural Objects Reveal Insights About the Transmission and Preservation of Heritage Culture

Jacara Terry, Child Development (M)

Culture, the shared set of customs, norms, beliefs, and values developed, maintained, and transmitted by a group or community of people, shapes the way we think, live, and behave.In the United States, ethnoracially minoritized groups face the challenge of living within a dominant culture that pressures them to assimilate to the dominant and Eurocentric culture. Given emerging research on racial ethnic socialization showing that maintaining one's culture and ethnic pride is associated with the emotional wellbeing of adolescents, it is essential to examine how individuals from minoritized cultures maintain and transmit their heritage culture.Research exploring maintaining heritage culture through adolescents' and parents' perspectives on intergenerational transmission remains limited. Findings from existing studies suggest that there are unique ways that each family member makes sense of their heritage culture and ways to maintain it. However, most studies have focused on parental and caregiver beliefs and attitudes. Fewer studies have included adolescent perspectives and even fewer have done so while considering the importance of cultural objects, mementos, and artifacts despite these coming up in conversation for most participants.To address these gaps in research, my study will employ focus groups to examine how self-identified racially and ethnically minoritized parents of adolescents and adolescents in a Southern California high school compare in their: 1) use of a cultural object/artifact to describe their culture, including their beliefs and attitudes about the object, and how it connects to their identity, 2) views about the role of culture on well-being.Focus groups will be conducted in English and Spanish, audio recorded, and then audio will be transcribed and analyzed. I hypothesize that parents and adolescents will share the belief that preserving aspects of their heritage culture is vital and associated with their well-being. There might be differences in how they discuss culture maintenance and best practices in preserving heritage culture. Findings from my study have the potential to increase our understanding of the process by which parents and adolescents conceptualize their culture and heritage, as well as how they perceive it relates to their identity and well-being.

Session G-9

Biological and Agricultural Sciences (G) 2
Friday, February 28, 2025 11:00 AM
Montezuma Hall

11:00 AM   57

The characterization of novel dual-species infecting Stenotrophomonas maltophilia phages for the treatment of multi-drug resistant pathogens

Lindsey Camara, Cell and Molecular Biology (M)

The rise of multi-drug resistant (MDR) bacteria is estimated to surpass worldwide cancer deaths and kill 10 million people a year by 2050, leading scientists to investigate new anti-microbials. This has caused a resurgence in developing bacteriophage therapy due to their unique ability to specifically infect and kill these bacteria. Phages can be isolated from anywhere, or as seen specifically in this study, a sputum sample from a cystic fibrosis patient with a known

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Pseudomonas aeruginosa lung infection. This bacterial sample, dubbed SM7648, was sequenced and assembled, with BLAST analysis showing similarity to Stenotrophomonas maltophilia, a common co-infector with P. aeruginosa in the lungs. Here, two novel phages were discovered and characterized that infect and kill Stenotrophomonas maltophilia, STEP1 and STEP2. STEP1, with a genome size of 41,228bp, has 51 open reading frames (ORFs), with 47 of them sharing over 90% identity to P. aeruginosa phages. With a similar genome size of 42,570bp, STEP2 had 60 ORFs, with 52 of them having 90% identity to other S. maltophilia phages, yet almost no similarities to P. aeruginosa phages. Using protein analysis, as well as PhaBOX, a phage lifestyle predictor, STEP1 and STEP2 were shown to be absent of lysogenic or integrase genes, making them suitable candidates for usage in phage therapy. The similarity of P. aeruginosa and S. maltophilia as gram-negative MDR pathogens, as well as STEP1's similarity to P. aeruginosa phages, led to spotting the phages on both bacteria; 11 lab strains and 42 clinical isolates of P. aeruginosa, and 19 clinical isolates of S. maltophilia. STEP2 was able to infect 8 S. maltophlia strains, while STEP1 was able to infect 3 strains of S. maltophilia, and surprisingly, 7 strains of P. aeruginosa. This phenomenon of dual-species infecting phages could be used to treat MDR infections with less phage, potentially reducing the harm done to patients. This study and its data offer insight into the ability of how novel S. maltophilia phages can infect the similar pathogens P. aeruginosa and S. maltophilia, with positive implications for the future use of phage therapy.

11:00 AM   58
Bio-Inspired Mining Of Critical Minerals
Mauricio Salazar, Cellular and Molecular Biology (M)

Renewable energy technologies can provide sustainable solution for migrating climate change. Today, all innovations in energy recovery and storage rely on critical materials, such as rare earth elements and other high value metals. Now it predicted that to meet sustainable demands, we must accelerate mining efforts almost 20 fold. Conventional mining practices like these are extremely harsh to the environment and are not sustainable. My research focuses on a alternative bio-inspired mining practices. Microbes mastered mineral recovery as they use them for growth. Many bacteria including methane consuming organisms have ability to uptake and incorporate lathanthanides from the natural environment into its metabolism. In the Kalyuzhnaya lab, we seek to uncover the fundamental mechanisms of mineral uptake that enable biological systems to scavenge metals from the environment. We apply the newly gained knowledge to advance the applicability of engineered bio-system for mining of critical minerals. My contribution to for this initiative include optimizing the methodology in the measurement of metals using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES) in parallel to biosensors.

11:00 AM   59
Impact of Heat Stress on Boechera depauperata
Nathen Walton, Masters in Biology (Evolution) (M)

Plants are sessile organisms that must withstand their changing environment to survive, including harsh conditions such as drought, salinity, and high temperatures. Due to climate change, heat waves have become more severe in terms of duration and intensity. Thus, the effects of rising temperatures on native plants' critical life stages have become a growing concern. Much is known about how model plants respond to a single heat stress but the effects of repeated heat stress on plants as on have yet to be vastly studied. This study aimed to examine the impact of repeated heat stress on Boechera depauperata. Seedlings 28 days old, before flowering, and 60 days old, flowering adults, were exposed to gradient acclimation heat stress for four days. Each day the temperature will increase from 22°C for 6 hours until it reaches 48°C and holds for 90 minutes. One heat stress group underwent repeated heat stress, with heat treatments before and at flowering. Two additional heat stress groups underwent single heat stress, with one undergoing a heat treatment only before flowering and the other only at flowering. Chlorophyll fluorescence data was collected immediately after the plants experienced heat stress and after a 5-day recovery period. The plants are returned to the greenhouse, where they continue to grow. Once the plants reach seed set, I record the length of their siliques, seed weight, and seed viability to determine how the different heat stresses affected their reproductive success.

11:00 AM   60
Exploring the Genetic and Metabolic Efficiency of Zymomonas mobilis Using Independent Component Analysis
Nhi Nguyen, master in bioinformatic and medical informatics (M)

The research problem this project addresses is the need for a comprehensive understanding of the genetic and metabolic mechanisms that make Zymomonas mobilis such a perfect ethanol producer, especially in comparison with traditional yeasts in fermentation processes. The extraordinary properties of Z. mobilis-remarkable ethanol and osmotic tolerance-allow it to produce ethanol under conditions that stress and inhibit entirely other microorganisms. However, the genetic factors and metabolic pathways that enable these unique abilities of Z. mobilis are poorly understood, limiting the ability to optimize the bacterium industrially for food and biofuel ethanol production. This knowledge gap is proposed to be bridged by applying ICA as a system biology tool for the dissection and analysis of gene expression patterns in Z. mobilis under different stress conditions, including high ethanol concentration and osmotic pressure. ICA will allow the separation of independent gene components associated with ethanol tolerance, osmotolerance, and metabolic efficiency, thus providing new insights into the adaptive traits of the bacterium. This is a significant research problem because optimizing Z. mobilis for bioethanol

ABSTRACTS

(U) = Undergraduate ; (M) = Masters ; (D) = Doctoral

production is crucial for advancing the causes of ethanolic drinks and renewable energy sources, which are essential in today's global search for alternatives to fuel. This project's strategy for improvement includes finding several ways to improve the strain by investigating genetic and metabolic networks accounting for the properties of Z. mobilis' high ethanol yields and related stress tolerance. Although still more effective and dependable as a biofuel producer than Z. mobilis, this will enhance its industrial use while reducing production costs and increasing ethanol titers at a large scale. The importance of this problem is that it will deal with the full development of the potential of Zymomonas mobilis as an ethanol-producing organism vis-a-vis renewable energy requirements. Z. mobilis outperforms traditional yeast-based fermentation in ethanol production because of unique metabolic pathways like the Entner-Doudoroff pathway, which gives higher ethanol and lower biomass. Its high tolerance to ethanol and osmotic pressure makes it even more suitable for industrial bioethanol production. Despite these advantages, the genetic and metabolic mechanisms responsible for these characteristics are not yet fully understood, thus limiting further opportunities for strain optimization and broader industrial application. Besides beverage development, biofuels, especially ethanol, are important in moving toward alternative energy sources globally. Because of the increasing demand for bioethanol due to its lesser environmental impact, improving production efficiency is a major priority. Z. mobilis is a prime candidate for biofuel production because of its remarkable ability to maintain high ethanol production under stressful conditions. While these adaptive traits have been developed, much potential remains to be tapped for enhancing their performance and industrial scalability since not much understanding of the genetic and metabolic networks responsible for these traits has been provided. This project tries to fill this gap with the help of ICA, a systems biology tool that can isolate independent gene components and thus show the interrelations between gene expression and metabolic pathways. Applying ICA on Z. mobilis in the study will unravel the genetic clusters responsible for ethanol tolerance, osmotolerance, and metabolic efficiency, which could be important for metabolic engineering. Findings from such work may lead to the generation of improved strains of Z. mobilis that can better withstand prevailing conditions of the industrial production of biofuels with higher productivity. Therefore, this problem's solution will have broader relevance beyond bioethanol production and open perspectives for further cost reduction in the ethanol production process through titer improvements and milestone factors besides broadening substrate use of Z. mobilis toward full enhancement of production and efficiency from a sustainability perspective. More comprehensively, this may help develop a novel technology of industrial microbiology using metabolic engineering through the new use of metabolic flux estimation tools like ICA. Ultimately, this research could enhance the role of Z. mobilis as a bioenergy powerhouse, helping to meet the world's growing need for renewable energy solutions.

11:00 AM   61

Using Directed Differentiation to Establish a Novel Neural Model of Kabuki Syndrome

Priscilla Plascencia, Cell and Molecular Biology, MS (M)

Kabuki Syndrome (KS) is an orphan disease caused by a genetic disorder that leads to abnormal growth and development affecting 1 in every 32,000 new births. It is often characterized by facial features that resemble traditional Japanese Kabuki theater masks. KS can lead to craniofacial abnormalities, hearing loss, problems with vision, congenital heart defects, feeding difficulties, immune dysfunction, poor growth, skeletal and dermatoglyphic abnormalities, and difficulties with cognition and/or development. There are two known genetic mutations that result in KS. Type one is a result of a genetic mutation on the KMT2D gene. This genetic mutation is known in approximately 75% of KS patients. The second less common mutation is the KMD6A mutant, which is found on the X chromosome. The KMD6A mutant has only been found in 144 individuals around the world as of 2024. Due to the high mortality rate and rarity of the disease, there are limitations on the ability to study KS with physiologically relevant models resulting in a lack of cure or established therapy for KS. Our lab received a donation of skin fibroblasts from a Type 1 KS patient which we will use to generate induced pluripotent stem cells (iPSCs) via the standard use of Yamanaka factors delivered via Sendai Virus. After generation and validation of these iPSCs, we aim to utilize directed differentiations to confirm a 2D and 3D model of the human brain. By validating and optimizing the lab's established protocols for generating cortical interneurons (CINs) and cerebral organoids (CODs), we aim to provide the field of neuroscience with a model that might shed light on any physiological, compositional, or circuitry deficiencies present in the KS patient. In this way, the models we establish can be used by future researchers for downstream analysis on the mechanisms of action and development of the disease leading to drug targeting that might extend the survival and improve the quality of life for patients with KS and their loved ones.

11:00 AM   62

Impact of Prune Consumption on the Gut Microbiome in Women

Shyan Polman, Bioinformatics and Medical Informatics, MS (M)

The human gastrointestinal tract houses a diverse and complex community of microorganisms, known as the gut microbiome, where the majority consists of bacterial cells. Changes in the gut microbiota have been extensively studied due to their potential links to various diseases. Since the gut microbiome plays an important role in human health and vital functions, such as metabolism, nutrition, and immunity, environmental factors, specifically diet, can affect the community composition. Various studies have focused on the relationship between gut microbiota and prune consumption and its impacts on bone density. For this project, the data set is derived from a study that assessed the influence of the menstrual cycle, oral conceptions, and prune consumption on the female gut

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microbiome. Fecal samples were collected and processed using DNA isolation and PCR for 16S rRNA gene sequencing. To only evaluate the relationship between gut microbiota and prune consumption, we focused on the subjects who received either a no prune or prune treatment over a 21-day time period. The comparison of the taxonomic composition and gas production between the treatment groups were evaluated to determine the dietary effects of prunes.

11:00 AM   63

svArcher: A Reproducible Structural Variant Calling Pipeline Module For Plant Genomes

Trevor Mugoya, Bioinformatics and Medical Informatics (M)

Structural variation refers to differences in genomic regions that are larger than 1 Kbps between individuals, and can arise as a result of errant DNA repair mechanisms, whole genome duplications and transposable element activity across the genome. Recent advances, optimizations and cost reductions in next generation sequencing technologies have facilitated the exponential increase in the amount of available whole genomic data. Subsequently, the number of plant species sequenced has grown over the past 20 years, paving the way for a better understanding of their genetic diversity. Plant genomes also vary widely in ploidy, size, and amount of repeat content. This presents challenges in detecting structural variation, especially with short read genomic sequence data. Numerous methods and bioinformatics tools have been developed to detect signatures of structural variation from short read sequence data. However, existing pipelines are designed mainly with human genomic data in mind. Here I present svArcher, a pipeline that extends the functionality of the reproducible variant calling pipeline snpArcher. svArcher is an extensible module that calls structural variants in whole genome plant sequence data. I then utilize an ensemble suite of structural variant callers within the svArcher module on short read whole genome plant sequence data using Arabidopsis thaliana as a study species to benchmark svArcher. svArcher therefore contributes to quantifying structural variation within repeat regions of plant species.

Session G-10

Engineering and Computer Science (G) 2
Friday, February 28, 2025 11:00 AM
Montezuma Hall

11:00 AM   64

Wideband Circularly Polarized Array Antenna using a Novel Radiating Element for Ku-band SATCOM Applications

Nhat Truong, Electrical Engineering (D)

This design presents a novel wideband, circularly polarized (CP), broadside beam passive array antenna (PAA) with a single feeding network, designed to operate across Ku-band satellite

communication (SATCOM) frequency bands. The radiating element utilizes a stacked microstrip patch configuration, achieving an impressive 47% impedance bandwidth that covers both the downlink (10.7"12.7 GHz) and uplink (14"14.5 GHz) bands. An air gap is introduced between the driven and parasitic patch layers to enhance bandwidth performance, with a 3D-printed grid structure securely maintaining the parasitic layer's position above the driven layer. The 4Ã—4 fixed-beam array employs a sequential rotation (SR) technique, enabling a wide axial ratio (AR) bandwidth. The antenna delivers stable gain performance across the operational bandwidth, with a realized peak gain of 12.77 dBic and a gain variation of 2.9 dB throughout the band. Furthermore, a 3-dB AR bandwidth of approximately 43.7% is achieved. A prototype of the antenna array was fabricated, and measured results closely align with the simulated data. The proposed single-CP array features a fully planar structure, wide operational bandwidth, and excellent polarization purity. These characteristics make it an ideal candidate for applications such as satellite communication, point-to-point communication, and other related fields.

11:00 AM   65

Enhancing adsorption and photocatalytic degradation of short-chain PFAS by engineering material surface properties and solution chemistry

Rodney Leary, Joint Doctoral Program (Mechanical & Aerospace Engineering) (D)

A new composite material, referred to as Cu-Ga/TNTs@AC, was prepared and tested for adsorption and photocatalytic degradation of perfluorobutanoic acid (PFBA), perfluorobutane sulfonate (PFBS), and perfluorohexane sulfonic acid (PFHxS). Cu-Ga/TNTs@AC consists of copper-gallium co-doped activated carbon supported titanate nanotubes. To boost the photocatalytic activity for the pre-sorbed PFAS, various chemical additives were added during the photocatalysis stage under various reaction conditions. At a dosage of 3 g L-1, Cu-Ga/TNTs@AC was able to adsorb >90% of initial 100 Âµg L-1 of the PFAS in four hours. Subsequently, when the PFAS-laden material was subjected to UV irradiation (254 nm, 9-10 mW cm-2) and in the presence of 2 mM of ascorbic acid (AA) and 2 mM of potassium iodide (KI) (pH 7.0, 48Â°C), 63.0% and 67.0% of PFBA and PFBS were defluorinated in 4 hours. Alternatively,under alkaline conditions (pH 9.0) and in the presence of 4 mM of potassium peroxymonosulfate (PMS), 85.0% of PFBS and 88.1% of PFHxS were defluorinated. The reaction mechanisms underlying the reaction synergies were also explored through material characterizations, scavenge tests, and analysis of the intermediate products and reaction pathways. This work provides some new insights into photocatalytic degradation of PFAS by engineering both material surface properties and solution reaction chemistry.

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11:00 AM   66

Enhanced adsorption and photocatalytic defluorination of perfluorobutane sulfonate using copper-modified boron nitride

tiantian chen, Civil, Construction, and Environmental Engineering (D)

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 less adsorbable (more mobile) in the environment or engineered treatment systems. To mitigate human exposure, the US EPA placed PFBS as one of the six priority PFAS, which are subject to the stringent and enforceable maximum contaminant levels or hazard index. On the other hand, PFBS is present in contaminated waters often at the ppt or low ppb levels. 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). Cu@BN enabled a trap-&-zap strategy that concentrates low concentrations of PFBS on a small volume of the absorptive photocatalyst, and subsequently degrades or mineralizes the pre-sorbed PFBS under UV. Batch adsorption experiments revealed that 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 mild UV conditions (254 nm, 9 mW/cm 2 , pH 9, and 48 $\hat{a}„f$), 61.2% of pre-sorbedPFBS was defluorinated in 4 hours. The defluorination rate was boosted to 83.3% and 83.9%, respectively, when Fe 2+ (60 μM, pH 5) or Fe 3+ (70 μM, pH 4) was added in the photocatalytic stage. The effective photocatalytic degradation also regenerates the spent material, allowing it to be reused. The concentrate-&amp;-destroy approach enabled by Cu@BN appears promising for more cost-effective removal and degradation of short-chain PFAS in contaminated waters.

11:00 AM   67

Investigating High-Velocity Impact Response of Polyurea via Molecular Dynamics

Tyler Collins, Computational Science (D)

Polyurea is a versatile block copolymer and is widely used in impact-resistant applications such as protective gear and structural reinforcement layers. Its unique molecular structure contains semi-crystalline hard segments and flexible soft segments, which provides remarkable elasticity and toughness. Additionally, polyurea can dissipate stress from high-velocity impacts through the breaking of hydrogen bonds.This study uses molecular dynamics simulations in LAMMPS to investigate polyurea's nanoscale response to high-velocity impacts. We analyze temperature fluctuations, stress propagation, and failure mechanisms to better understand its performance under extreme conditions. These insights are valuable for designing enhanced materials for impact-resistant applications, such

as body armor.By simulating scenarios difficult to replicate experimentally, this work highlights the utility of computational methods in advancing material design for high-performance and safety-critical applications.

11:00 AM   68

3d Printing Martian Soil using Selective Laser Melting

Zackary Skinner, Doctorate in Mechanical and Aerospace Engineering (D)

In future Mars missions, the ability to manufacture or replace essential components on the surface will be critical due to the prohibitive cost of transporting materials from Earth. One promising solution is 3D printing using Martian soil, or regolith, as a raw material. Unlike methods that require additives to enhance printing capabilities, selective laser melting (SLM) can process regolith directly. This process begins by homogenizing the regolith into a uniform powder bed, followed by precise laser melting in patterned layers to form complex structures. However, the fabrication of parts with large cross-sectional areas has posed a significant challenge, which has been overcome by modifying printing parameters based on the area. Key experimental results demonstrate that, under optimal parameters, SLM can produce parts with minimal geometric distortion and a compressive failure stress of up to 140 MPa. These findings highlight the potential for in-situ fabrication on Mars, paving the way for sustainable exploration and habitation.

11:00 AM   69

A Comprehensive Evaluation Framework for Synthetic Medical Tabular Data Generation

Anastasia Kurakova, MS in Big Data Analytics (M)

Machine learning (ML) applications have enabled significant advancements in healthcare, such as predicting pandemics, personalizing treatments, and developing life-saving drugs. However, ML model training requires large datasets, which are difficult to obtain in healthcare due to privacy concerns. Synthetic data generation through ML models offers a promising solution by enabling access to large-scale training data while protecting patient privacy. Our research focuses on tabular medical data, the predominant format for patient records, and introduces a comprehensive evaluation framework assessing synthetic data across three critical dimensions: quality, privacy, and usability. The framework ensures synthetic data maintains sufficient similarity to real data for ML applications while preserving patient confidentiality. To validate our approach, we conducted an empirical evaluation using four state-of-the-art ML algorithms to generate synthetic data. We assessed both the generated data quality and subsequent model performance through statistical similarity metrics and downstream task evaluation. Unlike traditional evaluation methods that rely heavily on statistical metrics, our approach emphasizes a more comprehensive analysis, incorporating privacy considerations and domain-specific constraints. Our findings demonstrate that our framework can identify critical shortcomings in synthetic data generation models, such

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as the amplification of duplicate rows and the generation of out-of-range values, which are overlooked by traditional statistical evaluation methods.

Session G-11

Health Nutrition and Clinical Sciences (G) 1
Friday, February 28, 2025 11:00 AM
Montezuma Hall

11:00 AM   70

The Association Between Precipitation Shifts and Autumn Coccidioidomycosis Prevalence in San Diego County Regions from 2004 to 2023

Kara Howard, MPH Epidemiology (M)

AbstractBackground Coccidioidomycosis is a fungal respiratory infection endemic to San Diego, California. Weather patterns have been linked to the disease, including wet and dry cycles associated with incidence in the fall season. This study will examine this association at a more granular level by assessing each region-year across 20 years and six San Diego regions. Methods The study population includes all laboratory-confirmed cases reported to the County of San Diego between 2004-2023. The exposure was the difference in Standardized Precipitation Index (SPI) between the previous year and most recent winter, ranging from -8 to 8. The outcome of fall incidence was measured as a proportion of the cases in that region-year. Other variables included were summer SPI, summer and winter temperature ranges, and the percent change in non-fall cases. Linear regression was utilized with a standard alpha level of 0.05 for statistical significance.Results & Discussion Among 4615 cases, those who lived outside of San Diego (n=228) and those who were reported after 2023 (n=184) were excluded for a final sample size of n=4203 participants. The mean fall proportion of cases was 27.8% (SD 12.1%). The mean SPI Difference Value was 0.17 (SD 1.6), with a range of (-3.26 to 2.7). The exposure was statistically significant to the outcome (B = 1.85) given the proposed model. Drought periods and subsequent winter moisture may facilitate autumn transmission of Coccidioidomycosis.Conclusions Understanding the association between weather patterns and disease helps equip public health response and outbreak prevention. Multi-year droughts and wind speeds are notable considerations for future studies.

11:00 AM   71

Comparing Deceased Donor Proportions by Ethnicity Across the United States Using a Linear Regression Model

Kenya Benitez, Public Health (M)

Background:Solid organ transplantation is a life-saving operation conducted by obtaining an organ from a living or deceased donor and placing it in the recipient, a patient with a need for the organ. The most commonly transplanted organs include kidneys, followed by livers, hearts, and lungs. Today, more than 104,000 people in the United States are on the transplant waiting list (UNOS, 2024). For context, every 8 minutes, someone new is added to the list and every 16 minutes someone on the list dies (Donate Life, 2022). Since organ transplantation is life-saving and every organ counts to save and improve the quality of life of the patients needing the organs, it is important to analyze the current organ shortage. One reason for the organ shortage can be traced to a limited number of available organs from deceased donors. According to the Health Resources and Services Administration, 170 million people in the United States registered as donors in 2022 (HRSA, 2023). Even though millions of people have registered to donate, only 3 in 1,000 people pass away in a manner where their organs are available for donation, making it vital for more people to register. However, there is stigma in registering as organ donors. There are many social, ethical, and religious biases that may prevent people from signing up as donors (Cotrau, 2019).Organ procurement organizations (OPOs) are non-profit organizations that recover organs from deceased donors for transplantation. They are also responsible for identifying eligible donors, promoting donation, and educating the public about transplantation. As of today, there are 55 different OPOs around the US that have jurisdiction over transplantation in their given locations (UNOS, 2024). The Centers of Medicare and Medicaid assign donor service areas (DSAs), known as specific geographic areas, to each OPO. There is one OPO in each DSA, but there can be several transplant centers and donor hospitals under one DSA (The Alliance, 2022).Purpose:The purpose of dedicating my manuscript to solid organ transplantation is to analyze the difference of deceased donors among ethnicities across the United States between 1990 and 2020 at the state-level and DSA-level. I will complete this manuscript by using data from the Organ Procurement and Transplantation Network, the Scientific Registry of Transplant Recipients, and the US Census.Research Questions:How does the proportion of deceased donors by ethnicity compare to the population proportion of each ethnicity in the United States? Are there underlying stigmas associated with organ donation among different ethnicities?

11:00 AM   72

Evaluation of Urinary Biomarkers Linked to Acute Kidney Injury in Firefighters Exposed to Occupational Hazards

Mia Gault, MS Environmental Health Sciences (M)

Firefighters are regularly exposed to heat stress, chemical hazards, and environmental factors, potentially contributing to physiological strain and dehydration in the urinary system. Due to these occupational conditions, this population is at an increased risk for kidney injury, leaving them more susceptible to chronic kidney disease or end-stage renal disease. This research aims to analyze urinary biomarkers, specifically creatinine, albumin, specific gravity, and Lipocalin -2, as indicators of inflammation, dehydration, and acute kidney injury. Urine samples were collected from firefighters (n=60) on the morning of their last shift. During the sampling period,

ABSTRACTS

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nearly half of the study population had a fire response while the remainder did not. This difference can reveal if the chemical and physical hazards of fire encounters have a greater impact on kidney function. The samples will be analyzed using the Enzyme-linked immunosorbent assay (ELISA) for measuring Lipocalin-2, a digital refractometer for specific gravity, and dipstick testing for creatinine and albumin. Preliminary results reveal elevated creatinine and albumin levels and increased specific gravity, particularly from those with a fire response. Higher Lipocalin-2 concentrations produced by ELISA are expected to indicate an inflammatory response to occupational exposures. These findings suggest dehydration and inflammation markers, which are early indicators of acute kidney injury.

11:00 AM   73

Older Adults Thoughts and Views on Managing OTC Hearing Aids

Eliana Marvizon, Audiology (D)

Objective: The US Food and Drug Administration approved over-the-counter (OTC) hearing aids for consumers in October, 2022. There is a need to investigate the usability of OTC hearing aids. Some older adults may struggle with the self-fitting process, particularly if they do not have experience with technology or traditional prescription hearing aids. The purpose of this study is to understand the factors contributing to OTC hearing aid skills and to understand older adults' thoughts and views on managing these devices.Design: Participants included adults ages 55 and older with perceived mild to moderate hearing loss. Participants carried out an OTC hearing aid management task under observation. Trained observers scored the participants' performance in terms of accuracy and independence on a 4-point Likert scale from 0 to 3 (3 being performed on their own with no difficulty, and 0 being unable to complete). The points for each of the steps were averaged to create a grand mean. A higher mean score indicated a more successful self-fitting. Univariate and multivariate linear regression models were used to identify participant characteristics that predicted OTC hearing aid skills. Participants also completed a brief exit interview to share their thoughts and opinions on the devices. Interviews were recorded, transcribed verbatim, and coded and analyzed using an iterative deductive and inductive thematic analysis approach. Results: Eighty three participants completed the study (mean age = 71 years, SD = 7.6; 46% female). Males and individuals with better cognitive abilities had better OTC hearing aid management skills (p < 0.05). Semi-structured interviews revealed the following themes about OTC hearing aids: (a) benefits and drawbacks, (b) hearing aid users' thoughts and views on OTC hearing aids, (c) areas of ease and difficulty. Conclusions: Participants' perceptions and misperceptions of OTC hearing aids, and the frustration experienced by some older adults during the self-fitting process, underscore the need for improved user guides, along with focused education and outreach efforts to support consumers' health literacy.

11:00 AM   74

Mapping Public Sentiment: A Data-Driven Analysis of Covid-19 Discourse on Social Media in Italy

Siddharth Suresh Babu, MSc in Big Data Analytics (M)

This study provides a comprehensive framework for assessing the impact of health policies on public sentiment during the COVID-19 pandemic in cities of Italy, using Twitter as a lens to understand societal responses. By analyzing 543,351 tweets from ten major cities in the north, center, south, and islands of Italy between August 30, 2020, and June 8, 2021, the study examines how public sentiment evolved in response to key policy measures. The hypothesis asserts that temporal and geographical variations in sentiment were influenced by policy interventions, with positive sentiments correlating with vaccination efforts and negative sentiments tied to restrictive measures.The methodology involved translating tweets from Italian to English using Google Translate, followed by preprocessing to clean and normalize the data while preserving emotional content. Themes were identified through Latent Dirichlet Allocation (LDA), and sentiment analysis was conducted using multiple models, with Flair sentiment analysis chosen for its robust performance. The analysis tracked sentiment trends across eleven critical policy dates, calculating percentage changes to quantify shifts in public reactions before and after these interventions.Results showed that positive sentiments peaked during vaccination campaigns, reflecting public optimism surrounding safety and recovery. In contrast, negative sentiments intensified during lockdowns and rising death tolls, underscoring public frustrations with restrictive measures. Geographically, Northern regions emphasized vaccine discussions, while Southern regions focused on case numbers and outbreaks. Emotional analysis revealed spikes in fear, anger, and sadness during stricter measures, balanced by optimism in Spring 2021 as vaccines became widely available.The findings demonstrate that public sentiment aligns with transparent communication and effective vaccination strategies, while restrictive measures often provoke negative emotions. By quantifying sentiment shifts and correlating them with policy changes, this framework offers actionable insights for policymakers. It underscores the importance of real-time sentiment monitoring to refine communication strategies, improve public compliance, and adapt policies during health crises. Despite limitations such as translation inaccuracies and social media biases, the study highlights the value of sentiment analysis as a tool for enhancing public health messaging and policymaking, with broader implications for crisis management.

11:00 AM   75

Effects of thirdhand smoke house dust extracts on cytotoxicity in the placental cell line HTR-8/SVneo

Soraya Campbell, Environmental Health (M)

Background and Purpose: Cigarette smoking is a leading cause of diseases, disabilities, and death in the United States. Both active smoking and secondhand smoke exposure during pregnancy have been extensively studied and linked

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to elevated risk of adverse birth outcomes such a low birth weight and preterm birth. Thirdhand smoke (THS), defined as the chemical residues that remain in an environment after active smoking has ceased, lingers in indoor environments for long periods. THS has been shown to be made up of many known and unknown chemical constituents. To date, very few studies have examined the effects of maternal exposure to THS and its constituents on the placenta, the temporary organ that performs many essentials functions for a developing fetus in utero. In this study, we sought to establish 24-hour dose-response curves for placental cell exposure to the soluble fraction (DMSO or PBS) of THS dust or tris(2 carboxyethyl) phosphate (TCEP), an individual constituent chemical of THS dust found exclusively in samples from smokers' homes. Methods: We obtained thirdhand smoke house dust samples from a previous study. Five samples were from homes with active smokers and five samples were from homes with no active smokers. All samples were extracted using two different methods: a DMSO-based extraction to dissolve hydrophobic chemicals and a PBS-based extraction to dissolve hydrophilic chemicals. The resulting soluble fractions for each sample were diluted with cell culture media to final concentrations between 0.41 and 5.73 mg of dust extract per ml media. DMSO or PBS were used as negative vehicle controls and 4 Î¼Mcamptothecin was used as a positive control. Soluble fractions were exposed directly to HTR8/SVneo, a cell line that models placental extravillous trophoblast cells, for 24 hours. TCEP (100nM- 1 M) exposure was also measured in the same cells. Cell viability and cytotoxicity were simultaneously measured using the Multitox MultiGlo Kit (Promega) via microplate reader (fluorescence for live cells and luminescence for dead cells). Live/dead ratios were calculated per well. Two-way ANOVA with Tukey's post-hoc test was used to assess significant (P<0.05) differences between exposed and negative controls. N=3 independent experiments. Results: Only the highest TCEP concentration tested (1mM) demonstrated a trend towards a decrease in the ratio of live/dead HTR-8/SVneo cells compared to control following 24 hour exposure, however, this trend was not significant. No significant changes in viability or cytotoxicity were observed when HTR-8/SVneo cells were exposed to 0.41 - 5.73 mg of dust extract per ml media for 24 hours.Conclusions: Thus far, our results have not yielded evidence of acute toxicity (cell death) of the soluble fractions of THS dust or of the individual constituent chemical of THS dust TCEP. We plan to conduct next generation sequencing to ascertain whether these exposures cause non-lethal effects on the cells and ifso, what pathways may be involved. We also plan to conduct and test additional extraction methods on the dust and carry out more exposure experiments.

11:00 AM   76

The relationship of neighborhood adversity and physical activity in a low-income migrant community along the U.S.-Mexico border

Valarie Castellanos-Ponce, Psychology M.A. Graduate Program (M)

Background:Individuals with low income along the United States (U.S.)-Mexico border have high rates of cardiometabolic risk and conditions. Leisure-time physical activity (PA) is inversely associated with cardiometabolic risk but is low among Latinos with a history of migration to the U.S. Prior studies have found that neighborhood factors (e.g., walkability, safety) are associated with PA, but few studies have investigated these relationships in international border communities. Purpose:The aim of this study was to explore the association of neighborhood adversity with PA in a low-income community along the U.S.-Mexico border.Methods:This study is a secondary analysis of a cross-sectional study that recruited adults in Tijuana, Mexico, in 2016. Physical activity was measured using the Global Physical Activity Questionnaire, which generates average weekly metabolic equivalents of tasks (METs) for total PA, moderate and vigorous work PA, and moderate and vigorous leisure-time PA. Neighborhood adversity was measured using a validated 30-item scale with five subscales (aesthetic quality, crime/safety, walkability/exercise environment, healthy food access, social cohesion). Higher scores indicated higher adversity. Linear regression models examined the relationship between neighborhood adversity total and subscale scores with total, work, and leisure-time METs.Results:Participants were 206 adults who sought health care at a free clinic adjacent to the U.S.-Mexico border. Mean age was 47.2 (SD=11.9), 70.9% were male, 70% had a history of migration, and 58% had a history of deportation from the U.S. Mean weekly total METs were 239.28 (SD=222.15). Mean moderate and vigorous work METs were 45.17 (SD=70.30) and 106.30 (SD=168.70). Mean moderate and vigorous leisure-time METs were 10.57 (SD=25.42) and 12.7 (SD=25.71). Controlling for sex, age, and education, neighborhood adversity total score was associated with vigorous leisure time METs (B=-.31,p<.001), as were poor aesthetic quality (B=-.87,p=.02),poor walkability/exercise environment (B=-.72,p<.001),and poor access to health foods (B=-.74,p=.003). No other significant relationships were observed.Conclusion:Compared to work PA,leisure-time PA was low in this border community. Neighborhood adversity factors may be modifiable correlates of leisure-time PA and could impact cardiometabolic risk. Future studies should investigate the longitudinal relationships between neighborhood adversity and leisure-time PA.

Abstracts of Presentations

Session H

SDSU | San Diego State University

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Session H-1

Behavioral and Social Sciences (U) 5
Friday, February 28, 2025 1:00 PM
Montezuma Hall

1:00 PM   1

Uneven Narratives: Trends in Minority Heritage Preservation on the National Register in California
Kaia De Leon, Anthropology (U)

There has been decades of work by historians, archaeologists, and community members on nominations for the National Register of Historic Places, and studies have taken diverse approaches toward the criteria for nomination and have increasingly emphasized the importance of preservation and protection of minority histories. Despite these efforts, the overall image that emerges from the literature is various examples of community and descendent participation, but a lack of engagement with regional and temporal trends in nominations. This research will examine trends in NRHP nominations in California, and explore increases and decreases in minority history categories of significance in nominations, with an emphasis on Latinx heritage sites. The data set was compiled from the national list maintained by the National Park Service, and this study focuses on the California region 1966-2024. This poster presents major trends in California nominations of sites deemed to have national historic significance and discusses why patterns around minority historical sites are so variable. By doing this study, this poster seeks to examine commonalities and disparities in historical preservation across the state. Understanding the diversity of histories that rise to national significance and are deemed worthy of protection helps cultural heritage professionals be more mindful in how they approach and nominate future sites.

1:00 PM   2

Exploring the Influence of Attention and Visual Field on N400 and P300 Responses in Lexical and Stimuli
Lauren Magliocco, Psychology: Neuroscience (U)

How spatial attention modulates processing in different visual fields has been widely researched but rarely using lexical stimuli (i.e. words). Previous literature with words has suggested that the N400 event-related potential (ERP) component is sensitive to word meaning as well as focused attention. A great part of N400 research has looked at foveal stimuli, generally finding more negative deflections linked to greater processing demands. Additionally, another ERP component, the P300, linked to attention, is characterized by a larger positive deflection for attended stimuli compared to unattended stimuli. The present ERP study is, to our knowledge, the first to use a blocked cueing paradigm with four-letter English words (e.g., desk) and four-character symbol strings (e.g., &*!;) to explore differences in N400 and P300 responses as a function of the visual field of stimulus presentation (i.e. left, center, right) and directional validity (i.e., attended, unattended). An initial sample (n = 3) of right-handed, native English speakers has been collected with a goal sample size of 16 participants. The experiment contained 900 total trials, consisting of 240 words and 60 symbol strings in each visual field. Participants were instructed to complete a go/no-go lexical decision task where they pressed a button (go) to occasional symbol string targets in the cued visual field (20% of trials). It is predicted that we will see larger N400 responses for words in the attended visual fields compared to words in the unattended visual fields as the preliminary data appears to show larger N400 responses. This attentional effect is more pronounced for items presented to the right visual field. Furthermore, we predict a larger P300 response to stimuli in the attended visual fields compared to stimuli in the unattended visual fields. These larger effects may be due to the right visual field advantage widely observed in English readers in previous studies. Due to our currently small sample size, we are cautious to draw definitive conclusions until more data has been acquired. The implications of this study will be discussed at the meeting upon further data collection and analysis.

1:00 PM   3

Uneven Ideologies: Regional and Spatial Differences in Authoritarianism and Social Dominance across the United States
Lexi Koelzer, Psychology, Emphasis in Neuroscience (U)

Previous research based on the Dual Process Model integrates societal and individual factors to explain prejudice, stereotyping, and intergroup relations. This model centers on two motives: Right-Wing Authoritarianism (RWA), a tendency to uphold traditional norms and view authorities as sources of stability, and Social Dominance Orientation (SDO), a preference for hierarchical social arrangements and inequality. While there is extensive support for the model, limited research examines the geographical variance of these motives within the United States. The present study examines whether levels of Right-Wing Authoritarianism and Social Dominance Orientation vary across U.S. regions and whether they exhibit spatial clustering. We hypothesized that regional differences would exist and that authoritarianism and social dominance are more likely to be geographically concentrated in certain regions. We utilized data collected between 2015 and 2023 on Project Implicit. The sample included 952 counties with a minimum of 10 participants per county, covering nine large regions of the country. Participants were randomly assigned to complete either the Right-Wing Authoritarianism (RWA) or Social Dominance Orientation (SDO) scale before or after attempting the Race Implicit Association Test (IAT). Examples of RWA items include a statement such as 'Our country desperately needs a strong leader to eliminate the radical new ways and sinfulness that are ruining us.' SDO items include statements like 'Some groups of people are simply inferior to others.' As predicted,

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ABSTRACTS

(U) = Undergraduate ; (M) = Masters ; (D) = Doctoral

the results reveal significant regional differences for both motives, with authoritarianism exhibiting a higher mean and more pronounced regional variations than social dominance, as confirmed by ANOVAs. Spatial distribution analyses further demonstrate that these motives are spatially clustered. Social dominance shows relatively weaker clustering than authoritarian attitudes. These findings illustrate that adopting a geographical perspective, often overlooked in previous research on these motives, can provide a deeper understanding of how ideological tendencies vary across contexts that are spatially interconnected. This approach offers valuable insights for advancing theories of prejudice and intergroup relations and opens conversations aimed at promoting equity and inclusion.

1:00 PM   4

Sleep phenotype of evening chronotypes at higher risk of increased sugar intake due to elevated sweet sweet taste preference

London Caceres, Food and Nutrition (U)

Evening chronotype (EC), a sleep phenotype that exhibits late sleep-wake time and activity patterns, exhibit higher metabolic disease risk compared to morning phenotypes (those with earlier sleep-wake and activity preferences). This increased disease risk in EC is supported by unhealthy dietary patterns as indicated by higher added sugar intake and lower fruit and vegetable intake. However, the underlying mechanisms for this poor diet intake are not fully understood. We hypothesize that a high intake of added sugar and low fruit/vegetable intake in EC will be associated with an increased preference for sweeter taste and a higher liking of sweet solutions. We assessed the chronotype using the Morningness-Eveningness Questionnaire (MEQ; score <41: EC, >59: MC). Fasting participants completed the validated Monell Forced Choice sweet taste preference task using 5 sucrose solutions and rated the liking of each solution. Habitual diet intake was recorded using a 3 day food diary and in-lab ad-libitum intake of high calorie sweet and savory snack intake was assessed using a bogus taste test. Skin carotenoid concentrations were also measured to assess fruit/vegetable intake. Of n=51 participants enrolled to date, 9 were MC, 30 Intermediate Chronotypes (IC), and 12 were EC. MEQ scores (higher scores indicating EC sleep pattern) were positively correlated with higher BMI (p= 0.028) and greater cognitive restraint (p= 0.025). As predicted, EC reported greater preference for sweeter solutions (p=0.073; 5.4 Â± 0.9) compared to MC (2.8Â±0.35). Greater sweet taste preference also positively correlated with liking of sweetest solutions (p<0.001). EC also had a higher percent of calories from sugar (p=0.098) compared to IC and MC. Although not statistically significant, we observed an increase in carotenoid levels as MEQ scores increased (p=0.101) suggesting lowered fruit/vegetable intake in EC. Our preliminary findings suggest that EC are at higher risk of consuming sugary foods due to high sweet taste preference, putting them at greater risk for obesity.

1:00 PM   5

Understanding Vaping and E-Cigarette Usage Amongst CPS Involved Youth

Luna Hiivala, Anthropology (U)

Despite nationwide tobacco cessation and regulatory efforts leading to a decline in overall tobacco usage, vaping prevalence amongst youth, especially those from marginalized backgrounds persists at concerning levels.Previous research has indicated that there is a link between Adverse Childhood Experiences (ACEs) and an increased risk for nicotine usage including e-cigarettes and vaping. Youth with a history of CPS involvement or former foster youth are often impacted by Adverse Childhood Experiences which include experiencing neglect, household challenges, abuse or other forms of adversity leaving them as a vulnerable population. This study examines the under-researched intersection of Child Protective Services involved youth and vaping behaviors, highlighting the need for specifically targeted intervention efforts. Utilizing data from The Future of Families and Child Wellbeing Study (N=2,829) which was a multistage, longitudinal study starting with 5,000 children from U.S cities, a statistical analysis was completed to assess vaping behaviors, frequency, type of vaping and their connections with CPS involvement. This analysis revealed a significant association between vaping and e-cigarette usage and individuals who have experienced either CPS involvement or removal from their homes via CPS. Within this group, persistent vaping behaviors are also more prevalent and demonstrate an increased likelihood of long-term e-cigarette usage, emphasizing the unique health risks faced by former foster youth and CPS involved youth. These findings highlight the critical need for specialized substance use cessation and prevention programs, particularly for marginalized communities impacted by systemic disparities, tailored to enhance support and improve health within underserved populations.

1:00 PM   6

Reward Processing Offers Insight Into Trauma's Effects on the Development of Anxiety

Madelin Gredvig, Psychology with an Emphasis in Neuroscience (U)

Anxiety disorders are incredibly prevalent among adolescents. In addition to this, trauma exposure often places adolescents at a higher risk for developing anxiety. However not all trauma-exposed youth develop anxiety, suggesting the presence of resilience factors. This study investigates how neural reward system alterations may signal vulnerability or resilience to anxiety following trauma. We hypothesized that differences in reward-related connectivity in the ventral striatum and amygdala would distinguish adolescents with different subtypes of trauma and anxiety. A sample of 44 adolescents (ages 11-19) with varying levels of trauma exposure and anxiety completed a child-friendly monetary incentive delay task. We then analyzed their ventral striatum and amygdala

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functional connectivity during the task to assess the interaction between trauma exposure and anxiety levels. Our findings reveal distinct Trauma x Anxiety neural connectivity patterns in widespread prefrontal, temporal, and occipital clusters. These patterns could potentially serve as biomarkers for resilience and vulnerability in these trauma-exposed youth. We identified four different subtypes of trauma and anxiety, highlighting the importance of personalized interventions. By identifying unique patterns of reward processing associated with different trauma and anxiety profiles, this study provides foundational insights for developing neurobiologically informed interventions tailored to the individual needs in trauma-exposed youth.

1:00 PM   7

Evaluating San Diego's Policy Landscape: Supporting Healthy Communities through the 1000 Cities Challenge

Madeline Roke, Kinesiology (Pre-PT) (U)

Background The built environment influences the overall health of citizens in terms of physical activity, transportation, walkability, and climate. The 1000 Cities Challenge was created by the Global Observatory of Healthy and Sustainable Cities (GOHSC) to increase the knowledge of spatial and policy indicators of urban design through partnerships. The 1000 Cities Challenge's purpose is to provide comparable benchmarks between cities to combat climate change and improve healthy living (GOHSC, 2025). To-date, 25 cities in 19 countries have contributed to this initiative, with the goal of reaching over 1000 cities globally. Purpose This project aims to identify and evaluate policies that contribute to the design of sustainable and healthy neighborhoods in San Diego, California, USA as part of the 1000 Cities Challenge. This information will support the development of a city scorecard' to highlight strengths and advocate for improvements in local policies.Methods Two trained research team members used the GOHSC-provided checklist with about 160 indicators to identify and evaluate associated policies through publicly available documents for the City of San Diego. Policy categories included City Planning, Healthy and Walkable City, Public Open Space Policy, and Public Transportation Policies. Evaluation metrics included whether the policy was legally mandated and whether it included a measurable target.Results Associated policies were identified for about 82% of checklist indicators. About 53% of policies were legally required and approximately 12% included a measurable target. Most policies found were located within the San Diego General Plan and Mobility Master Plan. Challenges that arose included difficulty discerning what policies were absent or counterproductive from the checklist. Data will be combined with spatial indicators, and then the research team will work with GOHSC to develop a report and 'scorecard' for San Diego.Conclusions: The evidence-based scorecard/report that comes from the policy indicators and spatial indicators will be publicly accessible tools. Reports serve to monitor, improve, and encourage implementation of factors and policies that contribute to healthy and sustainable cities all over the world, but specifically in San Diego which improve both local and global collaboration for the betterment of the city and global community.

Session H-2

Behavioral and Social Sciences (U) 6
Friday, February 28, 2025 1:00 PM
Montezuma Hall

1:00 PM   8

Rewriting the Narrative: Empowering Black Women Through HIV Awareness

Marlena Ngim, Health Communication (U)

Black women and girls face disproportionate vulnerabilities to HIV due to systemic inequities, stigma, and limited access to culturally tailored health information. This research project explores the role of health communication in addressing these disparities through community engagement and multimedia storytelling. A health education film on HIV was developed based on social cognitive theory and entertainment educational methods in an effort to increase awareness and encourage protective behavior change related to HIV among older adults. The health education film includes perspectives from racial- or ethnic-minority older adults who are living with HIV and those of health care providers, and was screened in several venues.By collaborating with community members, we aim to identify their unique needs, amplify their voices, and co-create accessible, culturally relevant resources. Data collected from surveys will inform the development of multimedia materials designed to foster awareness, promote prevention, and support care. The findings seek to provide actionable insights into improving health outcomes for Black women and girls, contributing to the broader goal of health equity. Researchers of this poster-presentation conducted an analysis of anonymous, written, open-ended responses from 258 surveys, 159 who filled out the survey described what they learned about HIV after viewing the film. Five key themes emerged from the analysis: (1) Epidemiology of HIV; (2) HIV Knowledge; (3) Lack of HIV Knowledge; (4) HIV Stigma; (5) Awareness of HIV-related sexual ageism. Epidemiology of HIV refers to the study of the distribution, patterns, and determinants of HIV infection across populations. It examines factors such as prevalence, incidence, and risk factors to inform prevention and treatment strategies. HIV Knowledge refers to the level of awareness and understanding individuals have about HIV transmission, prevention, symptoms, and treatment. Lack of HIV knowledge refers to the deficiency in understanding HIV-related information, leading to misconceptions about transmission, prevention, and treatment. This can contribute to stigma, perpetuate risky behaviors like unprotected sex and needle sharing, and result in delayed testing or treatment.HIV Stigma is the negative attitudes, beliefs, and discriminatory behaviors directed toward individuals living with or affected by HIV. Awareness of HIV-related Sexual Ageism recognizes the discriminatory attitudes and behaviors based on the intersection of age and sexual health in the context of HIV. Findings suggest that a health education film can be an effective tool for increasing awareness, challenging misconceptions, and reducing stigma about HIV, particularly

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among older adults and marginalized communities. It can also encourage conversations around sexual health, improve knowledge about prevention and testing, and highlight the importance of culturally competent healthcare.

1:00 PM   9

Impacts of religion on women, socially and psychologically in the modern world

Maya Hossaini, Psychology (U)

Human beings have believed in religion for centuries. The foundations of forming religions are varied and complex and its impacts on societies are undeniable. Although, religion may not be widely and deeply pervasive in some communities today, but it has been a powerful historical tool in defining gender roles, cultures, equality and justice. To better understand the complicated relationship between religion and gender, it is necessary to examine its effects on different genders. Historically and psychologically, women specifically may have experienced more discrimination and injustice due to the nature of some religious rules and laws. This current study was necessary to draw attention to the systemic discrimination, possibly influenced by certain religious values, that marginalized groups, including women, face in modern society. The goal of this study is to assess women's rights within different religions. This holistic approach involves collecting data from various reliable sources for analysis. Multiple factors have been reviewed to ensure a comprehensive approach. Criticizing and questioning religions is usually sensitive because they are tied to spiritual beliefs, but critical thinking is crucial for recognizing biases and assumptions. Results show that religion can be both empowering and limiting for women in their social and individual lives. The findings emphasize the importance of separating religion and politics to establish macro policies that may threaten women's freedom.

1:00 PM   10

Prenatal CBD Exposure Alters Normal Motor Development in Rats

Maya Rusnak, Psychology: Emphasis in Neuroscience (U)

Cannabis is the most commonly used illicit drug among pregnant women. Specifically, there is growing popularity in the use of cannabidiol (CBD), a non-psychoactive component of cannabis, with 20% of young pregnant women using the drug (Bhatia et al., 2024). This popularity is due to the perception that CBD improves pregnancy-related symptoms such as anxiety, pain, and nausea. In addition, its reputation as a natural substance has led many to believe that CBD is harmless to the fetus and mother during pregnancy. Although the literature is limited, both clinical and preclinical studies suggest that prenatal CBD exposure may have adverse neurodevelopmental and metabolic effects on offspring. Thus, the purpose of this study is to examine the effects of prenatal CBD exposure on behavioral development, specifically motor function. We exposed pregnant Sprague-Dawley rats to either 0 mg or 50 mg/kg CBD via an edible cookie dough vehicle daily during gestational days (GD) 5-20. After birth, offspring were tested daily on a variety of early motor reflexes from postnatal days

(PD) 2-12 including: righting reflex, grasping reflex, geotactic response, and cliff avoidance. Finally, grip strength and hindlimb coordination were tested from PD 12-20; subjects were required to hang from a bar by their forelimbs and swing their hindlimbs to the bar. Preliminary data indicate that subjects prenatally exposed to CBD were successful earlier in development on righting, geotactic and grasping reflexes, as well as grip strength and hindlimb coordination. Subjects exposed to CBD also exhibited a decreased latency for success on righting and geotactic reflexes, but there were no differences on the cliff avoidance test. Treatment effects were predominantly driven by males, suggesting there may be some sex-specific effects. Thus, prenatal CBD exposure may alter the developmental trajectory of motor development. This suggests that CBD may influence normal fetal brain development, specifically in motor areas such as the cerebellum. It will be important to investigate the long-lasting consequences of this altered development to determine how altered developmental timing influences later motor function. Supported by CMCR P64-07-001. ReferencesBhatia, Devika et al. Cannabidiol-Only Product Use in Pregnancy in the United Statesand Canada: Findings From the International Cannabis Policy Study. Obstetrics and gynecology vol. 144,2 (2024): 156-159. doi:10.1097/AOG.0000000000005603

1:00 PM   11

Bilingual children expressing thought, emotion, and perception in two languages

Mia Mangney, Speech, Language, and Hearing Sciences (U)

Children who tell high-quality stories show more academic success in language and literacy (Snow, 1983). In bilingual children, associations were observed between reading scores and oral language abilities in their first (L1) and second (L2) language (Miller et al., 2006). The use of internal state terms (ISTs) has been associated with high story quality (Gagarina et al., 2019). Previous studies have found that bilingual children differ on the average amount and type of ISTs they include in the L1 and L2 (Altman et al., 2016). Bilingual children can utilize their storytelling skills in two languages as many skills transfer from one language to another. The current work, analyzing narratives from 51 Spanish-English bilingual children, aged 5-7 years, elucidates how bilingual children express characters' thoughts and emotions in storytelling across languages. Spanish/English narratives were elicited using the Multilingual Assessment Instrument for Narratives (Gagarina et al., 2012), with 6 IST categories: 1=perceptual (hear); 2=physiological (thirsty); 3=consciousness (awake); 4=emotion (happy); 5=mental verbs (think); 6=linguistic verbs (shout). We asked:Do children use the same number of internal states in each language?Do children use similar types of internal states in each language?Is IST production related to language proficiency, indexed by mean length of utterance (MLU)? For research question 1, results from a paired t-test revealed group differences in the total amount of ISTs in each language ($r(50)=3.40$, p<0.01). We found that bilingual children include more ISTs on average in English (2.5) than Spanish (1.8). For question 2, chi-square analysis revealed differences only in category 4, with more emotion ISTs in English than Spanish.

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No differences in the remaining categories shows that children used ISTs similarly across languages. Children most used perceptual state and emotion terms across languages. For question 3, total number of ISTs was associated with MLU in Spanish (r= .53, p<.001) and English (r=.31, p=.03), suggesting that proficiency influences IST production, particularly for Spanish. Future studies should further investigate the role of language proficiency on IST production across languages (Granados Vargas et al., 2024).

1:00 PM   12

Examining the Impact of LOC on Driving Attitudes

Mikayla Boykin, Psychology (U)

IntroductionLocus of control (LOC) is defined as a belief one holds in regards to how much power they have over events in their life. Autistic individuals face unique challenges when it comes to obtaining a driver's license, so examining how locus of control (LOC) plays a role in their driver's license journey may be particularly valuable. Having an internal LOC, a belief in the ability to control outcomes, has been linked to safer driving behaviors (Ford & Huang, 2012). Driving attitudes are directly related to driving behaviors and having more negative attitudes about driving may prevent an individual from pursuing a license. The present study examines how LOC affects attitudes about driving.MethodsA total of 11 autistic participants participated (mean age=19) The Driving Cognitions Questionnaire (DCQ) was selected to derive a LOC score. The Driving Attitudes Scale (DAS) was used to determine attitudes about driving. Correlational analyses were conducted to show the relationship between locus of control and driving attitudes. ResultsResults show that those with an external LOC had a higher average of negative attitudes (M = 10.33) about driving than those who were determined to have an internal LOC (M= 7.75). Those who had an external LOC had a slightly higher average of positive attitudes (M = 8.33) about driving than those with an internal LOC (M = 7.88), however this margin was very slim.DiscussionDrivers with an external LOC show more negative attitudes about driving, which could be a result of a variety of factors, (e.g., anxiety or fear about factors they believe out of their control). An internal LOC may be linked to lower negative attitudes due to a feeling of power over outcomes. If one believes that there are proactive steps that they can take to avoid adverse outcomes when driving, then they are less likely to feel anxiety or fear when thinking about driving. These preliminary findings reveal a possible relationship between LOC and driving attitudes that should be further examined.

1:00 PM   13

Cognitive Mapping of Commuter Students

Miles Coppage, Political Science (U)

Under the direction of Dr. Bruce Appleyard of San Diego State University, the Urban Sustainability, Livability, and Equity (SLE) research team, supported by the Faculty Student Mentorship Program (FSMP) conducted a study with individuals who commute to campus. The approach taken to study these dynamics involved conducting cognitive/image mapping exercises with individuals, based on principles set forth by

Kevin Lynch's Image of the City (Lynch, 1960). This research uniquely captures the experiences of different individuals. Principally, we were able to learn about how those that use various forms of transportation perceive the environment of their daily lives. Specifically, to conduct our research surveyed individuals to draw maps of their surroundings on their daily routes, which were marked with symbols to identify landmarks. From our review of the maps, we found that those who commute in a car are often less aware of their surroundings. This work can ultimately help promote a better quality of life for the average person by using the tacit knowledge of their environment in order to improve the real world we live in. Through increased access to transportation services and a greater universal urban landscape, we create better ways to meet the average person's most critical needs, the home territories and lives of all can be improved.

1:00 PM   14

Enhancing Cultural Responsiveness in Early Intervention: The Critical role of Provider Preparedness for Marginalized Families of Autistic Children

Monserrat Valladares, Psychology with emphasis on neuroscience (U)

Background: Cultural adaptations of Early Intervention (EI) services can lead to improved child and parent mental health outcomes for marginalized families of autistic children (Lee et al., 2024). Specifically, Lee and colleagues (2024) suggest that to enhance cultural responsiveness, EI providers should increase their cultural self-efficacy, build relationships with family members, share personal experiences and heritage with the family, and use family-centered practices. Objective: This study aims to better understand how EI providers practice cultural responsiveness with Latine families by examining qualitative and quantitative examples and non-examples of cultural responsiveness practices.Methods: Data for this study were drawn from a larger randomized controlled trial involving video recordings of EI providers' sessions with Latine families in California. A total of 51 video recordings were collected, and sessions ranged from Telehealth to in-person sessions that lasted 30 to 1 hour. The participants were 98% biological mothers (n=21) and 100% Hispanic/Latino (n=22). The cultural responsiveness practices of the EI providers were coded using the Cultural Responsiveness Codebook (DueÃ±as, in preparation). The codebook resulted in 12 items across three domains (home language use, centering and elevating family culture, and equitable partnership). Three trained observers rated the provider, parent, and child interaction using the Cultural Responsiveness codebook. After all 51 sessions were coded, to better understand the cultural responsiveness of EI providers, the data examples and non-examples were extracted and analyzed to examine qualitative examples and non-examples of cultural responsiveness. Results: Preliminary results indicate a lack of cultural responsiveness in centering and elevating family and culture, 33% of the providers asked about caregiver culture, beliefs, and values, 14% of the providers asked how and if the strategies they are teaching

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align with their values. Furthermore, for the section on building an equitable partnership, 33% of the providers seek caregivers' perspectives about coaching sessions. Discussion: Such findings contribute to the limited research in understanding the cultural responsiveness of EI providers and the implications of EI providers practicing cultural self-efficacy, building relationships with the family of the child, sharing personal experiences, and a family-centered practice within the intervention.

Session H-3

Biological and Agricultural Sciences (U) 3
Friday, February 28, 2025 1:00 PM
Montezuma Hall

1:00 PM   15

Identifying the gene responsible for bacterial adherence in C.elegans via forced evolution

Kinjaal Nagindas, Microbiology (U)

The ability of bacteria to persist in the intestinal environment greatly impacts their ability to colonize the intestine and become a member of the gut microbiome. Bacterial adherence to the intestinal epithelium is one mechanism that allows for bacteria to resist removal from the host, however adherence of commensal bacteria is not well understood. Caenorhabditis elegans, serves as an effective model organism to visualize these host-microbiome interactions. The bacterial colonization can be visualized with ease in the intestinal lumen of whole intact animals. By studying the bacterial interactions with the worm's intestinal lining it could uncover more, and how it applies to other organisms.Previously, we identified the commensal bacterium, Lelliottia jeotgali (LUAb3), that adheres directionally to the intestinal epithelium of C. elegans. We are interested in identifying the genetic factors responsible for adherence. To do this, we plan to conduct a forced evolution experiment on LUAb3, where we continually passage LUAb3 over time in the absence of a host. We hypothesized that in the absence of the host, LUAb3 would lose its adherence ability over several generations, as maintaining genes required for host attachment would be costly. In the experiment, LUAb3 was passaged into fresh LB broth 3 times per day over several weeks. LUAb3 was modified to contain a streptomycin resistance gene and a red fluorescent tag, tdTomato, for easy identification when growing. After several passages, C. elegans were colonized with the evolved LUAb3. This colonization was visualized and quantified via RNA fluorescence in situ hybridization (FISH). Bacterial samples showing changes in adherence to the gut are then sequenced. By harnessing the natural evolutionary processes, we create an environment for bacteria to lose the genes responsible for adherence in C. elegans. The findings from this research enhance our understanding of the factors responsible for bacterial adherence, which could impact the future of gut microbiome studies. By identifying the specific gene that allows adherence, this gene could be transferred to other bacteria thus improving microbiome colonization, ultimately promoting a healthier gut.

1:00 PM   16

Data integration to investigate Microbial Abundance in Terrestrial and Aquatic Ecosystems and its Causes

Leo Sai, Biology - Emphasis In Cellular And Molecular Biology (U)

Soil microbes contribute to climate change through nutrient cycling and greenhouse gas flux. For example, soil microbes produce extracellular enzymes to break down detritus to produce carbon dioxide, exclusively carry out methane production and oxidation processes, aid plant nitrogen uptake, and drive nitrogen cycling. Therefore, how much microbes inhabit soils is a predominant factor controlling carbon cycling in terrestrial ecosystems. Soil microbes are not in a steady state; rather, they are a group of living individuals that change over time in a changing environment. In a recent study in my laboratory, we found soil microbial biomass declined from 1992 to 2013, published in Nature Communication in 2022. However, the reason for this decline remains elusive due to a lack of mechanistic understanding. Modeling approaches are a valuable supplement to field experiments in understanding microbial processes in terrestrial ecosystems. My lab has been developing the CLM-Microbe model to represent microbial processes over the past ten years. This project will expand our existing data and integrate the data with the CLM-Microbe model to examine the causes of the decline of soil microbial biomass. With this project, various skills such as meta-analysis, data quality control, data visualization, biostatic analysis, and modeling techniques will be used. These findings illustrate that microorganisms act as both a driver and indicator of climate change with hypothesized contributing factors such as temperature, moisture, oxygen saturation, pH, carbon percentage, nitrogen percentage, lipid concentration, and specific conductance.

1:00 PM   17

Habitat Use and Activity Patterns of the moor macaque (Macaca maura) in a Human-Modified Forest

Mackenzie Karl, Sustainability (U)

Habitat loss and human encroachment are leading threats to all non-human primates, such that now many species reside within anthropogenically modified habitats. For example, the moor macaque, Macaca maura, an Endangered primate species endemic to South Sulawesi, Indonesia, lives across a range of habitat types, including within the Hutan Pendidikan. Hutan Pendidikan comprises mature secondary forests and non-native tree species, including the Sumatran pine, Pinus merkusii, planted in the 1960s and 1970s as part of reforestation after deforestation for agricultural development. Our objective was to examine moor macaque habitat use in this forest and whether their activity budgets vary by habitat type. We conducted behavioral observations during all-day follows of a semi-habituated group, Group Tokka, across nine days. We used the scan sampling method, conducting 10-minute instantaneous group scans at 30-minute intervals, during which we recorded the activity, substrate, and habitat type (secondary forest, pine forest, mixed secondary/pine forest, human

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infrastructure, and agricultural land) of each individual observed. Our sampling effort yielded 29 scan samples comprising 182 behavioral records. Individuals in Group Tokka were found in mixed secondary/pine forest in 43.4% of behavioral records, 42.9% in secondary forest, 11.5% in the pine forest, 1.5% in human infrastructure, and 0.6% in agricultural land areas. Group Tokka engaged in a greater range of activities in the secondary forest and mixed secondary/pine forest (including, movement, foraging, feeding, sitting, allogrooming, and surveying) compared to the pine forest (movement, sitting, and foraging), human infrastructure (movement and play), and agricultural land (only feeding). These data indicate individuals in Group Tokka most frequently used habitat types containing at least partial sections of introduced non-native Sumatran pine trees, Pinus merkusii, which were utilized as a substrate and food resource. These results indicate that non-native forest can also serve as habitat for primates, and hence, should not be overlooked for their potential conservation value.Keywords: moor macaque, Pinus merkusii, habitat type, anthropogenic modification

1:00 PM   18

Osteological Analysis of an Anatomy Collection Comparing Non-Metric Genetic Traits

Marisol Lomeli, Criminal Justice (U)

This study analyzes the osteology teaching collection at San Diego State University to investigate population variation using non-metric traits. Population variation is a product of genetic evolution, leading to distinct and identifiable population differentiation (Conrad & Hurles, 2007). These micro-evolutionary changes reflect how populations adapt to their environments, offering insights into evolutionary processes and the impact of genetic variation on health across regions. Non-metric traits are morphological features on the bone present on the cranium and post-cranium. Representing underlying genetic variation, trait presence and frequency is used to measure inter-and-intra-population variation as well as population distance analysis and relationships. Unlike other features, they cannot be measured because they are qualitative traits. Instead, they are analyzed by scores, their degree of presence or absence, and/or the number of those present (Wilson, 2010). The use of non-metric traits is a non-invasive technique often used in conjunction with other methods measuring population variation and relationships.

1:00 PM   19

Riprap Reinforcements: How Do Photosynthesis And Respiration Affect The Abiotic Environment In A New Coastal Armoring Technology?

Miles Ghannadian, Biology with an emphasis in Marine Science (U)

Organisms that reside in highly developed cities are often faced with extreme habitat loss due to urbanization. In San Diego Bay alone, roughly 75% of the shoreline habitat is composed of human-built structures. To combat habitat loss, the Port of San Diego installed new armouring technology called COASTALOCK (ECOncrete) in 2021 in two installments in the rip-rap on Harbor

Island. Each installment is made up of three rows of pools made of an engineered concrete, designed to promote ecological communities better than the existing rip-rap. To quantify how well these units are performing, we measured the effect photosynthesis and respiration have on the dissolved oxygen in these pools, specifically at low tide, when they are isolated from the ocean. We collected temperature, dissolved oxygen, and salinity measurements at both 5 and 30 cm depths, to quantify how limited mixing at low tide and the variation in algal distribution affect the abiotic conditions at different depths. Further, to estimate how photosynthesis and community respiration contribute to the dissolved oxygen levels, we covered 6 random tidepools with tarps to stop photosynthesis for about one hour before resampling. Preliminary data suggest that abiotic conditions did not vary with depth, but photosynthesis is the driving force behind changes in dissolved oxygen levels. This is demonstrated by the significant changes in dissolved oxygen before and after the blackout treatment. This project will begin to inform the efficacy of novel coastal armoring technologies.

1:00 PM   20

Heart Rate and Valve-gaping Response of Crassostrea [Magallana] gigas to Estuary Water Quality Changes

Neenah Mendez, Biology with an Emphasis in Marine Biology (U)

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 Pacific oyster Crassostrea [Magallana] gigas. C. gigas was first intentionally planted in the San Diego Bay in the 1960s, then again in the 1980s. 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 C. gigas 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.

1:00 PM   21

An Exploration of Ambient Air Pollution Concentrations in the Border Region of Calexico, California

Nivi Sudhir Kumar, Public Health (U)

Ambient air pollution in the Imperial Valley, specifically cities like Calexico has continuously exceeded national ambient particulate matter (PM) air quality standards established by the Environmental Protection Agency (EPA). This study aims to investigate ambient air pollution concentrations in Calexico with a focus on PM air pollutants and factors contributing

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to variations in air quality across different hotspots near the US-Mexico border crossing in Calexico. To collect data, we utilized a longitudinal study, measuring ambient air pollution concentration at several identified hotspots in Calexico, chosen based on traffic density, industrial activity, and proximity to the U.S.-Mexico border. Field air sampling was conducted from 5/21/2024 to 5/26/2024 for the summer season, and from 10/18/2024 to 10/22/2024 for the fall season. We utilized instrumentation such as microAeth monitors to track Black Carbon (BC), TSI Condensation Particle Counters (CPC 3007) to track PM1, TSI DustTrak DRX devices to track PM2.5 and PM10, and Onset HOBO data loggers to track relative humidity and temperature. Data was organized and analyzed using Microsoft Excel and SPSS software. Our results indicated significant differences in environmental factors and seasonal variations with PM1, PM2.5, PM10, and Black Carbon levels, across these settings. Through this research, we seek to better understand the air pollution dynamics within our selected Calexico hotspots, and the respiratory health risks they pose to the local population, as well as explore the urgent need for Public Health-centered interventions to control air pollution in the Imperial Valley region of California.

Session H-4

Biological and Agricultural Sciences (U/G) 1
Friday, February 28, 2025 1:00 PM
Montezuma Hall

1:00 PM   22

Success in the City: Morphological and Physiological Adaptations in Aegean Wall Lizards
Rory Mendelow, Environmental Sciences (U)

Urbanization significantly impacts biodiversity, altering both environmental conditions and organismal traits. Here, we investigate the effects of urbanization on morphology and cutaneous evaporative water loss (CEWL) in the Aegean wall lizard (Podarcis erhardii) on the island of Naxos, Greece. We hypothesized that an urban habitat type and higher population density correlates with an increased size in key morphological traits and elevated CEWL. We found distinct environmental conditions between urban and nonurban sites, and that CEWL was significantly correlated with environmental vapor pressure deficit (VPD). Morphological analyses revealed that snout-vent length (SVL) was strongly influenced by population density and habitat type, and appears to drive changes in other morphological traits. Our findings highlight the multifaceted impacts of urbanization on lizard physiology and morphology. Elevated CEWL in urban environments underscores the physiological challenges posed by altered humidity and VPD, while changes in morphology reflect the combined influence of population density and habitat. These results advance our understanding of how urbanization shapes organismal adaptation, offering insights into biodiversity persistence in human-modified landscapes.

1:00 PM   23

Gut Morphology and Host-Microbe Interactions in the sea urchin Lytechinus pictus
Samantha Stenzel, Marine Biology (U)

The sea urchin Lytechinus pictus is an ideal model organism due to its rapid embryonic development and relatively short life cycle compared to other sea urchins. From fertilization to stage one of larval development takes about three days, during which a complete gut tract forms. Although it is known that the sea urchin larval gut is colonized with commensal (friendly) bacteria after feeding, the fate of pathogenic bacteria has not been explored in L.pictus. To gain a deeper understanding of how bacteria interact with the gut, larvae were exposed to a pathogenic Vibrio and fixed at 3, 6, and 24 hours post-exposure (hpe). Using a special probe which detects bacterial DNA (called EUB338), confocal microscopy was then used to identify the bacterial distribution and abundance within the body.The analysis revealed that compared to control larvae not exposed to the Vibrio, at 3 hpe the majority of bacteria was located only inside the stomach. However, by 24 hpe larvae had either fully expelled the bacteria, or had severe blockages of bacteria within the intestines. These results show that larvae have the ability to expel pathogenic bacteria. We next tested the role of a transporter called ABCB1 in helping control gut homeostasis. ABC transporters are thought to help expel bacteria products that have entered host cells. By imaging and staining a transgenic line of ABCB1-knockout (KO) larvae, we identified several signs of a compromised gut compared to Wildtype (WT) larvae, even without pathogenic exposure. This suggests that ABCB1 is essential for maintaining a baseline in gut function. We predict that ABCB1-KOs will not be able to handle Vibrio exposures as well as WT larvae. Future work will test this hypothesis. Our work emphasizes the importance of genetic and microbial factors in shaping larval immunity and gut functionality and larval immunity.

1:00 PM   24

Inhibition of Metamorphosis Due to Loss of Alphaproteobacteria Megaplasmid Does Not Affect Growth and Biofilm Forming Ability
Shivani Mahesh, Biology - emphasis in Cellular and Molecular Biology (U)

Tubeworms, sea urchins, and coral interact with marine bacteria and induce a process called metamorphosis, where an animal develops from a larval stage to adulthood. Of these bacteria, Alphaproteobacteria are an ecologically relevant class, making up to 20% of marine biofilms. While Alphaproteobacteria are very strong inducers of metamorphosis in Hydroides elegans (Tubeworms), they do not use any known mechanisms of metamorphosis induction. The objective is to explore how these bacteria induce metamorphosis in a representative Alphaproteobacteria strain, Phaeobacter gallaeciensis (P. gal). A recent discovery in our lab is that the loss of an Alphaproteobacteria megaplasmid, which is a large set of genes carried outside the genome, results in the loss of metamorphosis. I hypothesize that there were no physiological factors that were affected in the mutant strain, and that the

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loss of metamorphosis is due to the megaplasmid knockout. In order to test this theory, I performed two experiments to test for possible changes in physiological factors of the mutant strain compared to the wild-type strain. To study the growth defects or disparities in the mutant, I constructed a growth curve by measuring its optical density over a period of twenty-four hours. Similarly, I studied the biofilm forming capability of the mutant strain, considering that Alphaproteobacteria make up a significant percentage of biofilms and metamorphosis is tested with H. elegans exposure to biofilms. The liquid cultures of the mutant strain and wild-type were normalized, followed by seeding the biofilm and staining with crystal violet dye to visualize biofilm density. The dye was solubilized with acetic acid for quantification through colorimetric analysis. From the two experiments, we can conclude that there are no significant differences in the growth and biofilm forming capabilities between the mutant strain and the wild-type, confirming that no physiological factors were affected by the loss of metamorphosis. The results of this project can help uncover novel mechanisms Alphaproteobacteria use to induce metamorphosis in H. elegans and investigate how the gene operons of the P. gal megaplasmid induce metamorphosis.

1:00 PM   25

Investigating the role of immune and developmental genes during bacterial-stimulated metamorphosis in the marine tubeworm Hydroides elegans

Tatyana Ali, Biology (U)

Understanding host-microbe interactions is key to immune system development, as many organisms rely on bacterial interactions to educate their immune system. However, the immune system is difficult to study due to interconnecting gene networks of complex organisms that are hard to tease apart. To explore how microbes shape immune development, we utilize a marine tubeworm Hydroides elegans, which responds to the bacterium Pseudoalteromonas luteoviolacea. In this study, I examined the function and necessity of immune and developmental genes that are upregulated during bacterial exposure. Using Hybridization Chain Reactions, I localized the gene Myeloid differentiation primary response 88 a gene known for inflammatory response which was upregulated during bacterial stimulation and I am currently working to develop a protocol to knock this gene down via bacterial symbiote-mediated RNAi. After knockdown, if no metamorphosis is present we will conclude its development relies on this gene. Identifying this genes' function in Hydroides can help add to the existing knowledge of the immune system as we identify vital information for disease prevention, medical treatment, and therapeutics.

1:00 PM   26

Microscopy to Metagenomics: Searching for the Cause of Black Spot Disease in two Local San Diego Sea Urchin Species

Erin Horkan, Cellular and Molecular Biology (M)

The painted urchin, Lytechinus pictus, and the purple urchin Strongylocentrotus purpuratus, are two species of sea urchin native to San Diego with many important roles. They are grazers of algae and prey for seabirds and otters in the marine ecosystem and in a research setting, they are model organisms for developmental biology. In the case of the S. purpuratus, they are also food for humans when harvested or farmed for uni. Unfortunately, both species are also susceptible to disease and exhibit very similar symptoms including spine loss, lesion formation, and death. These disease symptoms are generally referred to as Black Spot Disease. The exact cause of this disease is unknown but previous studies and observations have found disease onset associated with warm temperatures, damage to the test, and exposure to bacteria. To further our understanding of this disease, diseased L. pictus and S. purpuratus were sacrificed, their lesion tissue dissected, and the DNA extracted. These samples were sent for metagenomic sequencing to determine what species of eukaryotes, bacteria, and viruses are associated with the lesions. Using microscopy lesion progression was tracked over time and scrapes of lesion tissue were taken periodically and imaged to determine if similar populations of microorganisms are present. This increased understanding of microbial communities associated with Black Spot Disease will hopefully help with containment and treatment of this disease in wild, farmed and laboratory sea urchins.

1:00 PM   27

Role of Isoform-specific region of Raf in regulating CRD and lipid interaction: Live Cell Study

Alexia Morales, Chemistry (M)

RAF kinases are key regulators of the MAPK signaling pathway, controlling critical cellular processes such as growth, differentiation, and apoptosis. Dysregulation of RAF, often caused by mutations in RAS or RAF components, is implicated in cancers. RAF proteins, including ARAF, BRAF, and CRAF isoforms, share a conserved domain structure comprising an N-terminal regulatory region, which includes the Ras-binding domain (RBD) and the Cysteine-Rich Domain (CRD), and a C-terminal kinase domain. Recent studies have shown that the BRAF-specific region (BSR) plays a pivotal role in autoinhibition, regulating membrane recruitment and interactions with RAS, lipids, and CRD. This study investigates BSR's role in membrane recruitment and activation. Supported lipid bilayers (SLBs) were used as a model system to measure RAF binding kinetics and membrane interactions using fluorescence correlation spectroscopy (FCS) and total internal reflection fluorescence (TIRF) microscopy. To validate these findings, live-cell studies with confocal microscopy were employed to observe RAF membrane localization in HEK293T cells. Cells were transiently transfected with RAF constructs, including full-length and truncated variants of BRAF and CRAF. Constructs containing the BSR or CRAF-specific region (CSR) were compared with truncated versions lacking these regions. RAF constructs were tagged with Neon Green, and plasma membranes were stained with Cell Mask Deep Red to quantify membrane enrichment. Constructs containing BSR showed minimal membrane localization compared to delta-BRAF constructs, supporting the hypothesis that BSR regulates RAF activation via dual autoinhibition mechanisms involving RAS: RAF and CRD-lipid interactions. By combining in vitro binding assays with live-cell imaging, this study provides critical

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insights into the isoform-specific regulation of RAF kinases. These findings enhance our understanding of MAPK pathway modulation and offer potential strategies for targeting RAF kinases in cancer therapies.

1:00 PM   28

Activation potential of enteric bacteriophages on the intestinal epithelium

Allison Hedin, Cellular and Molecular Biology (M)

The human gut is inhabited by an extremely diverse population of microorganisms that have major impacts on human health and diseases. Gut infections with enteric pathogens such as Escherichia coli disrupt the commensal microbiota creating a dysbiosis that further influences the host immune system function and recovery. Less understood is the impact of enteric bacteriophages (phages) that are also present in the gut during E. coli infections. In this study, human gut epithelial cells (HT-29) were exposed to the enteric virulent phage CrRp3 that infects the enteric murine gastrointestinal disease bacterium Citrobacter rodentium. The first step was to extensively purify CrRp3 to a high a concentration of plaque forming units with low endotoxin levels. This was done after three attempts of purification, each round demonstrating the necessity of determining the growth characteristics of CrRp3 to maximize the phage titer. It was found that downstream manipulation of the purification process was not effective in removing endotoxin. For example, when the endotoxin removal step was repeated a second time with the same batch, phage experienced a loss in titer and an increase in the overall endotoxin. This demonstrated that the whole process itself required a more methodical application for CrRp3. The final purified batch of CrRp3 achieved a high concentration of 2×10^{11} PFU/mL and endotoxin reduced to 0.6 Endotoxin Units at the HT-29 multiplicity of infection of 100:1 exposure dose. Total RNA from exposed cells at an interval of 2, 6, and 24 hours was isolated to determine differential gene expression of induced genes by the phage. This will allow us to determine if the phage are pushing the gut environment into an anti-viral state, possibly leading to more inflammation and an overall worsened state of disease.

Session H-5

Engineering and Computer Science (U/G) 1
Friday, February 28, 2025 1:00 PM
Montezuma Hall

1:00 PM   29

Development and Characterization of Lunar and Martian Concrete: Effects of Biopolymer Additives and Manufacturing Methods on the Physical and Mechanical Properties

Shezreen Khan, Aerospace Engineering (U)

The NASA Artemis III exploration program aims to establish a permanent presence on the Moon and in the future extend human presence to Mars. Central to this endeavor is the construction of durable launching and landing pads (LLPs) the regolith surface during spacecraft operations by mitigating regolith ejecta and preventing crater formation caused by rocket engines [1]. Developing advanced extraterrestrial construction materials and manufacturing methods is therefore critical for the safety and efficiency of future space missions. Given the constraints of transporting supplies from Earth, utilizing in-situ resources has been proposed as a viable solution [2]. In this context, naturally derived biopolymers as binding agents for regolith offer a sustainable approach to creating extraterrestrial construction materials. This research focuses on characterizing and optimizing biopolymer-amended Lunar and Martian regolith mixtures, as well as two manufacturing methods, for construction purposes. Specifically, the primary objective is to determine the optimal biopolymer type and concentration to achieve enhanced mechanical properties, while assessing the potential for these mixtures to be utilized in both casting and 3D-printed processes. Two biopolymers, Xanthan Gum and Chitosan, were evaluated at various concentrations (1%, 2%, and 4%) in combination with lunar simulant LHS-1 and Martian simulant MGS-1. Specimens were prepared using two fabrication methods: casting and 3D printing. During the initial testing phase, casted specimens with varying types and concentrations of biopolymers were subjected to uniaxial compressive tests. It was found that for Martian mixtures, a 2% Xanthan Gum concentration yielded the optimal mechanical properties, while for regolith, mechanical performance progressively improved with increasing Xanthan Gum concentrations. Due to lower compressive strength results and poor 3D printability, Chitosan and 4% Xanthan Gum were excluded from further testing. The remaining formulations, consisting of 1% and 2% Xanthan Gum concentrations for both lunar and Martian simulants, were used for 3D printing. The mixtures were successfully printed, demonstrating good workability in the 3D printing process. Compression tests were then conducted in two orientations: perpendicular and parallel to the printing layers, in order to assess potential variations in mechanical strength due to the layer-by-layer nature of 3D printing. As anticipated, the compressive strength in the direction perpendicular to the printing layers was superior. Furthermore, it was determined that the 2% Xanthan Gum concentration for both lunar and Martian simulants produced the most optimal mechanical performance. Additionally, as expected, cast specimens exhibited higher compressive strength compared to their 3D-printed counterparts. This difference can be attributed to the higher density achieved during the casting process, which inherently leads to better material compaction and stronger mechanical properties. These findings contribute to the development of reliable construction materials for future lunar and Martian missions, supporting sustainable surface operations. Further research is warranted to explore the long-term durability, environmental resilience, and scalability of these materials, along with the continued optimization of manufacturing processes to enhance their performance for extraterrestrial applications. References: [1] Gelino, N. J., Mueller, R. P., Sibille, L., Dixon, K. L., Gleeson, J., & Buckles, B. (2022). In Situ Lunar Launch and Landing Pad Construction with Regolith-Thermoset Polymer Composite Materials. In Earth and Space 2022 (pp. 789-803). [2] Shiwei,

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(U)=Undergraduate; (M)=Masters; (D)=Doctoral

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1:00 PM   30

Non-native vegetation impacts on fire patterns in urban riparian areas in southern California

Shruti Gokhale, Environmental Engineering (U)

The overarching objective of this study is to understand the characteristics of native and non-native vegetation and weather conditions that may contribute to changing fire patterns in southern California. We hypothesized that 1a) fires with invasive cover will have higher burn severity and 1b) larger vegetation loss and 2) climate parameters (temperature, precipitation, and vapor pressure deficit) will be correlated with the burn severity of invasive fires. We analyzed ten urban fires (five with invasive and six without invasive vegetation) that occurred between 2000-2010 with satellite-based normalized difference vegetation (NDVI) and normalized burn severity (NBR) indices to assess the burn severity and amount of vegetation. We conducted a long term analysis of ten years before the fire and all available data after each fire. Seasonally, 4 of the 5 invasive fires had high burn severity and high vegetation loss, compared to fires with native vegetation. Maximum air temperature and vapor pressure deficit impacted fires with invasive vegetation more than fires with native vegetation, while precipitation and minimum air temperatures impacted fires with native vegetation. Our findings highlight the implications of invasive vegetation on fire patterns in urban riparian zones and the need to consider these areas as fire hazards grow in California.

1:00 PM   31

3D-Printed Polymer-Bonded Clay as a Sustainable Alternative to Concrete

Tiffany Mae Casaje, Psychology (U)

Polymer-bonded clay is a promising material for sustainable construction, offering an eco-friendly alternative to 3D-printed concrete. This study investigates the durability and bonding performance of polymer-bonded clay, with a particular emphasis on its interaction with steel reinforcement. Cylindrical specimens, composed of kaolinite clay, water, and varying volumetric polymer content (PCv), were compressed around a centrally positioned steel rod. The specimens were then air-dried and heated to induce polymer melting, enhancing their adhesion to the steel reinforcement. Durability at the clay-steel interface was evaluated through mechanical pullout tests, measuring the maximum force required to separate the steel rod from the clay matrix. To assess the material's potential for reusability, select specimens were reheated following initial mechanical separation to determine their capacity for rebonding. Among the tested compositions, preliminary results reveal specimens with PCv = 40% exhibited the highest pullout strength and strength retention ratio after reheating. These findings position the PCv = 40% composition as a promising candidate for further research, particularly for applications involving more scalable steel reinforcement strategies used in large-scale construction.

1:00 PM   32

Extraterrestrial Farming: Assessing the Effects of Perlite and Gypsum Amendments on Lunar and Martian Regolith Hydraulic Properties, and Alfalfa Plant Growth

Ava Halkola, Electrical Engineering, Mathematics Minor (U)

As humanity prepares to establish a long-term presence on the Moon and eventually on Mars through the NASA Artemis missions, there is an increasing need for Lunar and Martian plant cultivation to support human life, reduce dependency on Earth-supplied provisions, and enhance the self-sufficiency of space habitats. However, plant cultivation off-Earth presents significant challenges due to the harsh conditions, such as nutrient-poor, toxic, and dense non-aerated soils. These environments are far from ideal for traditional plant cultivation, necessitating innovative solutions to make extraterrestrial agriculture viable. To address these, this study proposes using soil amendments, specifically perlite and gypsum, with the main aim of investigating their effects on the soil hydraulic properties and the growth of alfalfa. Perlite, a volcanic glass, is chosen for its lightweight properties and ability to enhance soil aeration. Gypsum, or hydrated calcium sulfate, is selected for its ability to provide essential nutrients (calcium and Sulfur) to the roots, improve water absorption, and counteract the toxicity of soluble aluminum in the soil. This study covers a potting experiment that reports the growth, pH, and overall health of the samples with different amounts of the soil additives mentioned above. There are also various soil categorization tests that help explain Lunar (LHS-1) and Martian (MGS-1) properties and why the amendments are beneficial.

1:00 PM   33

Enhancing Agricultural Burn Detection in Arid Regions: Neural Network Analysis for Burn Scar Classification in the Mexicali Valley

Chris Flores, Geography [Geographic Information Science] (M)

Open-air burning remains a pervasive practice in arid environments like the Mexicali Valley, driven largely by the region's extensive commercial agricultural practices. This study identifies critical challenges, particularly the effect of moisture content, which can diminish the effectiveness of commonly used indices such as the Normalized Burn Ratio (NBR) in fire detection analysis. The rapid cycle of biomass burning necessitates ongoing enhancement and validation of fire detection techniques to ensure their relevance and effectiveness for monitoring and classification efforts. Utilizing multiple indices improves the reliability of fire burn detection in arid regions by enabling a nuanced analysis of diverse spectral responses related to vegetation health, soil moisture, and the thermal properties of burned surfaces. To refine classification accuracy, ground truth data is collected by manually digitizing burned croplands using NASA's Worldview, which provides daily satellite imagery for high-confidence polygon creation. These manually digitized datasets are incorporated into a deep learning framework, enabling automated burn scar classification and facilitating assessments of burn severity. This framework

also seeks to predict the broader environmental impacts of burning, including air quality deterioration from recurring agricultural fires. By combining advanced satellite imagery analysis, alternative indices, and neural network integration, this approach offers an innovative pathway to better understand and mitigate the environmental consequences of agricultural burns in arid ecosystems.

1:00 PM   34

Bioelectrochemical Desalination: Combined Wastewater Treatment, Energy Recovery, and Desalination in One System

Craig Sutter, Environmental Engineering (M)

Although the oceans cover 71% of the Earth's surface, current desalination techniques, such as pressure-driven membrane processes or evaporation, are energy intensive and environmentally unsustainable. Desalination bioelectrochemical systems (desal-BES) are an innovative alternative that can passively desalinate water while simultaneously oxidizing wastewater and generating renewable energy in the form of methane (CH_4). Three sets of triplicate desal-BES reactors were custom constructed from clear acrylic. Each reactor is comprised of three chambers: a bioanode for treating wastewater, an abiotic desalination chamber containing salt solution, and a biocathode that produces CH_4. These chambers are separated with anion and cation exchange membranes to allow selective ion transport, with the anions (e.g., Cl-) traveling to the bioanode and cations (e.g., Na+) traveling to the biocathode. Currently we lack an understanding of the system-wide energy balance of desal-BESs, as well as the efficiency of ion removal across different operating conditions. Therefore, this research aims to evaluate both the energy balance and the extent of ion removal/desalination across various applied potentials. This study advances desalination BES development by identifying a relationship between the current required to achieve the greatest energy balance and the salt removal efficiency associated with the applied potential.

1:00 PM   35

Exploring a New 3D Metal Printing Approach via Selective Induction Sintering (SIS)

Ethan Morrison, Mechanical Engineering (M)

This study explores a new 3D metal printing technique, Selective Induction Sintering (SIS), which uses an induction heating system to sinter metal particles as an alternative to traditional laser-based additive manufacturing. Unlike conventional Selective Laser Sintering (SLS), SIS can potentially sinter all powder layers simultaneously, significantly reducing production time for complex metallic structures. This efficiency could benefit industries requiring rapid prototyping or large-scale metal part production. The research focuses on theoretical analysis of the feasibility studies for SIS technology. Thermal simulations using Ansys Finite Element model copper coils that melt targeted sections of an iron core via induction heating, enabling evaluation of thermal distribution and energy efficiency. The goal is to expand this concept by

employing multiple coils working in coordination to selectively melt different powder bed sections, facilitating the efficient creation of complex shapes. Integrating multiple induction coils introduces greater control and precision, allowing intricate geometries that are challenging or time-consuming with laser-based techniques. SIS enhances manufacturing speed and increases flexibility in part design, potentially yielding metallic structures with optimized material properties. SIS could lead to advanced applications in aerospace, automotive, and biomedical engineering industries, where complex metal parts with specific properties are in high demand.

Session H-6

Humanities, History, Literature, & Philosophy (U/G) 1
Friday, February 28, 2025 1:00 PM
Montezuma Hall

1:00 PM   36

Memory as Resistance:Safeguarding the Truth After Human Rights Abuses

Jasmin Zeis-Khalil, Political Science/ International Security and Conflict Resolution (U)

Art and media have long been used as tools of resistance in the face of systemic violence, oppression, and human rights violations. In South Africa, following decades of apartheid, memory work through visual art, oral histories, film, and performance served not only to document injustice but also to resist it. This research explores how these methods can be applied in Palestine, where ongoing human rights violations call for creative forms of resistance. Presenting work from the organization Human Rights Media Centre, based in South Africa, this presentation addresses how memory work is a successful tool for communities in both contexts, to rebuild their dignity, preserve their stories, and resist the erasure of history. South Africa's model of combining art, media, and collective storytelling offers a valuable blueprint for Palestine, where artistic expression and media could play a pivotal role in seeking justice.

1:00 PM   37

Social Recognition Predicts In-Lab Experiences and Career Decisions for STEM Student Researchers

Brooke Isrow, Graduate Social Psychology (M)

When students talk about their academic interests, how others respond can influence how they feel about these interests. Previous research has demonstrated that talking with someone that actively listens and asks questions strengthens interest; talking with someone who is unresponsive can lead the speaker to question whether the interest is worth caring about or pursuing. We study the role of this feedback, known as social recognition, in interest development for students who work in STEM research labs. Within such labs, social recognition takes the form of lab peers or mentors asking questions about

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topics of interest, reinforcing that the interests are intriguing, and conveying that they view the students as scientists. In this context, we propose that social recognition not only shapes the interests that students discuss, but whether students feel a sense of fit with their environment through their in-lab interactions and scholarly work. We analyzed longitudinal self-report survey data collected from 627 student researchers working in 117 faculty-led STEM research labs across 3 universities. Results from multilevel regression analyses using R revealed that student researchers who reported greater perceptions of social recognition subsequently reported higher levels of authenticity in the lab, research interest, and science identity, even after controlling for baseline measures of each of these variables. Further multilevel mediation analyses revealed a significant indirect effect of social recognition on increased STEM career investment through increased research interest. Taken together, these findings suggest that greater social recognition is directly beneficial for STEM students' motivation and social identity during their time in the research lab, and these positive effects could be consequential in shaping their later career decisions.

1:00 PM 38

The Impact of Socioeconomic Status on Flood and Storm Damage in Southeast San Diego: A Case Study of the January 22nd, 2024, Storm
Sarah Royer, City Planning (M)

This research investigates the disproportionate impacts of the January 22nd, 2024 storm on Southeast San Diego, emphasizing the role of socioeconomic disparities in shaping storm damage and recovery outcomes. The study focuses on how systemic inequities in stormwater infrastructure and urban planning amplify vulnerabilities for low-income communities, particularly in areas like Encanto and Paradise Hills. By comparing the experiences of Southeast San Diego with more affluent neighborhoods such as Point Loma and international flood resilience strategies in Rotterdam, Netherlands, this project highlights critical gaps in equity and preparedness. Methods include a comprehensive analysis of rainfall data, storm damage reports, and socioeconomic variables. A literature review, combined with geographic data mapping, provided insights into the intersection of environmental hazards and social vulnerabilities. The study also examines how community engagement and policy implementation"or the lack thereof"influence resilience. Key findings reveal that Southeast San Diego, despite receiving less rainfall than Point Loma, experienced greater damage due to aging infrastructure and insufficient investment. International case studies, such as Rotterdam's Delta Works and participatory planning approaches, underscore the potential for equitable, innovative solutions. These strategies demonstrate how adaptive infrastructure, like nature-based solutions and flood barriers, can enhance resilience while addressing systemic inequities. The research concludes that addressing storm resilience in underserved communities requires proactive investments in stormwater systems, participatory planning processes, and policies that prioritize equity. Lessons from Rotterdam suggest

that integrating sustainable design with community needs can transform vulnerabilities into strengths, promoting both resilience and justice. This project advocates for targeted urban planning initiatives to ensure that no community is disproportionately burdened by climate-related disasters.

1:00 PM 39

US-Mexico Border Surveillance Study: Community Views on Technology and AI
Alice Wilshire, Homeland Security Graduate Program (M)

This study explores community perceptions of surveillance technologies and artificial intelligence (AI) at the US-Mexico border, emphasizing the privacy, ethical, and social challenges these systems pose, and the broader impact of heightened surveillance on local communities. Such technologies have the potential to disrupt daily life, exacerbate feelings of alienation, and heighten concerns over civil liberties within border communities.To assess these views, a snowball sampling survey was distributed among local residents, and responses were analyzed to identify trends in attitudes toward AI-driven surveillance systems. Data collection was conducted using the Qualtrics platform. Preliminary findings reveal that proximity to the border significantly influences perceptions: residents living farther inland often view AI technologies as enhancing border security, whereas those closer to the border express heightened concerns regarding privacy, profiling, and the erosion of civil liberties. These findings underscore the nuanced relationship between surveillance technologies and the lived experiences of border communities.

Session H-7

Health Nutrition and Clinical Sciences (U/G) 1
Friday, February 28, 2025 1:00 PM
Montezuma Hall

1:00 PM 40

Covid Human Mobility Patterns
TImothy Boyd, GIS (U)

The goal for my project is to illustrate the patterns of human movement by the San Diego community during different periods of the Covid Pandemic. This spans from April 2020 to March 2021, where we used data from Safegraph (an anonymous mobile data company) to track peoples' visitsto different points of interests. These points of interest include four categories: Hospitals, Nursing Facilities, Restaurants, and Building Material Supplies Dealers.

1:00 PM 41

Examining Speech Production in Adults with Dyslexia
Valarie Vito, Speech, Language, and Hearing Sciences (U)

Cognitive control abilities play a crucial role in our ability to process and produce language efficiently. Individuals with dyslexia may experience cognitive control deficits in addition

ABSTRACTS

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to linguistic deficits. The purpose of this study is to explore inhibitory control abilities and production variability in adults with dyslexia through conflict resolution in the Simon task. In this study, we tested 11 adults with dyslexia and 13 controls without dyslexia in the Simon task in which participants had to answer left or right based on the color of the stimuli while ignoring its position on the screen. We analyzed vocal response onset latencies (i.e., reaction times), word durations, and variability in word durations. Preliminary results showed the expected congruency effect on reaction times across groups and that individuals with dyslexia were slower than controls. In addition, there was a difference in word duration between the two possible responses and this effect differed between groups. Individuals with dyslexia showed a larger difference in word duration between responses compared to control participants. Finally, both groups showed larger variability when saying right compared to when saying left. Although understudied, adults with dyslexia still appear to show differences in word production in comparison to control participants.

1:00 PM   42

Noise-Induced Hearing Loss in Latino Farmworkers
Colten Mouzin, Audiology Joint Doctoral Program (D)

Objectives: Repeated exposure to hazardous noise levels leads to noise-induced hearing loss (NIHL), with agricultural workers among the top three occupations at highest risk. Prolonged exposure can cause disabling hearing loss, negatively affecting health-related quality of life and contributing to conditions like depression. Despite Latino farmworkers making up the majority of the agricultural workforce in the U.S., research on NIHL within this group is limited. This is particularly concerning given disparities in hearing protection use related to acculturation. This study aims to assess the prevalence of hearing loss and access to hearing protection among Latino farmworkers in the Southwest, along the U.S.-Mexico border. Our findings will help inform the development of targeted interventions and public policies to improve farmworkers' hearing health.Design: Data collection took place over the course of two years (2023-2024) at health fairs and other community events in Imperial County and Yuma County. A licensed audiologist tested air-conduction audiometry using a calibrated audiometer from within a mobile health unit and a pure-tone average (PTA) was calculated at .5, 1, and 2 kHz. We also asked participants questions about self-perceived noise exposure at work, hearing difficulties, access to hearing protection, and noise exposure using questions adapted from previously published surveys.Results: A total of 74 participants completed this study, 50% of whom were male and 50% were female. All participants reported their ethnicity as Latino, and all completed the survey interview-style in Spanish. The mean age of farmworkers was 51 years old (range 19-88 years). Nearly half (46%) of farmworkers indicated working in noise most or all of the time. The mean PTA for the left ear was 25 dB HL and 24 dB HL for the right ear. Over half (61%) of participants had hearing loss at 4 kHz in at least one ear. The majority of farmworkers (78%) reported never wearing hearing protection, and never having been provided with hearing protection from their employer (89%).Conclusions:

While most farmworkers are exposed to noise daily, few use hearing protection. Audiometric testing reveals signs of hearing loss, which may be linked to occupational noise exposure. Additional studies are needed which track noise exposure and hearing changes over time in this population. Prolonged noise exposure can cause irreversible hearing damage. This and future research can help drive the necessary changes to protect farmworkers' hearing.

1:00 PM   43

A Case for Dual-Task Cost as a Measure of Gait Adaptability
Doug Mitchell, Masters of Exercise Physiology (M)

Walking adaptability is crucial for maintaining mobility and independence, playing a key role in fall prevention and activity levels. Researchers have used Dual-Tasks as a measure of adaptability but it has yet to be proven as a measure of adaptability. The modified Dynamic Gait Index (mDGI) is commonly used to measure how well you adapt but has limitations, including a ceiling effect and incomplete domain assessment.This ongoing study aims to prove that dual-tasking is a good measure of walking adaptability by quantifying dual-task costs across different domains. This abstract presents data on the dual-task cost of walking while talking (WWT) on double support time variability, trailing limb angle, and mDGI scores from initial participants. We hypothesize that greater dual-task cost correlates with lower mDGI scores. Participants provided informed consent before data collection. Retroreflective markers were placed using a modified Helen Hayes set, and motion was tracked via 9 cameras (Qualisys AB, Sweden). Participants completed the mDGI and a standardized preferred walking speed (PWS) protocol on a treadmill (Treadmetrix, UT). Trials on the treadmill lasted 3 minutes, with the first and last 30s discarded. A visual-verbal Stroop test was used to introduce cognitive load during WWT. Another dual-task condition included carrying a 15 lb weighted box. Gait events were identified via Visual3D, and MATLAB computed double support time variability and trailing limb angle.Initial data from 16 participants (8M; age: 41 Â± 5 years, range: 20-77; BMI: 27.99 Â± 1.28 kg/mÂ²; speed: 0.99 Â± 0.06 m/s) showed a weak relationship between dual-task cost in double support time variability and mDGI (Adj RÂ² = 0.31, p = 0.018). The dual-task cost in the trailing limb angle was unrelated to mDGI (Adj RÂ² = 0.05, p = 0.574) but weakly explained by baseline Stroop accuracy (Adj RÂ² = 0.21, p = 0.047). Findings suggest that mDGI may not capture subtle mobility limitations. Increased double support time variability and decreased trailing limb angle were observed under cognitive load, particularly in older and less active adults. Dual-task cost may serve as a sensitive measure of walking adaptability.

1:00 PM   44

Odor nudging promotes short term weight loss
Emma Johnson, MS Nutritional Sciences (M)

Olfaction plays a significant role in guiding dietary choices, yet olfactory strategies are often overlooked in weight loss

(U)=Undergraduate; (M)=Masters; (D)=Doctoral

interventions. We hypothesize that olfactory nudging (ON) with pre-meal short exposure to an identifiably healthy food odor, will increase healthy food intake; while prolonged pre-meal exposure to unhealthy food odors will create olfactory-specific satiety via olfactory habituation (OH) and decrease high-calorie food intake. We implemented 2-weeks of ON, OH, and control interventions in adults with overweight/obesity, in a pilot randomized control trial (N=13F; 67% white; age 18-55 years, BMI 28.6Â±3.8). Intervention groups did not differ in their ability to smell (p=0.24). ON group (short exposure to banana/strawberry fruit smells before lunch and dinner) achieved a weight loss of 1.56Â±1.07 lbs, while OH (10-minute exposure to banana pudding/strawberry cake smells) experienced a weight reduction of 0.31Â±1.6 lbs. Weight change did not differ between the two groups (p=0.21). Control group exhibited a weight gain of 0.44Â±1.82 lbs. Cravings for carbohydrates nominally decreased across all groups (74.8Â±16.9 vs 64.1Â±18.2). Though not significant, both ON and OH reported an increase in Olfactory Awareness post-intervention (V = 1.5 vs V=3, p=0.58). A decrease in introjected regulation was also observed in ON group. No significant changes emerged in the diet intake measured through a 3-day food diary, Self-Report Behavioral Automaticity Index, and Short Self-Regulation Questionnaire (SSRQ), post intervention. These preliminary findings support the use of olfactory behavioral strategies to influence weight loss.

1:00 PM   45
The Chiara Project Dashboard: Empowering Women and Addressing Health Inequalities at the US-Mexico Border
Fernanda Carrillo, Big Data Analytics (M)

Borders are more than just lines on a map; they are vibrant communities that share geography, resources, and challenges. Yet for many women living near the US-Mexico border, these regions also represent barriers to healthcare access, economic opportunities, and equality. This study focuses on the health challenges faced by women in San Diego County, California, where systemic inequities such as poverty, language barriers, and limited healthcare infrastructure disproportionately impact vulnerable populations.Using insights from the Chiara Project Dashboard, developed by the Metabolism of Cities Living Lab, we analyze key data to uncover geographic and demographic disparities in healthcare access. The dashboard integrates data visualization and analysis to identify economic inequalities, demographic patterns, and their combined effects on healthcare outcomes for women.This paper synthesizes findings from both existing literature and dashboard-driven analysis, emphasizing the need for targeted interventions to address these disparities. The goal is to equip policymakers, healthcare providers, and community leaders with actionable insights to improve healthcare equity and economic empowerment for women in border regions.

1:00 PM   46
Familism and Hearing Loss in Older US Latino Adults
Jenny Ortega, Audiology (D)

Objectives: The proportion of Latino adults with hearing loss who use hearing aids is lower than other racial/ethnic groups. Familism is one of the most frequently examined Latino cultural values, and yet its relationship with hearing loss and hearing aid use remains unexplored. The objective of this study was to test the hypothesis that the strength of association between objective hearing loss and subjective hearing disability differ according to levels of familism, and to investigate how older Latinos of varying levels of familism view hearing aids.Design: This prospective exploratory study collected data at adult day centers in San Diego County. Participants aged 60+ who could provide informed consent were eligible. They completed a demographic survey, the Hearing Handicap Inventory for the Elderly (HHIE), and pure-tone air-conduction audiometry using a portable tablet and calibrated headphones. Participants also completed the 14-item Sabogal Familism Scale, measuring attitudinal familism. Responses were rated on a 5-point Likert scale (1 = very much in disagreement, 5 = very much in agreement). Linear regression models assessed the effects of pure-tone average (PTA), hearing aid use, and familism on HHIE scores, testing main effects and PTA-familism interactions. Results: A total of 103 individuals participated (mean age 76.03 years, SD = 8.68; 67.60% female), with the majority identifying as Latino (95.10%). Twenty-eight participants (27.50%) were either married or in a domestic relationship during time of data collection. The mean PTA for the right ear was 31.66 dB HL (SD = 17.63), indicating slight/mild hearing loss, while the mean PTA for the left ear was 31.70 dB HL (SD = 17.78), also indicating slight/mild hearing loss. The mean Hearing Handicap Inventory for the Elderly (HHIE) score was 13.71 (SD = 13.94), suggesting a mild to moderate hearing handicap. Thirty participants (29.10%) had a history of hearing aid use, while nineteen (18.40%) had worn hearing aids within the last twelve months. The mean familism score was 4.04 (SD = 0.68), and the mean family support subscale was 4.07 (SD = 0.96). Hearing aid use was the only significant factor in the final model. However, PTA was independently significant when analyzed without hearing aid use, suggesting that hearing aid use may mediate or account for the effect of PTA on HHIE scores. The relationship between hearing loss and HHIE does not appear to vary based on levels of familism.Conclusion: These findings suggest that familism may not play a central role in the relationship between severity of hearing loss and hearing-related disability in older Latinos. Despite these findings, cultural values, including the importance of family, likely shape Latinos' experience of hearing loss, highlighting the need for further research to identify appropriate measures, including qualitative data, that help identify the influence of cultural values on hearing health outcomes and guide tailored interventions.

ABSTRACTS

(U) = Undergraduate ; (M) = Masters ; (D) = Doctoral

Session H-8

Behavioral and Social Sciences (G) 3
Friday, February 28, 2025 1:00 PM
Montezuma Hall

1:00 PM   47

Traumatic Brain Injuries and Violent Crime Offending: A longitudinal study of NFL Players, 1993-2023

Jackson Perry, Criminology (M)

A single head trauma can produce persistent anger, irritability, and impulsivity. Football players experience approximately 600 to 1,000 head impacts in one season. For NFL players who begin playing at a young age and completed the league average of 3.5 seasons, this could amount to over 18,000 head impacts throughout their career. Current data on NFL crime rates relies heavily on a USA Today arrest database, which provides limited insight into the association between playing professional football and committing crime. Recent comprehensive research is scarce; existing literature consists primarily of news articles and limited peer-reviewed studies, with Blumstein and Benedict's (1999) study being the only peer-reviewed research from 26 years ago. Leal et al. (2015) conducted one of the few comparative analyses between NFL arrests and general population crime rates, and discovered that while the general population shows higher rates of property and public order crimes, NFL players demonstrate elevated rates of violent crime. Their study and the USA Today database have become foundational for public understanding of NFL crime rates. However, they acknowledge their work as preliminary research intended to encourage further empirical investigation. This study analyzed data from USA Today's active player arrest records (2000-2023), newspapers.com by Ancestry news articles, and ESPN.com news articles to construct our sample. Our sampling methodology assesses the likelihood of players with a probable history of brain trauma committing reactive violent crimes. Beginning with 1993, the first year of the revised smaller draft, the study population includes 10,571 players through 2023, incorporating both drafted and undrafted rookies who played at least one game in their first season as they become former players. We compared rates of violent crimes as defined by the FBI's Uniform Crime Report, specifically examining arrests for murder, rape, robbery, and aggravated assault. This research provides a more nuanced examination of how football-related traumatic brain injuries affect aggression, impulsivity, and anger in reactive violent crimes. The impact of brain trauma intensifies with age, making data on former players particularly significant, as chronic traumatic encephalopathy (CTE) is a progressive condition that worsens over time.

1:00 PM   48

Lets Talk About It. Period(s).An SDSU Needs Assessment to Plan a Menstrual Health Literacy Curriculum

Jasmine Garcia, Public Health (Health Promotion & Behavioral Science concentration) (M)

Lack of knowledge and stigma around menstruation creates challenges related to menstrual hygiene management & reproductive health (Baird et al. 2022). Additionally, in the context of menstruating students, it has been found that menstrual pain is associated with school absenteeism (Holmes et al. 2021; Roux et al. 2023). Reproductive health literacy and menstrual health awareness play a crucial role in ensuring the health & well-being of menstruators (Cunningham et al. 2024). Research on menstrual health and literacy has primarily been conducted with the population focus on youth, and early experiences of menstruation. This has left a gap in research investigation on menstruation among young adults and how that influences their menstrual health and management.The purpose of this study is to assess menstrual literacy among San Diego State University menstruating students. This study is unique because it will inform a menstrual literacy campaign that will take place in Spring 2025, intended to improve menstrual health outcomes among SDSU menstruators. The results of this study will be used to tailor the menstrual health informational materials created that are of interest to SDSU menstruating students. This research aims to 1) identify needs on the topic of menstrual literacy among SDSU menstruating students and 2) Identify the factors that influence SDSU menstruating students' menstrual literacy. The aims were achieved through a multi-method study design that incorporated surveys and semi-structured interviews, with an approximate sample size of 45 participants. Data collection is currently ongoing, no conclusions thus far as final data collection is pending.

1:00 PM   49

Mapping the San Diego Floods of 2024: The Intersection of Media Coverage and Water Coverage

Jason Woo, Geography (M)

Anthropogenic climate change is a growing issue that will only cause more frequent and stronger extreme weather events worldwide; which was demonstrated in the January-February atmospheric river events in San Diego County. This poster presents preliminary results from a thesis project tracking the intersection of media coverage and water coverage relating to the early 2024 flooding events in San Diego County. The project uses a corpus of news articles, weather data, and socioeconomic data to create a spatial analysis of where this coverage is happening and at what intensity over time. The analysis aims to highlight environmental and social justice issues regarding media coverage of extreme weather events, demonstrating key issues for policymakers to be aware of and raising awareness about the spectacle chasing nature of media business.

(U)=Undergraduate; (M)=Masters; (D)=Doctoral

1:00 PM   50
Dynamics between Hours Worked and Self-Rated Happiness
Jerry Paras, Sociology (M)

The relationship between an individual's self-rated happiness and the number of hours worked has been extensively studied, this study will focus on how the topic has transformed post COVID-19. Using data from the General Social Survey (GSS 2022), this study explores the nuanced relationship between hours worked and self-rated happiness, identifying multifaceted external variables that significantly contribute to literature findings. The analysis utilizes OLS, ordinary least squares regression and reveals that hours worked has a minimal effect on self-rated happiness, while factors such as marital status, job satisfaction, stress reports, and self-reported mental health contribute far greater explanatory power. Variables like income, employment status, and educational attainment were found to be largely insignificant in predicting happiness. Despite its contributions, the study acknowledges key limitations, including the absence of data on workspace autonomy, social connectedness, and longitudinal dynamics, which are critical to understanding happiness over time. Nonetheless, this research highlights the pivotal role of family and psychological factors in shaping self-rated happiness, offering a more comprehensive perspective on the determinants of well-being beyond traditional economic and demographic variables. This study can uphold relevance for future research and partake in a comparative analysis between pre-pandemic data and post-pandemic data.

1:00 PM   51
School Connectedness and the Relationship to Adolescent Delinquency
Jillian O'Keeffe, Masters in Sociology (M)

Social bonds theory research suggests that stronger social relationships are related to decreased delinquency. Research has expanded into investigating the specific attachments that young people have with school connection emerging as an indicator of youth deviance. This study seeks to add to such literature while providing growth through an analysis of demographic factors and other control factors. Using a quantitative approach with data from the Future of Families and Child Wellbeing study, self-reported school connection levels and deviance in 2,554 adolescents were compared. The author concludes that school connectedness is significantly related to lower levels of delinquency. These findings suggest that fostering attachments to school may be an effective approach to targeting delinquency in school aged youth. Implications and future research directions are discussed.

1:00 PM   52
P.L.U.R. Me Baby: Kandi Coated Community and Self-Efficacy at Music Festivals
Kristina Zahabi, Communication (M)

P.L.U.R. Me, Baby: Kandi Coated Community and Self-Efficacy at Music FestivalsThe bass begins to beat against your chest as you swing back and forth to the rhythm between the guard rails and your mosh-pitted friends, gripping the cold, metal barricade for support. You look up at the stage and take in the projection of harmonies that hum in your ears and convulse their way down your body as you move exactly how the music tells you to move. You're in heaven¦ actually¦ you're at a music festival, but it's basically the same thing.Music festivals have a long-standing reputation in the public eye as sites of escapism, mind-altering substance-use, and recreational shenanigans (Abreu-Novais & Arcodia, 2013; Anderton, 2008;Ã–zdemir et al., 2024; Villalobos, 2015; Wagner, 2023). While these preconceived notions exist due in part to an amalgamation of their ancestral beginnings at the underground discotheques and modern rave culture, they are also thoughtfully constructed spaces intentionally produced by organizations in ways that advocate for mental well-being, creative self-expression, and community building (Herring, 2022; Wagner, 2023). The grounds of festivals provide a home away from home for many. The social culture surrounding music festivals are remarked for their ability to elevate mental and physical health as well as build relationships. Their craftily curated components that attract attendees of all ages, genders, sexualities, and ethnicities provide much more than what meets the eye¦ or ear.Music festivals play a significant role in sociocultural engagement yet are rarely looked upon as sites of study. The benefits of live music events expand beyond the current research. Evidence points to the physiological, mental, and sociological benefits of music festivals. Lessening the gap by studying the communicative strategies of organizations that own music festivals would allow us to further understand the potential benefits to neurological development at these sites and develop mental health initiatives to reduce the effects of mental disorders on affected populations.This study aims to identify how the communicative structures of music festivals by their organizational entities influence community belonging and impacts self-efficacy for their attendee-stake holders.RQ1: Does activity coordination at music festivals promote a more impactful sense of community between attendees?RQ2: Do attendees experience positive self-efficacy growth at music festivals? H1: Participants who score higher on the community belonging scale will also rate higher in self-efficacy.References-Abreu-Novais, M., & Arcodia, C. (2013). Music festival motivators for attendance: Developing An agenda for research. International Journal of Event Management Research,8(1), 34-48. Anderton, C. (2008). Commercializing the carnivalesque: The V festival and image/risk management. Event Management,12(1), 39-51.https://doi.org/10.3727/152599509787992616Bandura, A. (1994). Self-efficacy. In V. S. Ramachaudran (Ed.),Encyclopedia of human behavior(Vol. 4, pp. 71-81). New York: Academic Press. (Reprinted in H. Friedman[Ed.],Encyclopedia of mental health.San Diego: Academic Press, 1998).Bear, M. H., Reddy, V., & Bollu, P. C.(2022, October 10).Neuroanatomy, hypothalamus. StatPearls [Internet].https://www.ncbi.nlm.nih.gov/books/NBK525993/Bruscella, J. & Bisel, R. (2018). Four flows theory and materiality: ISIL's use of material resources in its communicative constitution.Communication Monographs, 85(3), 331-356.https://doi.org/10.1080/03637751.2017.1420907Carpiano, R. M., & Hystad, P. W. (2011). Sense of community belonging in health surveys:what social capital is it measuring?. Health & place,17(2), 606-617.https://doi.org/10.1016/j.

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(U) = Undergraduate ; (M) = Masters ; (D) = Doctoral

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1:00 PM   53

Examining Fan Reactions and Support in Response to Criminal AllegationsAgainst Celebrities

Madison Ruffin, Masters of Criminal Justice and Criminology (M)

In recent years, much attention has been paid to the alleged criminal behavior of celebrities. As a result, a mixture of responses from fans, both in support and opposition of celebrities accused of criminal behavior, has inspired a burgeoning conversation about how fans respond to celebrity allegations. While research suggests that fans with strong parasocial relationships tend to maintain support for a celebrity when problematic or controversial behavior is brought to light, little research exists that addresses how fans react when the problematic behavior is criminal. This study investigates how the strength of fandom impacts responses to allegations of criminal behavior. Using an experimental survey design that presents participants with fictional news headlines about a celebrity, and employing ANOVA techniques, preliminary results indicate that individuals presented with a positive or neutral headline regarding a celebrity saw no

ABSTRACTS

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change in their level of support. However, when presented with a negative/criminal allegation, individuals reported a decrease in their support for a celebrity. Moreover, these results are robust to the popularity of the celebrity, and when controlling for demographic characteristics. These findings shed light on the impact of criminal allegations on fandom, and contribute to literature on crime, communications, and parasocial relationships.

Session H-9

Biological and Agricultural Sciences (G) 3
Friday, February 28, 2025 1:00 PM
Montezuma Hall

1:00 PM   54

Optimizing Transduction Methods for Studying Growth Arrest-Specific 6 in Relation to TAM Receptors

Valeria Montes, Chemistry and Biochemistry (M)

Cellular events within an organism are primarily driven by biological signaling, mediated through the activation of cell surface receptors. The TAM family of receptor tyrosine kinases, which includes Tyro3, Axl, and Mer, along with their ligands Gas6 (growth arrest-specific 6) and Pros1 (Protein S), are responsible for numerous signaling pathways that play vital roles in the mature immune, reproductive, hematopoietic, vascular, and nervous systems. In particular, TAM receptor activation via Gas6 can promote cell survival, proliferation, and migration, all of which are components for cancer metastasis and progression. Although Gas6 is well characterized and known to have an affinity for Tyro3 and Axl, the precise mechanism behind how the complex forms between Gas6 and TAM remains unclear. My lab aims to elucidate the thermodynamics and kinetic properties of Gas6 membrane binding through cell studies and fluorescence microscopy, enabling real-time visualization in live cells. In these early stages of our research, we began by producing Gas6 and testing PEI-mediated and calcium phosphate transductions to study this mechanism in mammalian cells. We are currently optimizing and comparing the most efficient and effective method for our cells. The successful production of Gas6 will allow us to further our studies in Gas6 membrane binding.

1:00 PM   55

Investigating the Necessity of the Gut Microbiome in Metabolic and Reproductive Dysregulation in a Mouse Model of Polycystic Ovary Syndrome

Jada Brown, Cell and Molecular Biology (D)

Polycystic ovary syndrome (PCOS) is an endocrine disorder that affects 10-15% of women world-wide. PCOS is diagnosed using the Rotterdam Consensus with two out of three clinical features: hyperandrogenism, oligo- or anovulation, and cyst-like follicles in the ovary. Although it is a prevalent disease that increases the risk of infertility, type 2 diabetes, and cardiovascular disease, the etiology and pathophysiology of PCOS is not well understood. Numerous recent studies have demonstrated an association of the gut microbiome with PCOS in humans and rodent models of the disorder. To determine if the gut microbiome is required to develop PCOS reproductive and metabolic features, we used a PCOS-like mouse model in which four-week-old C57BL/6N female mice were given a 90-day treatment with dihydrotestosterone (DHT). The gut microbiome was depleted using an oral antibiotic cocktail. The four experimental groups included: Placebo, DHT, Placebo + Antibiotic, and DHT + Antibiotic. Body weights, food and water intake were recorded weekly, and fecal samples were collected monthly. Reproductive dysregulation was determined by assessing the estrous cycle for one week. A glucose-induced insulin secretion test and an insulin tolerance test were performed at 11 and 12 weeks, respectively. At the end of the study, mice were euthanized and tissues were collected. Antibiotic treatment did not restore estrous cycling in DHT mice; however, antibiotic treatment decreased androgen levels in DHT mice and prevented DHT-induced metabolic dysregulation including elevated fasting blood glucose. While the gut microbiome was not required for acyclicity in a PCOS-like mouse model, it was required for key aspects of metabolic dysregulation implicated in the development of insulin resistance and type 2 diabetes, suggesting that the gut microbiome plays a role in PCOS pathology.

1:00 PM   56

Characterization of a contractile injection system in a human gut bacterium

Josie Rivera Alfaro, PhD Biology (D)

Bacteroides are present in a large percentage of healthy adult microbiomes and make up a great portion of the gut microbiome. However, the mechanisms for how Bacteroides interact with their human hosts remain poorly understood. The genomes of several Bacteroides spp. encode a contractile injection system (CIS) that we suspect is involved in bacteria-host interactions. Although this system, named Bacteroidales injection system (BIS), is homologous to CIS found in other bacterial species that interact with eukaryotic partners, the structure and function of BIS has yet to be determined. In an effort to understand the BIS, visualization of the BIS in B. cellulosilyticus was achieved and potential transcription regulators were identified. We engineered strains with non-contractile BIS sheath structures with the aim of prolonging BIS duration and accumulation. We also observed through transmission electron microscopy what could be the first images of the BIS. Understanding the role of BIS in the host-microbe interactions of the human gut will help advance research in the treatment of gastrointestinal diseases as well as biomedical applications of contractile injection systems overall.

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1:00 PM   57

Advancing population genomics: A constrained admixture model for local and ghost ancestry detection

Margaret Wanjiku, Evolutionary Biology (D)

Understanding genetic diversity and population history is key to uncovering how humans have evolved and migrated over time. However, current models to estimate population structure often oversimplify things by assuming uniform ancestry across the genome using a fixed number of ancestral populations. This limitation makes it harder to detect more complex patterns across the genome, like subtle gene flow from 'ghost' pop-ulations"ancestral groups that no longer have any direct descendants we can study.Here I develop a new constrained admixture model that considers variation in population structure across different parts of the genome. Instead of assuming a fixed number of ancestral populations, this model allows the number of ancestral populations to vary locally, capturing the dynamic nature of population history more accurately. I also include a latent variable to identify contributions from ghost populations, which could help us uncover hidden gene flow events that have shaped modern genomes.I validate the model using extensive simulated data, where the outcomes can be compared to known inputs. I also apply the model to real-world datasets from the 1000 Genomes Project, to explore actual patterns of ancestry and admixture. This approach gives us a clearer picture of how modern humans and ancestral homininae interacted and evolved.

1:00 PM   58

Mapping Residual Dry Matter across California Rangelands with UAV LiDAR and Hyperspectral Imagery

Bruce Markman, Geography (M)

Residual Dry Matter (RDM) is the non-green/non-photosynthetic plant material left on the ground at the beginning of the growing season in rangelands. It is a landscape-scale estimate of aboveground biomass (lbs/acre or kgs/ha) used by agencies to guide grazing and fire fuel management across the Western United States. Estimating RDM through traditional field methods is labor, cost, and time-intensive, making large-scale sampling challenging. Studies have suggested using remote sensing to quantify non-photosynthetic vegetation biomass across rangelands and grasslands, however, little is known about the accuracy and applicability of remote sensing technologies to quantify RDM directly. Portable hyperspectral sensors capture biophysical properties such as cellulose and lignin content of dry matter using hundreds of narrow spectral channels, while UAV LiDAR provides centimeter-scale 3-dimensional structural data. This research involves correlating RDM ground-reference measurements with co-located UAV LiDAR and field spectra across the Jack and Laura Dangermond Preserve, a 24,000-acre preserve with extensive grazed and ungrazed rangelands on the Central California Coast that are managed by The Nature Conservancy. Random Forest Regression models indicate strong relationships between RDM and UAV LiDAR data (R2 = 0.90; RMSE = 8.49) and Multiple Linear Regression models indicate a moderate relationship (R2 = 0.50; RMSE = 18.61). Random Forest Regression models indicate strong non-linear relationships between RDM and hyperspectral data (R2 = 0.87; RMSE = 8.95), but weak linear relationships (R2 = 0.22; RMSE = 21.77) when evaluated with Multiple Linear Regression Models. Combining hyperspectral and LiDAR data results in slightly decreased Random Forest (R2 = 0.88; RMSE = 8.60) and Multiple Linear Regression (R2 = 0.50; RMSE = 17.47) model performance than using LiDAR data alone. The potential outcomes of this research include improved fine-scale fire fuel mapping and grazed land monitoring, as well as the ability to explore the value of field-based hyperspectral sensors and UAV LiDAR for rapid and efficient RDM quantification and forage monitoring.

ABSTRACTS

S³

Abstracts of Presentations

Session I

SDSU | San Diego State University

(U) = Undergraduate ; (M) = Masters ; (D) = Doctoral

Session I-1

Behavioral and Social Sciences (U) 7
Friday, February 28, 2025 3:00 PM
Montezuma Hall

3:00 PM   1

Examination of Racial and Ethnic Differences in Injuries Sustained Due to Use of Police Force in San Diego County

Olivia Parisette, Criminal Justice (U)

Statement of Problem: Use of police force can result in significant injuries yet potential racial and ethnic differences have not been explored in a diverse setting. I hypothesized that there will be racial and ethnic differences (Black/Latino vs. White) in the location and type of injuries male arrestees sustained due to police force in San Diego County, California. Methods: Publicly accessible data from the City of San Diego, Responsive Documents for Peace Officer Investigations and Internal Findings, were used for the current analysis. Based on in-depth reviews of written documents and photographs, I created an excel spreadsheet of data corresponding to case identifying number, date of arrest, race and ethnicity, gender, age, location of injury on body, context of injury, and nature of crime. I analyzed the quantitative data using descriptive statistics (frequencies, mean) and organized the qualitative data into categories.Results: Between 2018 and 2022, there were 25 cases reported in the database as use of police force. Of 25 cases, 4 were female, 4 did not have race and ethnicity data available, and 1 did not have photographic evidence available; yielding a total of 17 male arrestee case data for analysis. Of 17 male arrestees, 3 were Black, 5 Latino, and 9 White; in this analysis cases were categorized as Black/Latino (n=8) and White (n=9). Mean age was 46.9 years. The most frequently documented location of injuries was facial (n=10, 58.8%) consisting of cuts, bruises, knots, and swelling. The least frequently documented location of injuries were arms (n=5, 29.4%％) consisting of cuts, gashes, fractures; legs consisting of abrasions (n=5, 29.4%％); and torso, abrasions and scrapes (n=4, 23.5%). There were single cases that reportedly experienced injuries to the back, side, and brain. Nine cases (52.9%) had injuries in multiple locations of the body. There were no clear differences in location and type of injuries by racial and ethnic group.Conclusion: While my hypothesis was not supported, future research is needed in this area with a larger sample from a more comprehensive dataset.

3:00 PM   2

Confronting Prejudiced Responses (CPR): Addressing Implicit Biases and Disparities in Cardiac Arrest Survival for Women and People of Color

Raina Davis, Public Health (U)

This project,Confronting Prejudiced Responses (CPR): Addressing Implicit Biases and Disparities in Cardiac Arrest Survival for Women and People of Color, explores the intersection of implicit biases in Basic Life Support (BLS) training and their impact on cardiac arrest outcomes. Despite advances in emergency care, survival rates from out-of-hospital cardiac arrest are significantly lower for women and people of color compared to white men. Through a comprehensive literature review and critical analysis, this research investigates how biases within BLS training materials"such as limited diversity in instructional scenarios, models, and financial barriers"may contribute to these disparities by influencing bystander intervention and professional response. The project examines the psychological and social factors that drive these biases, including barriers to administering CPR to underrepresented groups. It also proposes strategies for creating more inclusive BLS training, including the integration of culturally diverse scenarios and implicit bias awareness modules. This analysis highlights the importance of revising BLS curricula to ensure equitable emergency response, with implications for public health policy and training program development. By confronting these prejudiced responses, this project seeks to promote equitable survival outcomes in cardiac emergencies.

3:00 PM   3

Booze and Boards Dont Mix: Unveiling the Risks of Impaired Riding in Alternative Vehicles on San Diego State University's Campus

Rianne Nabo, psychology (U)

Impaired transportation poses a significant risk to college students, who are disproportionately vulnerable to injuries or fatalities in such situations. While much attention is given to impaired automobile driving, alternative vehicles like skateboards, scooters, and e-bikes"widely used on San Diego State University's college campuses"remain understudied. Currently, there are no standardized tools to measure the extent or risks of impaired use of these devices. This gap in research is critical, as accidents involving these vehicles can lead to severe injuries, including traumatic brain injuries.This project aims to develop and refine a set of survey items to assess college students' use of non-automobile transportation, the social contexts in which they ride, and co-occurring risk behaviors. Understanding students' motivations, attitudes, and behaviors can inform the development of targeted prevention strategies and countermeasures to reduce risky riding practices. Using an intercept survey approach, we will pilot test these items through a Qualtrics survey, laying the groundwork for future interventions to promote safer transportation practices on campus.

3:00 PM   4

How spatial attention modulates word recognition: An event-related potential (ERP) study

Sage Placer, Psychology with an Emphasis in Neuroscience (U)

Though spatial attention, or our ability to focus on particular regions in space while ignoring others, has spawned a great body of literature, there is limited research examining this phenomenon with lexical stimuli. The P1 event-related potential (ERP) component is characterized by a positive deflection occurring around 100-130ms. Its amplitude and latency are sensitive to the visual characteristics of the stimuli, and it is the earliest ERP that is sensitive to spatial attention. More

(U)=Undergraduate; (M)=Masters; (D)=Doctoral

specifically, the amplitude of the P1 is larger when actively attending to a stimulus. This is one of the first ERP studies to use words and a blocked cueing paradigm to investigate this phenomenon. The current ERP study used English words, to explore how ERP attention effects differ as a function of visual field (i.e., left, center, right) and directional validity (i.e., attended, unattended). Data collected to date include an initial sample (n = 3 of what will be 24) right-handed, native English speakers. The experiment contained 900 trials consisting of 240 four-letter words (e.g., desk) and 60 four-character symbol strings. Participants were asked to perform a go/no-go lexical decision task where they pressed a button (go) to occasional (20%) symbol string targets (e.g. ?) in the cued location. We predicted that we would see larger P1 amplitudes to validly cued words compared to invalidly cued words. Further, this effect may be greater for words presented in the right visual field, due to either the superior language processing abilities of the left hemisphere or the right visual field advantage observed in English readers. The preliminary data suggests that there are limited P1 attentional effects. However, due to our currently small sample size, we are cautious to draw definitive conclusions until more data has been acquired.

3:00 PM   5

Prenatal Cannabidiol Exposure Alters Emotion-Related Behavior

Savana Hampton, Psychology Emphasis in Neuroscience (U)

Cannabis contains hundreds of cannabinoids, including cannabidiol (CBD), a non-psychoactive drug growing in popularity due to easy accessibility and potential therapeutic properties. CBD is increasingly consumed by pregnant women, as it is believed to be safe to use during pregnancy and effective in combatting nausea, anxiety, and pain. However, there is little knowledge of its therapeutic effectiveness or potential adverse effects on the fetus. In fact, the limited literature reports mixed effects of prenatal CBD on brain and behavioral development. This study uses a Sprague-Dawley rat model to investigate the effects of prenatal CBD on emotional behaviors. Pregnant rats were exposed to 0 or 50 mg/kg of CBD from gestational day 5-20; CBD was mixed in honey and added to a cookie dough ball for oral consumption. On postnatal day 40, offspring exposed to prenatal CBD and controls were tested on an elevated plus maze (EPM). The EPM is a Plexiglas structure 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. Subjects were placed in the EPM for a total of five minutes and their activity, including arm entries and time spent in each arm was recorded. The data were then coded using ODlog software and averaged by two independent investigators. Preliminary data suggest that prenatal CBD may increase overall activity levels, but more importantly, may alter risk-taking behavior in a sex-dependent manner. Male subjects exposed to CBD entered the open arms more frequently and spent more time in the open arms, indicating increased risk-taking behavior. Female subjects exposed to prenatal CBD spent more time in the center of the maze compared to controls, which may also indicate reduced anxiety. The

results demonstrate potential adverse effects of prenatal CBD exposure on exposed offspring. In particular, prenatal CBD may increase activity and alter anxiety-like behavior. These findings suggest that CBD use during pregnancy may impact emotional development of the fetus; pregnant women should be advised of these potential effects. Supported by Center for Medicinal Cannabis Research P64-07-001.

3:00 PM   6

Risky Sexual Health Behaviors Among Latina Immigrants

Sheccid Gonzalez, psychology (U)

The current study is a collaborative research study among three scholars that consists of a critical review of the peer-reviewed empirical literature that describes the sexual risk behaviors of immigrant Latinas in the United States. The primary purpose of the current review is to summarize the current literature on the outcomes for Latina immigrant women with respect to sexual health behaviors. A secondary aim of the current review is to uncover any unique factors of the Latina immigrant experience related to their sexual behavior.To conduct the present review, the authors compiled all primary sources from psychological journal articles on the topic of risky sexual behaviors, sexual health behaviors, and intimate partner violence for Latina women. The search strategy to identify publications used databases including PsycINFO, Medline, PsycARTICLES, and Google Scholar using key terms such as Latinas, Hispanic women, Latina women, Latinx, and Mexican, Immigrant, refugee, migrant, and asylum seeker, and were paired with keywords such as risky sexual behaviors, risky sex, unsafe sex, unprotected sex, and unwanted sex. The inclusion and exclusion criteria included only articles located in peer-reviewed journals (qualitative or quantitative in nature), books, and dissertations, and excluded sources that were conference proceedings, non-empirical book chapters, and articles that did not provide findings of sexual health behaviors. Approximately 140 articles were initially identified and evaluated in the preliminary search of primary sources, the references from within the primary sources, and cited reference searches of the primary sources were also examined to yield additional sources. Twenty-five of those retrieved met the criteria and were included in the present study. A preliminary analysis of the literature revealed a range of factors contribute to sexual risk behaviors, including insufficient testing, cultural values associated with machismo, partners who refuse to use protection, various domestic issues, sexual activity under the influence of substances or alcohol, immigration status, unawareness of a partner's HIV status, intimate partner violence, and coercion. Implications of these preliminary findings will be discussed during the presentation.

3:00 PM   7

Analyzing the Link Between Language Skills and Perception of Social Skills in Children

Simone Caruthers, Speech, Language, and Hearing Sciences (U)

It is human nature to build connections with others, and language and communication play an integral role in establishing those relationships. Consequently, language

ABSTRACTS

(U) = Undergraduate; (M) = Masters; (D) = Doctoral

deficits in children impact their ability to make friends (Fujiki et al., 1996), and might also impact their perception of that ability. The relationship between social skills and language impairment in children with developmental language disorder (DLD) has been studied extensively (e.g., Rice et al., 1991). Past studies utilized objective methods, such as behavior analysis, to analyze the connection between language and social skills in this population (e.g., Aro et al., 2011). However, limited research has considered the relation between language skills and a child's self-perception of their social skills across levels of language ability. As such, this study aims to explore whether general language ability is related to children's perceptions of their social skills. Participants in this study, conducted via Zoom, were 19 9- to -12-year-old monolingual English or bilingual Spanish-English speakers, 15 with typical language development and four with DLD. Participants were selected from a larger sample based on their responses to a survey in which children were asked to rank personal strengths and weaknesses, as well as to elaborate on their choices. Participants who reported making friends either as a weakness or a strength were included in this study's sample. We also examined these participants' language abilities using the Clinical Evaluation of Language Fundamentals - Fourth Edition (CELF-4). The CELF-4 evaluates semantics, morphology, syntax, and pragmatics to provide a holistic assessment of a child's language skills. We will examine whether children's language skills predict their perception of their social skills using linear regression. We hypothesize that a child's perception of their social skills will depend on their language skills. Specifically, we expect that children's scores on the CELF-4 will positively predict their perceived ability to make friends. This study will provide insight into the role of language skills in a child's self-perception of their social abilities and whether children's self-esteem and social skills would benefit from additional resources to improve their language skills.

Session I-2

Behavioral and Social Sciences (U/G) 1
Friday, February 28, 2025 3:00 PM
Montezuma Hall

3:00 PM   8
Promotoras in Action: The impact of Communication skills and Personalismo on participant class attendance
Vivianna Alfaro, Psychology" Industrial/ Organizational (U)

Background: Latinas report low levels of physical activity (PA), increasing their risk for obesity, cancer, and cardiovascular disease. Promotoras, or community health workers, play a key role in promoting PA. Individual characteristics such as communication skills and personalismo" cultural value placed on personal relationships"may impact participant engagement in health programming. This research examines promotoras' communication skills and personalismo as predictors of parishioner class attendance in a church-based, promotora-led

PA program. The present study explores: 1) how do communication skills and levels of personalismo correlate with parishioner class attendance?, and 2) how do communication skills correlate with the relationship between personalismo and parishioner class attendance?Methods: Promotoras (N=8) completed surveys self-assessing communication skills via the Communicative Competence Scale (CCS), a five-point likert scale, and Personalismo using a domain of the Multiphasic Assessment of Cultural Constructs-Short Form (MACC-SF) with True-False response options. Parishioner (N=164) class attendance was collected by the promotoras in each PA class (6 classes/week across the course of 12 months).Planned Analysis: A moderated multiple regression analysis will be performed in R. Participant attendance at 12 months is the criterion variable, with personalismo and communication style at 6 months serving as the predictor variables. Research hypotheses are: 1) Communication skills and higher levels of personalismo will predict higher parishioner class attendance 2) Communication skills will strengthen the predictive relationship between personalismo and parishioner class attendance. Implications: Findings aim to address gaps in research about characteristics associated with promotora efficacy in participant engagement and health promotion. This research could inform future strategies for promotora-led programs by providing guidance to inform necessary skill assessment during the promotora hiring and training process.

3:00 PM   9
Ethical, Legal, and Social Issues (ELSI) in GeoAI Applications: A Case Study of Studying Homelessness in San Diego
Alexandra Nguyen, Big Data Analytics (M)

Geospatial artificial intelligence (GeoAI) includes the integration of location-based data with algorithms to discover insights, enable predictions, and automate processes. Although there are many positive implementations, such usage brings attention to the ethical, legal, and social issues (ELSI) that may arise. This paper will discuss privacy and safety concerns, along with potential solutions, generally within GeoAI applications and specifically relating to a case study of the homeless population in San Diego County. This study will examine possible consequences of GeoAI"primarily with regards to privacy and accuracy. Location data often includes sensitive information. This information can be misused by nefarious parties for stalking and harassment. Such instances have occurred by social media influencers who have filmed pranks on unsuspecting housing-insecure individuals, further stigmatizing an already vulnerable group. To mitigate such attacks, privacy is an important consideration when studying the unhoused population. Privacy can be preserved by lowering the accuracy of location data, but doing so may come at the cost of misidentifying or misclassifying homeless encampments/zones. As a result, resources could be diverted to incorrect areas and affect service distribution from response efforts. Thus, considering ELSI, especially for those unhoused, is of utmost concern when utilizing GeoAI applications.

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3:00 PM   10
Validating a Measure of Innovation-Values Fit in Faith-Based Organizations
Andrew Salcedo Alvarez, Psychology MA (M)

Introduction: Innovation-values fit, the degree to which an intervention aligns with individuals' values, is a key factor in the successful implementation of evidence-based interventions (EBIs) within organizational settings. However, the absence of validated measures for assessing innovation-values limits the ability to understand 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 innovation-values to enhance the reach of community health EBIs. This study sought to validate a measure of innovation-values tailored to churches implementing EBIs. Methods: A sub-sample dataset of church members enrolled in a large, cluster randomized trial aimed at implementing a faith-based physical activity promotion EBI for Latinas was used (N = 189, M age = 49.44 years, SD = 11.06). The data includes baseline survey data on innovation-values for implementation of the EBI at their church. An exploratory factor analysis (EFA) consisting of 7 items was conducted using principal axis factoring with direct oblimin rotation to determine the inclusion of variables in factor interpretation. Results: The EFA results suggested a one-factor solution that explained 77.10% of the variance, with factor loadings ranging from .80 to .92, indicating strong relationships between the items and the underlying construct. The identified factor was labeled as innovation-values fit. Discussion: Overall, the EFA results demonstrated that our measure of innovation-values fit in churches holds promise for understanding the alignment of church values with health programs and the role this may play in implementation in FBOs. This measure addresses a significant research gap by validating a scale designed to evaluate predictors of implementation outcomes in FBOs. Validated scales that assess the barriers and facilitators to implementing EBIs in community settings are essential for advancing the effective dissemination and implementation of EBIs and addressing health disparities among underrepresented populations.

3:00 PM   11
Evaluating Employee Engagement and Streamlined Communication in Government Health Agency
Andres Huizar, Master of Public Health - Health Promotion and Behavioral Science (M)

This program evaluation explores the impact of the Employee Engagement Initiative within the Office of Equitable Communities (OEqC), a division of the County of San Diego Health and Human Services Agency. The Employee Engagement Initiative is a leadership-driven effort designed to address communication challenges among staff identified in an agency-wide employee survey. These challenges include gaps in communication clarity, engagement, and inclusivity among staff. Using qualitative analysis through focus groups, the evaluation investigates the perceptions of communication processes, engagement strategies, and inclusivity practices, in both line staff and leadership. Findings highlight the initiative's role in fostering transparent, intentional, and streamlined communication while enhancing employee empowerment and inter-office collaboration. The study provides actionable recommendations for improving communication channels, feedback systems, and employee engagement to strengthen organizational performance.

3:00 PM   12
Regional Differences and Spatial Clustering in Defining the American Identity
Ashar Abdallah, Social Psychology (M)

In an increasingly diverse and dynamic United States, it is necessary to understand conceptions of American identity, as it is clear that there is not one unified perspective. A relative consensus that liberalism and civic republicanism norms should shape American identity, emphasizing unity while maintaining diversity, has been previously suggested. Prior research has primarily focused on individual-level analysis in understanding the variables that account for different traditions of American identity. In contrast, the present research aims to examine county-level spatial clustering and regional variations in defining the American identity. We relied on data collected using Project Implicit between 2004 and 2016. The data were aggregated at the county level (N = 1,929 counties). Counties were included if they had at least 10 participants. Regions were defined by the Census Bureau designated nine regions. Three factors of American identity (civic attachment, religious affiliation, and nativism) were measured by 10 self-report items assessing what defines a true American. ANOVAs were utilized to test for differences among the nine American regions, and Moran's I was used to test for spatial autocorrelation among counties. The importance of civic attachment, religious affiliation, and nativism to American identity all varied significantly and were spatially clustered across U.S. regions. Among the three factors, nativism" speaking English, being born in the U.S., and having American citizenship" held the most importance in defining the American identity across the United States. This was followed by civic attachment and religious affiliation respectively. Although religious affiliation was the least important factor to American identity nationwide, it had the greatest spatial autocorrelation among the three factors measured. Counties who place importance on being Christian and believing in God tend to be neighbored by counties that similarly value these traits. This study illustrates that a geographical perspective can enrich our understanding of how conceptions of American identity vary across contexts. There is a meaningful spatial structuring of the variations in how American identity is defined.

3:00 PM   13
Prenatal Exposure to Cannabidiol: Effects on Sleep
Ashley Nechyba, MA in Psychology (M)

Cannabidiol (CBD) is found in cannabis and has been broadly marketed as a treatment for anxiety, depression, and sleep disorders, which may be seen as appealing to pregnant people. However, little is known about the effects of prenatal exposure

ABSTRACTS

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to CBD, including the effects on sleep, even though sleep is critical to neurodevelopment and health outcomes throughout life.The present study used an animal model to examine sleep in adolescent offsprings exposed to prenatal CBD. Pregnant Sprague"Dawley dams were exposed to 0 or 50 mg/kg/day CBD via oral consumption of a cookie dough ball from gestational days 5-20. During adolescence, sleep was assessed in prenatal CBD exposed female and male offspring for 6 nights using the non-invasive Adapt-A-Base Piezo Sleep System. Variables recorded included sleep time, bout length, and bout number by sleep interval during the dark cycle (active period), light cycle (inactive period), and 24-hour periods. Preliminary results indicate that males exposed to prenatal CBD slept more than controls. In particular, they slept an average of 30 minutes more during each dark cycle. In contrast, females exposed to prenatal CBD had longer sleep bouts, but no increase in overall sleep duration during the dark cycle. These preliminary findings suggest that prenatal CBD alters sleep in adult offspring in a sex-dependent manner. Interestingly, prenatal CBD led to increased sleep during the dark cycle which is the active period for rodents. The consequences of such an increase in sleep are not known, particularly since we find cognitive and emotional changes in these offspring. It is possible that increased sleep represents reductions in anxiety, altered brain function, or even compensatory effects. Given that sleep is important to overall development, altered sleep has the potential to improve or disrupt other domains. As CBD gains popularity, future studies should focus on prenatal CBD exposure, sleep, and sex differences to safely inform pregnant people.Supported by: Center for Medicinal Cannabis Research P64-07-001

3:00 PM   14

Impact of a Latina mother-daughter physical activity program on girls physical activity and body appreciation: Findings from a single-arm pilot study
Athena Cisneroz, M.A. in Psychology, Physical and Mental Health Research Emphasis (M)

Background: Latina youth living in the U.S. disproportionately engage in low levels of physical activity (PA). Declining PA rates during adolescence suggest pre-adolescence as a pivotal age to target PA promotion. Research indicates that body appreciation (BA)"a positive body image"and PA enjoyment (PAE) may support sustained outcomes of PA promotion programs.Conmigo Is a 12-session, culturally tailored PA promotion program targeting parent-child communication and correlates of PA, such as body image, as mechanisms of change for PA among Latina mother-daughter dyads. This study evaluated the impact of an in-person version of Conmigo on PA and correlates of PA, consisting of BA and PAE, among Latina pre-adolescent girls.Methods:A single-arm pilot study evaluated an in-person version ofConmigodelivered at schools in San Diego, CA. Self-identifying Latina girls attending school in San Diego were eligible. Participants completed pre- and post-program surveys in their language of preference (Spanish or English). Surveys assessed demographics; self-reported BMI; PA, using theFamily Life, Activity, Sun, Health, and Eating Scale; BA, using the Body Appreciation Scale-2; and

PAE, using the Physical Activity Enjoyment Shortened scale. Dependent-samples t-tests assessed changes in PA, BA, and PAE among participants with complete data using RStudio. Results:A total of 38 Latina girls (Mage = 9.26 Â± 1.33;MBMI = 24.32 Â± 7.07) participated.Significant increases in PA following completion of program activities,p= .001, and BA,p= .04, were found. No significant changes in PAE,were detected.Conclusions:Participating in the in-person version ofConmigowas associated with increased PA among pre-adolescent Latina girls. Significant improvements in correlates of PA were found for BA, but not PAE. Including body image as a target in PA promotion programs may lead to improved PA and BA. Future research should test the efficacy of the in-person version ofConmigousing a large-scale randomized controlled trial.

Session I-3

Behavioral and Social Sciences (G) 5
Friday, February 28, 2025 3:00 PM
Montezuma Hall

3:00 PM   15

Neural Measures of Semantic Context Processing in People at Clinical High-Risk for Psychosis
Sidney Horne, Psychology (M)

BackgroundUnderstanding language requires more than simply knowing and accessing the definitions of individual words. Rather, extracting meaning from language also requires establishing and maintaining context across words and time. It is well established that linguistic stimuli (e.g., words or pictures of objects) that mismatch what is expected based on the preceding context elicit an event-related potential (ERP) component known as the N400, a large negative deflection that peaks around 400 milliseconds after the presentation of a semantic mismatch (see Swaab et al., 2012, for a review). Previous research has shown people with schizophrenia often show a reduction in the amplitude of the N400, reflecting a failure to maintain context that may underlie language and thought disturbances prevalent in the disorder (O'Donnell et al., 2012). The goal of the present study was to assess whether deficits in maintaining semantic context as indexed by the N400 are evident in adolescents who are at high-risk for developing schizophrenia and related psychosis disorders (i.e., individuals at clinical high-risk (CHR) for psychosis).MethodsData from 40 healthy control (HC) participants and 36 CHR individuals were included. Participants completed a word-pair judgment task while EEG was recorded. On each trial, a prime word presented in red was followed by a target word presented in green. Participants responded whether the target word was semantically related (50% of trials) or unrelated (50% of trials) to the prime word. The mean amplitude of the N400 was measured in ERP waveforms time-locked to the onset of the target word and averaged separately for semantically related and unrelated trials.ResultsAn N400 was observed starting around 200 milliseconds after the onset of the target word on trials in which the target was semantically unrelated to the prime in both HC and CHR participants. The

ABSTRACTS

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N400 to semantically unrelated words was significantly reduced in CHR individuals compared with HC participants, reflecting an impairment in individuals at CHR for psychosis in maintaining semantic context.ConclusionsThis study provided evidence for a deficit in semantic contextual processing in individuals who are at risk for a psychosis disorder, similar to deficits found in individuals after disease onset. These results may provide an important biomarker for assessing risk for developing psychosis during the prodromal phase.

3:00 PM   16

How does gender affect the perception of credibility of sports announcers?

Sienna Perez, Graduate (M)

The field of sports media is heavily dominated by men, with women making up about 10% of the workforce, despite the increase of interest in this domain amongst women (Mudrick et al., 2017). This study involved secondary analysis of data from an online experiment that explored the role that gender plays on the perception of credibility of sports announcers. In a 2x2 independent groups factorial design, 37 participants (73% female, 27% male) were randomly assigned one of four videos showing clips from either a professional softball or baseball game. Each sport had one video with the voice of a male sports announcer and one with that of a female sports announcer. The original study focused on credibility as a whole, while the current study conducted further analyses to examine three aspects of credibility (qualification, dynamism, safety), and the influence of sport knowledge on perceived credibility. It was hypothesized that the female sports announcer would be rated with higher scores in qualification and dynamism when commenting on the sport typically played by women, and the male sports announcer would be rated with higher scores in qualification and dynamism when commenting on the sport typically played by men. Two-way ANOVAs showed a significant difference in qualification scores between the male and female sport announcers (with the female sport announcer receiving higher qualification scores), but not in dynamism or safety scores. In addition, the type of sport did not have a significant effect. Also, in multiple regression analyses, sport announcer gender had a significant effect on the qualification scores (female higher), but knowledge of the sport did not play a significant role. It is possible that participants generally do not have the same views on source credibility and gender for baseball/softball compared to sports that have been more heavily researched in this area (e.g., basketball, football). Also, participants in this study were primarily college-aged and female; further research should be conducted to examine whether additional differences exist by participant age or gender and with larger samples.

3:00 PM   17

A Program Evaluation of SDSU's Health Expo

Sudha Singh, Masters of Public Health - Health Promotion and Behavioral Science (M)

Problem Statement Current literature confirms that college students face various health issues, including poor dietary behaviors, sleep problems, and psychological stress. Although university campuses provide health and well-being resources, they are not utilized due to a lack of knowledge and uncertainty around healthcare quality and logistics. Health Expo/Fair events may reach the student population and can be used to disseminate information about health-related resources to improve student health outcomes. However, more research needs to be conducted on how students engage with these university health-related events so that universities can better serve the student population.Program Description The San Diego State University (SDSU) Health Expo is an annual Well-being & Health Promotion Department (WHP) event that brings together on-campus and local community health and well-being resources in one place for all students to learn about available health-related resources. The Health Expo aims to increase student utilization of university health & well-being resources and inform students about resources off campus. The 2024 Health Expo occurred on April 9th, 2024, on the North Library Walkway from 10 am to 2 pm. The event comprised 37 vendors organized down the length of the Love Library, creating a hallway of vendors that funnelled students through and exposed them to health resources on both sides. Twenty of these vendors were local community organizations, and 17 were on-campus. Vendors came from different SDSU health-related organizations (including registered student organizations [RSOs]) and San Diego County community health and well-being organizations (See Appendix Figure 1 for a full list of vendors). The list of vendors has been generally the same since the SDSU Health Expo began in 2017. Not only does this event provide student exposure to many on- and off-campus health & well-being resources, but it is also a great way for W&HP to reach many students in one day. SDSU students checked in at one of the two check-in tables to participate in the event. Check-in procedures included receiving a punch card to be punched by the health-related vendor tables they visited. To incentivize students to visit more tables, returning a punch card to the check-in table with 6 punches resulted in entering to win a raffle prize. Further, they would receive an additional prize of Health Expo-branded reusable silverware, SunBum sunscreen, and a Health Expo-branded apple stress ball. A total of 158 punch cards were returned.Purpose Statement The purpose of this project was to evaluate the SDSU Well-Being and Health Promotion Department's Health Expo. The evaluation will assess students' engagement with the various health-related vendors and evaluate their health-related knowledge, attitudes and practices with the various health-related resources before and after attending the event. This project is important because it will help SDSU's Well-Being and Health Promotion department measure which populations the Health Expo event is reaching and if students are learning about on-campus and local community health and well-being resources. The results of this project will be used to inform future Health Expo events. The following aims and objectives outline the project's purpose and how they were measured:Aim 1: To determine whether students attending the Health Expo represent the SDSU student population.Objective 1: Conduct comparison tests to determine whether the demographic characteristics of Health Expo attendees are equivalent to those of the SDSU student population at large.Aim 2: To evaluate how

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students engage with the various health-related vendors at the Health Expo.Objective 2: Evaluate students' engagement with the various health-related booths at the Health Expo through a direct observation assessment.Aim 3: To determine if a change in students' health-related knowledge, attitudes, and practices results from attendance at the Health Expo event.Objective 3: Assess students' change in knowledge, attitudes, and practice regarding resources the organizations are promoting at the Health Expo event through a pre-test and post-test survey.

3:00 PM   18

Linguistic Attitudes and Perceptions of Indigenous Languages Among Students and Professors at a private University in Oaxaca City

Vanessa Castro, Spanish (M)

Oaxaca, Mexico, is one of the most linguistically diverse states in the country, having over 15 indigenous languages: Mixe, Chocholteco, Mixteco, Triqui, Chatino, Amuzgo, Cuicateco, Ixcateco, Chontal, Mazateco, Zapoteco, NÃ¡huatl, Zoque, Huave, and Chinanteco (INPI | Instituto Nacional de los Pueblos IndÃgenas). These languages, when including their numerous variants, number a total of 176 (INPI | Instituto Nacional de los Pueblos IndÃgenas). In Oaxaca, these indigenous languages coexist not only with Spanish but also with languages such as English, French, and Italian. Given this rich linguistic landscape, the current ongoing study aims to explore the linguistic attitudes and perceptions of bilingual school teachers in the region toward these various languages.This investigation focuses on the BA Language Program at a private university in Oaxaca City, which prepares students to be a language teacher or translator after their studies are completed. Students in the program are required to take two years of a native (indigenous) language and can choose to study either Zapoteco or Mixteco. Through interviews I conducted with the two main indigenous language instructors in this program, as part of fieldwork conducted in Fall 2024, I found that students are allowed to use all of their linguistic repertoires (for example, Spanish, Zapotec, English) in class.. Moreover, the instructors unanimously expressed their belief that the revitalization of (local, indigenous) languages is important due to the state in which they live and the communities surrounding the area, and discussed the problematic perceptions often held by the general public and the government, who often do not value the local native languages. Additional preliminary findings suggest that bilingual education in Oaxaca primarily focuses on Spanish and English (or sometimes French), with little emphasis on the integration of indigenous languages. To further this research, I plan to visit a community several hours away from the city, where bilingual education systems that incorporate both indigenous languages and Spanish have been successfully revitalized, in order to gain deeper insights into the linguistic attitudes and perceptions of teachers in these areas. References:INPI | Instituto Nacional de los Pueblos IndÃgenas. (n.d.). Oaxaca. Celebra La Cdi El DÃa Internacional de la Lengua Materna. gob.mx.

https://www.gob.mx/inpi/prensa/oaxaca-celebra-la-cdi-el-dia-internacional-de-la-lengua-materna Key words: linguistic attitudes, linguistic perceptions, bilingual education, language teaching, lexical borrowing.

3:00 PM   19

The relationship between school belonging and peer victimization among Gender-Sexuality Alliance student members during COVID-19

Andy Lim, Joint Doctoral Program in Public Health (Health Behavior) (D)

Background: School belonging - the extent to which students feel accepted and supported in their school social environment - is linked to psychosocial, academic, and behavioral health outcomes. Many lesbian, gay, bisexual, transgender, and queer youth report diminished school belonging due to peer victimization. As affirming extracurricular groups for LGBTQ+ youth and allies, Gender-Sexuality Alliances (GSAs) provide opportunities for LGBTQ+ youth to provide and receive support. Importantly, GSAs offer leadership opportunities, which may promote belonging by increasing connection and commitment to school. This study examines the relationship between school belonging and victimization and whether GSA leadership moderates this relationship.Methods: Survey data from a 2021-2023 multi-site study of educational and positive youth development outcomes among GSA members were examined cross-sectionally. Descriptive statistics characterized the sample, and bivariate analyses investigated relationships between school belonging, victimization, sociodemographics, and study site. Multiple ordinal regression models examined the relationship between school belonging tertiles and victimization score. Leadership mean score was examined as a potential moderator via interaction terms. Results: The sample (N = 561) was diverse (46% youth of color, 59% transgender, 71% LGBQ+). School belonging was neutral (M = 3.32, SD = 0.96, Range: 1-5), and leadership experiences were low (M = 1.18, SD = 1.27, Range: 0-4). Among respondents, 50% reported past-month victimization (18% physical, 34% verbal, 34% exclusion). Controlling for sociodemographics and study site, the odds of lower school belonging were 1.38 times higher (95% CI: 1.23, 1.47) per 1 unit increase in victimization score (p < 0.0001). Leadership score was nonsignificant as a moderator (p = 0.87). As a covariate independent of victimization, leadership score was significant (p = 0.0004), with each 1 unit increase associated with 0.81 times odds of lower belonging (95% CI: 0.70, 0.94). Post-hoc models examining individual leadership activities as moderators were nonsignificant (p = 0.31, 0.79, 0.37, 0.96).Discussion: Victimization was significantly associated with lower school belonging among GSA students, and this relationship did not vary by leadership level. Future studies should identify GSA activities that enhance student well-being and explore strategies to mitigate victimization and promote school belonging.

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3:00 PM   20

Barriers, Facilitators, and Recommendations for Participation in PrEP Well: A Community-Led PrEP Implementation Project at a Transgender and Non-Binary Community Center

Carrie Nacht, PhD Public Health (D)

Background. Transgender and non-binary (TGNB) individuals are disproportionately impacted by HIV. Although pre-exposure prophylaxis (PrEP) effectively prevents HIV infection, PrEP uptake and adherence remains low in TGNB communities. This qualitative study explored participants perspectives on the community-developed PrEP Well program, which implemented PrEP services in a TGNB community center. Methods. Approximately 90 days after enrollment in PrEP Well, participants completed an exit interview discussing factors that influenced program participation and suggestions for program improvement. Interviews were audio-recorded, transcribed, translated to English if necessary, and de-identified. Thematic analysis was used to code interviews and identify key themes. Results. Twenty-five participants completed exit interviews. We identified seven themes. Key facilitators of PrEP Well participation included 1) TGNB-centered environment and team, (2) peace of mind and increased autonomy over health, and (3) favorable program and incentive structure, which had two subthemes: fun and convenient, and reducing struggles for financial and housing instability. Barriers to participation included (4) fear of PrEP-related side effects and (5) inconvenience of communication and cumbersome logistics of PrEP services. Recommendations to improve PrEP Well were to (6) create a one-stop-shop to reduce participant burden, and (7) expand program timing, structure, and dissemination. Conclusions. TGNB clients approved of PrEP Well as a whole. Clients reported liking that it was trans-centered, evident by taking place in a TGNB community center and providing incentives from trans-owned businesses. Future iterations of PrEP Well should aim to incorporate all related services in one physical location and to expand the program reach.

Session I-4

Physical and Mathematical Sciences (G) 1
Friday, February 28, 2025 3:00 PM
Montezuma Hall

3:00 PM   21

Continuous flow synthesis of borohydride-reduced citrate-capped silver nanoparticles

Christopher Turchiano, Chemistry (D)

Silver nanoparticles exhibit electronic and optical properties that make them suitable for spectroscopic and biomedical applications. Silver has a large positive reduction potential (Ag+ â†' Ag0, EÂ° = +0.799 V); thus, it is readily reduced by many reducing agents, such as sodium borohydride (EÂ° = -0.481 V). The mechanism by which reduced silver ions proceed to form silver nanoparticles is not entirely understood. Here we describe a flow-pump synthesis of silver nanoparticles and the spectroscopic investigation into the mechanism of their formation. We hypothesize that silver atom and/or silver hydride clusters exist in the early stages of silver nanoparticle formation. Fast UV/Visible absorption spectroscopy can support in identifying such intermediate species by probing the synthesis at different stages throughout nanoparticle formation. In this method, a mechanical syringe pump is used to inject silver ions and borohydride into a cuvette positioned within a UV/Visible spectrometer. By adjusting the amount of time between reaction initiation and the measurement, we are able to measure the absorption profiles of different species throughout the formation process. Ultimately, identifying these short-lived intermediates will allow for an improved description of the mechanism of borohydride-reduced silver nanoparticle formation and can lead to to improved control over nanoparticle synthesis and scalability.

3:00 PM   22

IDH1 R132Q: X-ray Crystallography Reveals Active Site Remodeling

Matthew Mealka, Chemistry/Biochemistry (D)

Human Isocitrate Dehydrogenase 1 (IDH1) is the cytosolic enzyme of the IDH family. It is responsible for catalyzing the reversible oxidative decarboxylation of isocitrate (ICT) to Î±-ketoglutarate (Î±KG) in a reaction that depends on NADP+ and metal ions. In many cancers, mutations in IDH1 typically occur at the arginine residue that coordinates isocitrate in the enzyme's active site. These mutant IDH1 enzymes acquire a new function, enabling the reduction of Î±KG to the oncometabolite D-2-hydroxyglutarate (D2HG). To cultivate a deeper insight into the production of D2HG, we sought to study the variant R132Q, which uniquely maintains weak conventional activity, while exhibiting enhanced neomorphic activity towards the production of D2HG. Because the variant R132Q can exhibit both conventional and neomorphic catalytic activity, we pursued X-ray crystallography to facilitate comparisons against wild-type IDH1 and the most common mutant R132H. Here we demonstrate that co-crystallization experiments yielded an extensive array of complex formations, with varying degrees of conformational features that offer insight into the driving forces responsible for the conventional and neomorphic reactions. Structural comparison between ICT-bound WT and R132Q enzymes displayed nearly identical hydrogen bonding networks within the closed form of the active site, yet compared to WT, R132Q exhibits a substantial decrease in catalytic efficiency for the conventional reaction. Coupled with isothermal calorimetry experiments, this is suggestive that the hydrogen bonding networks alone are insufficient in maintaining catalytic competency for the conventional reaction. Distinct structural features were observed in the two Î±KG-bound R132Q. The 8VHB dimer contained one bound Î±KG molecule in the active site, while

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the second monomer contained an Î±KG-NADP adduct. Measurements between each of the monomers showed that Î±KG-bound R132Q structures exhibited a degree of quasi-closed conformations when compared to that of the ICT-bound WT and R132Q structures, which display fully closed conformations. The second Î±KG-bound structure, 8VHA, displayed several conformational features among the two dimers contained in the asymmetric unit of the crystal. One dimer contained an Î±KG-NADP adduct bound, while the adjacent monomer contained a bound Î±KG molecule in the active site. Both monomers exhibited the intermediate conformation between the open R132Q:NADP(H) and the closed R132Q:NADP(H):ICT:Ca2+ structures. The second dimer contained one Î±KG-NADP adduct coordinated in the active site of one monomer, while the second monomer only contained a calcium ion. This dimer closely resembled the catalytically competent state observed in the R132Q:NAD-P(H):ICT:Ca2+ and WT NADP(H):ICT:Ca 2+ structures. Over the years, enormous efforts have been dedicated to characterizing structural and catalytic features of IDH1 WT and the most common tumor-driving mutation, R132H. Structural work on IDH1 R132Q has provided a valuable opportunity to probe the fine-tuned structural adjustments required to maintain catalytic activity within the active site of IDH1.

3:00 PM   23

Elucidating the Mechanism of Enantioselective Cyclopropanation"Ring Expansion of Indoles to Quinolines

Nilay Dogan, Chemistry / JDP with UCSD (D)

The cyclopropane ring is an important moiety in organic chemistry, distinguished by its unique reactivity and well-defined three-dimensional structure. As the smallest carbocycle, it plays a significant role as an intermediate in atroposelective skeletal editing reactions, expanding the toolbox for the synthesis of enantioenriched, pharmaceutically relevant scaffolds. Herein, we report a novel reaction that selectively converts indoles into 3-carboxyquinoline via a cyclopropanation"ring expansion mechanism. This process involves a transition-metal carbenoid intermediate generated by the dirhodium(II) complex Rhâ,,(S-PTAD)â,„ and a bromo diazoacetate, which exhibits versatile and valuable catalytic properties.Using density functional theory (DFT) calculations, we demonstrate that the enantioselectivity of the reaction is controlled by the cyclopropanation step, facilitated by the asymmetric dirhodium complex, and that the atropisomerism is preserved during the subsequent ring expansion step due to its significantly lower free-energy barrier compared to that of the racemization process. Furthermore, we employ DFT calculations to investigate the substituent effects on the enantioselectivity, revealing a strong correlation between the enantiomeric ratio and the free-energy barrier difference between the ring expansion and racemization steps.

Session I-5

Behavioral and Social Sciences (G) 4
Friday, February 28, 2025 3:00 PM
Montezuma Hall

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Breaking Barriers: The Role of COSA San Diego in Facilitating Reentry for Individuals with Sexual Offenses

Malia Kohls, Criminal Justice & Criminology (M)

People returning from long prison sentences are often met with a plethora of obstacles upon their reentry into the community, including navigating new social relationships, job searching, adapting to changes within society, and combating negative stigma. These barriers are often multiplied for those convicted of a sexual offense, making reentry even more challenging. Circles of Support and Accountability (COSA) San Diego offers tools and assistance to returning individuals via restorative justice circles to aid them in their reentry process, including social support and engagement with community members. The current study presents findings from circle observations and interviews with men participating in COSA about their reentry experience and how COSA has supported them in their process. Our findings highlight which aspects of social support are most crucial to individuals convicted of a sex offense upon their return to their community.

3:00 PM   25

The Role of Self and Partner Objectification in Body Image Outcomes in Sexual Minority Men

Nicole Nazareth, Psychology Masters (M)

Background: Sexual minority men experience higher levels of body dissatisfaction compared to their heterosexual counterparts. According to objectification theory, sexual minority men are often perceived as sexual objects, which can have lasting effects on mental health and lead to the objectification of others, including sexual partners. The present study examined the role of self and partner objectification on mental health, including body image, in sexual minority men. Method: 449 sexual minority men (aged 18"35) who were at elevated risk for body image concerns participated in the study. Baseline data from the Partner Objectification Questionnaire (POQ) (assessing current or potential sexual partners), the Self-Objectification Questionnaire (SOQ), the Body Dissatisfaction subscale of the Eating Pathology Symptoms Inventory (EPSI), the Dysmorphic Concerns Questionnaire (DCQ), and the Depression, Anxiety, Stress Scale (DASS-21) were used, and a hierarchical multiple regression analysis was conducted.Results: Significant negative associations were observed in Step 2 of the regression after controlling for self-objectification. Higher levels of partner objectification were

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related to lower levels of body dissatisfaction (b = -.090, 95% CI [-.150, -.031], SE = .030, Î2 = -.164, p = .003). Additionally, higher partner objectification was also associated with lower body dysmorphic disorder symptoms (b = -.060, 95% CI [-.112, -.009], SE = .026, Î2 = -.126, p = .022,), and lower levels of depression (b = -.158, 95% CI [-.282, -.034], SE = .063, Î2 = -.139, p = .012,) and anxiety (b = -.119, 95% CI [-.211, -.026], SE = .047, Î2 = -.140, p = .012).Conclusion: Elevated partner objectification could reflect downward appearance comparisons, whereby individuals increase their self-regard by comparing themselves to sexual partners who are perceived as less desirable than themselves. This could possibly lead to decreased body image concerns and negative affect. Higher partner objectification may confer greater attention to perceived physical flaws in their partner. Finding their partner attractive while also identifying perceived flaws could contribute to a more accepting approach to participants' own appearance and therefore lower body image concerns and negative affect.

3:00 PM   26

Using Family Structure to Contextualize the Effects of SES on Vocabulary

Noemi Garcia, M.A. Psychology (M)

Including diverse samples of children in developmental research necessitates a broader range of demographic data than is typically reported to contextualize results and inform generalizability (Singh et al., 2023). Emphasis is placed on considering the cultural relevance of demographic characteristics. We focus on socioeconomic status (SES) in our study of early conceptual vocabulary in a sample of English monolingual, Spanish monolingual, and Spanish-English bilingual children. SES influences resources and opportunities available (Hammer, 2023), which affects cognitive development and early language skills (Brito & Noble, 2014; Lecheile et al., 2020; Kluczniok & Mudiappa, 2019). Studies have investigated the influence of family structure variables (i.e., household size and adult-to-child ratio) on children's vocabulary with mixed findings (Havron et al., 2022; Poudel et al., 2023). Household size may help clarify how a family's income is distributed across individuals and adult-to-child ratio may help characterize how caregiving is distributed within the home. Put another way, household size refines SES directly whereas adult-to-child ratio contextualizes SES effects on the childrearing context. In our mixed sample, including cultures where shared living is common (Calzada et al., 2012), we anticipate family structure to reflect cultural variation within SES. We constructed an SES variable including household size, and modeled prediction from SES and adult-to-child ratio to conceptual vocabulary size. We anticipate that SES and adult-to-child ratio will be significantly related to vocabulary size and that SES and adult-to-child ratio will interact. Participants are 70 typically developing children (31F, Mage=34.27mos, Range=18 to 60) and their caregivers. Language, health,

household, and SES characteristics (income, education, and household size) were assessed via survey. Vocabulary was assessed using the Web-based Computerized Comprehension Task (Friend et al., 2023) and either the Receptive One-Word Picture Vocabulary Task (Martin & Brownell, 2011; Brownell, 2012) or the MacArthur-Bates Communicative Development Inventory (Marchman et al., 2023). Raw scores were combined to form a language factor. Two regression models were estimated. Model 1 assessed the contributions of SES and adult-to-child ratio to variance in conceptual vocabulary, controlling for age, sex, and birth order. Model 2 assessed the interaction of SES and adult-to-child ratio using the same control variables. In Model 1 (F5, 64=29.900, R2=.700, p<.0001), SES was positively related to vocabulary size (t=3.11, p=.003), indicating that children from higher SES homes tended to have larger vocabularies. Adult-to-child ratio did not significantly predict differences in vocabulary in this model (t=-.130, p=.895). However, Model 2 (F6,63=27.730, R2=.725, p<.0001) revealed a significant and positive interaction between SES and adult-to-child ratio (t=2.400, p=.019), indicating the effect SES has on vocabulary is more positive for children from homes with greater adult-to-child ratios and less positive for children from homes with lower adult-to-child-ratios. Our study underscores the importance of considering family structure alongside SES when examining early language development. Future research should investigate how adult-to-child ratios within different SES contexts influence language outcomes and explore culturally relevant strategies to support families in optimizing opportunities for children.

3:00 PM   27

Beyond the Count: A Qualitative Approach to Understanding Homelessness in San Diego

Olivia Pugsley, Public Health (M)

In 2014, there were 8,506 homeless individuals in San Diego County. A decade later, that number has risen to 10,605 (Regional Task Force on Homelessness). Why is homelessness continuing to increase, and why do so many individuals remain without permanent shelter?Current methods for assessing homelessness, such as Point-in-Time (PIT) counts, focus solely on quantitative data, providing a snapshot of the unhoused population at a single point in time. While useful for understanding the scale of the issue, these counts fail to capture the underlying reasons why individuals become homeless and remain unsheltered. Furthermore, PIT counts are conducted only once a year, require substantial resources, and depend on hundreds of volunteers.To address these limitations, the San Diego Homeless and Health Equality Research Team (SD Heart Consortium) at San Diego State University is leading a novel qualitative survey. This initiative aims to look beyond the numbers, offering a deeper understanding of the systemic factors that contribute to homelessness and the challenges faced by unsheltered individuals.Through this qualitative

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survey, we will identify risky areas, essential needs of homeless individuals, and potential relocation options. By engaging directly with the unhoused population through field-based interviews, we aim to understand the motivations behind their living situations and the challenges they face.The survey includes questions on demographics, living conditions, health and well-being, reasons for homelessness, access to services and support, education and employment, safety, and future plans. The data collected will provide a better understanding of the socio-environmental determinants and impacts of homelessness on local communities in San Diego.The insights gained will support the development of decision support systems and policy recommendations for local policymakers and healthcare management staff. These tools will enable more comprehensive and targeted support for the unhoused population in San Diego County, ultimately leading to informed strategies for addressing homelessness and its primary drivers.

3:00 PM   28

Pathways to Progress: Empowering the Middle Eastern/MENA Community in San Diego

Rita Herfi, Big Data Analytics (M)

This project aims to focus on the Middle Eastern/MENA community in San Diego, identifying and addressing the challenges they face in integration and migration through in-depth interviews and data analysis. Our primary objective is to bridge existing gaps by leveraging analytical tools and resources to create a more accessible, resource-rich environment. This initiative seeks to provide individuals with reliable, tailored information to empower and uplift the community.The research is developed by researchers at the Metabolism of Cities Living Lab under the Center for Human Dynamics in the Mobile Age at SDSU. The CHIARA Project (https://chiaraproject.metabolismofcities-llab.org/) initiative focuses on women of the Middle Eastern community in San Diego, CA" a diverse and often under-recognized population, with the largest concentration located in the city of El Cajon. Despite their growing presence, the challenges faced by this community are frequently overlooked. Many women and children are discriminated against because of their appearance (i.e. with religious coverings), immigration/refugee status and ability to adapt to the environment and culture quickly. According to a Sceince Direct article, Almost half (44.9%) of working age Arab American women hold bachelor's degrees or higher, 91% are American citizens, 58% are native born and 78% report speaking English very well, all of which suggest advantageous conditions for their labor force participation. However, their labor force participation rates (51%) are below the totals of most other groups of women in the US (U. S. Census Bureau, 2013) (Borenstein, Kessler, & Schainker, 2015). This can lead to denials of aid with healthcare and government assistance, as well as job security.A key focus of

the project is addressing the education gap, which significantly impacts workforce participation, contributes to pay disparities, and leads to higher unemployment rates. Additionally, we will examine how discrimination exacerbates these challenges, further hindering the community's socioeconomic progress. In collaboration with local organizations, we will gather and analyze data to gain a deeper understanding of the evolving needs of the Middle Eastern/MENA community. By doing so, we aim to develop actionable insights and solutions that foster equity, inclusion, and opportunities for growth applying the United Nations sustainable development group principle of Leave no one behind. (https://unsdg.un.org/2030-agenda/universal-values/leave-no-one-behind)Borenstein, J., Kessler, S. S., & Schainker, R. A. (2015). The impact of product innovation on competitive advantage. Technovation, 39-40, 30-40. https://doi.org/10.1016/j.technovation.2015.03.003

3:00 PM   29

Can we believe everything we think we see? How the cross-race effect impacts the wrongfully convicted

Rowan Konstanzer, Criminal Justice and Criminology (M)

Eyewitness identification is heavily relied upon during the conviction process, but when looking at data from the National Registry of Exonerations run by the University of Michigan Law School, it is apparent that a large portion of exonerations are due to false eyewitness identifications. Using this data, we are able to examine the cause of any given wrongful conviction case in order to determine the largest contributing factor. False eyewitness identification is something that repeatedly causes innocent people to be convicted of crimes. Annual reports of the exonerations show that cross-race identifications are more likely to result in a wrongful conviction than an identification across the same race. Using this information, we analyze the racial percentages within exonerations granted in the last year to determine the rate at which the cross-race effect is present in an exoneration case.

3:00 PM   30

Altered visual white matter connectivity to the posterior superior temporal sulcus in children and adolescents with autism

Savannah Scarlett, Master's of Arts in Psychology (M)

Autism spectrum disorder (ASD) is a neurodevelopmental condition characterized by social communication difficulties and repetitive and restricted behaviors. Atypical social functioning can be detected in early childhood and manifests in a variety of forms. In particular, individuals with ASD often have impairments in using and interpreting social cues, which are essential for understanding the emotions, intentions, and actions of others. The ability to efficiently recognize social

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cues relies on the perception of biological movements, such as facial expressions, eye gaze, and body language. The posterior superior temporal sulcus (pSTS) is a critical brain area involved in processing biological motion. Neuroimaging and neuroanatomical tracer studies have shown a white matter pathway that projects from the early visual cortex to the pSTS. While atypical pSTS function has been reported in ASD, little is known about the white matter connectivity supporting this region and its links to autism symptoms in children with ASD. This study utilized archival diffusion MRI data acquired in a cohort of children and adolescents with ASD at SDSU between 2010 and 2019. The cohort includes 62 children with ASD (15 female, 47 male) and 35 typically developing (TD) children (5 female, 30 male), aged 7 to 19 years. A standard preprocessing pipeline was used on the images and included denoising and correction for head motion and image distortion. After performing whole-brain probabilistic tractography, streamlines were filtered using a region-of-interest-based approach to identify the pathway between the occipital cortex and pSTS. Tract measures (fractional anisotropy [FA] and mean diffusivity [MD] were averaged across all streamlines sampled on the diffusion scalar maps. An ANCOVA analysis was conducted to determine differences in average FA and MD between children with ASD and TD children, including age and in-scanner head motion as covariates. Preliminary results indicated that in both the left and right hemispheres, children with ASD had significantly reduced FA and higher MD, suggesting altered microstructure of this pathway bilaterally. These findings indicate that impaired occipital-pSTS tracts could be a potential biological basis of impairments in social perception in children with ASD.

Session I-6

Business, Economics and Public Administration (U/G) 1
Friday, February 28, 2025 3:00 PM
Montezuma Hall

3:00 PM   31
Board Composition of Closed-End Funds
Daniel Diner, Finance (U)

This study examines the composition and trends in board demographics among 130 closed-end funds, focusing on key attributes: age, gender, time with the fund, professional backgrounds, and independence status (independent versus interested). By analyzing these factors, the research provides descriptive statistics and evaluates changes over time, shedding light on the evolving dynamics of board composition and governance. These results contribute to understanding broader governance practices and initiatives within the closed-end fund industry.

3:00 PM   32
Disparities in Social Security and Medicaid Program Participation among Same-sexvs Different-sex Couples: Evidence from COVID-19 Pandemic Shocks
Nathan Rosenthal, Economics: Specialization in Quantitative Analysis (U)

The growing proportion of individuals identifying as LGBTQ+ as well as disparities in equity of access to assistance programs highlights the need for data-driven insights into LGBTQ+ and non-LGBTQ+ individuals. Due to the identification strategy, LGBTQ+ and non-LGTBQ+ are analyzed by proxy through same-sex and different-sex couples, respectively. This study provides key insights into the demographic and socioeconomic make-up of same-sex vs different-sex couples, as well disparities in participation rates of Supplemental Security Income (SSI), Social Security Disability Insurance (SSDI) and Medicaid between same-sex and different-sex couples. Analysis from this study is important for the creation of effective policy and provides the basis for future research into this area.

3:00 PM   33
Key Insights into Tax Filing and Financial Planning
Ayoob Abed, Masters in Accounting-Taxation (M)

1. Securing the Future of InheritorsPlacing assets in a trust can help avoid probate, ensuring heirs receive their inheritance without delays or excessive legal costs. Strategies include:Joint Ownership: Simplifies the transfer of property without probate.Beneficiary Designations: Ensure all retirement accounts (e.g., pensions, 401(k)s, IRAs) have updated beneficiary forms.Payable-on-Death (POD) or Transfer-on-Death (TOD) Accounts: Eases the transfer of funds in bank accounts.Revocable Living Trusts: Provides flexibility and avoids probate for larger estates. 2. Planning for Retire-mentRetirement security requires proactive contributions to tax-advantaged accounts: 401(k) Contributions: Maximize employer matches and make catch-up contributions if over 50.IRAs: Consider traditional or Roth options based on current and expected future tax brackets.Health Savings Accounts (HSAs): Use for tax-free medical savings and withdrawals for qualified expenses. 3. Leveraging Tax Deductions and CreditsItemized Deductions: Consider mortgage interest, state/local taxes, and charitable contributions.Tax Credits: Utilize the Child Tax Credit, Earned Income Tax Credit, and education-related credits to reduce your tax liability directly. QBI Deduction: For self-employed individuals, claim the 20% deduction for qualified business income.

3:00 PM   34
Fear Campus mapping
Avery Kryger, Information systems (U)

Through the use of cognitive mapping, students and faculty are able to physically draw or circle where on campus they

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choose to avoid. This can be because of personal experience or because of an experience they heard. The purpose is to highlight areas that need better infrastructure or monitoring for students to feel safe.

3:00 PM   35
A Week of Creative Expansion for Emerging Artists
Lana Moss, Applied Design - Emphasis in Jewelry and Metalworking (U)

This synthesis of research comes from experiences of 15 SDSU Jewelry Co-op members who attended New York City Jewelry Week (NYCJW), focusing on how the event impacted members' understanding of the jewelry industry, their creative development, and their engagement with contemporary design. NYCJW allowed students to attend jewelry exhibitions, artist talks, panel discussions, and intimate studio tours focusing on a range of different facets of the jewelry industry from different perspectives. This allowed students to foster a deeper appreciation for craftsmanship and design while allowing them to interact with those involved in the jewelry industry. Through attending workshops and networking events, members gained valuable insights into the intersection of art, business, and technology in the jewelry world and its most recent innovations. This research highlights how exposure to diverse styles and techniques, as well as interactions with established and emerging designers, broadened participants' perspectives and sparked new creative ideas. The NYCJW programming also allowed students to interact with the greater jewelry community which reinforced the importance of collaboration and mentorships in the field. This research underscores the significance of immersive experiences in professional development, demonstrating how attending major industry events like NYCJW can shape the future of emerging jewelers and promote a more inclusive, diverse, and innovative industry.

3:00 PM   36
A New Brain: From Sketch to Stage, How's it Made?
Tamarra Sylber, MFA in Design and Technology (M)

I will be presenting my work on the SDSU 2024 fall musical, A New Brain. As the technical director I am the specialized project manager responsible for budgeting and figuring out how to build the designer's vision. I will be showing technical documentation of my budgeting, scheduling, and drafting processes along with build and production photos of the final product. My goal is to bring awareness to the creative opportunities and points of intersection in the arts and sciences. It takes an analytical and mathematical mind along with quick problem solving skills in order to bring these creative worlds to life.

Session I-8, I-9, I-10, I-11

SDSU VISTA Poster Presentation Exhibits (U) 1-4
Friday, February 28, 2025 3:00 PM
Montezuma Hall

San Diego State University (SDSU) is committed to making education accessible to all, including individuals experiencing incarceration. Through Valuing Incarcerated Scholars Through Academia (VISTA), SDSU offers two Bachelor of Arts (BA) degree programs inside Centinela State Prison. The first VISTA cohort began in 2023 with an Interdisciplinary Studies degree, followed by a Journalism degree in 2024. These programs embody SDSU's belief that education transforms lives, fostering growth, leadership, and community inside and outside prison walls. We are happy to share that SDSU-VISTA scholars will be represented at the 2025 SDSU Student Symposium (S³) through research posters.

Session I-8

SDSU VISTA Poster Presentation Exhibits (U) 1
Friday, February 28, 2025 3:00 PM
Montezuma Hall

3:00 PM   49
Dungeons and Dragons
Tai Abreu, Journalism and Media Studies (U)

This project hopes to identify the prosocial effects of participating in the tabletop roleplaying game known as Dungeons & Dragons®. The author performed a meta-analysis of research papers on EBSCO© using the Boolean-paired search operator "Dungeons & Dragons" AND "Psychology", and then filtered the information found in those papers through their own 20+ year history as a participant in the hobby. The poster project accompanying this abstract resulted, wherein findings indicated numerous prosocial benefits of participating in the hobby – cooperative behavior, conflict resolution skill development, and more – and key characteristics of those likely attracted to the hobby were also identified. This work seeks to demonstrate the psychological and social value of the hobby in a carceral setting, highlighting its ability to bring people together and teach them skills that are vital for successful reentry into society. This project can help smooth the road for future enthusiasts and demonstrate for administrative and correctional staff the value of promoting such a hobby.

3:00 PM   50
Rehabilitative Properties of the Arts
Rubén Alarcón, Journalism and Media Studies (U)

Arts programs have been present in California's prisons long before the Department of Corrections added "Rehabilitation" to its name, and they are a proven tool in working toward recovery. Larry Brewster has conducted several studies on the effects arts programs have on incarcerated individuals.

ABSTRACTS

(U)=Undergraduate; (M)=Masters; (D)=Doctoral

This study seeks to connect Brewster's findings in The Impact of Prison Arts Programs on Inmate Attitudes and Behavior: A Quantitative Evaluation to participants' self-reported benefits of arts programs. Brewster's study used a survey adapted from the "Life Effectiveness Questionnaire," measuring time management, social competence, achievement motivation, intellectual flexibility, emotional control, active initiative, and self-confidence. This study surveyed 20 incarcerated people who had previously participated in various arts programs to assess the benefits they gained from their participation. The findings show study participants' responses align with Brewster's findings. The results illustrate insight from the participants, which is a factor in rehabilitation, and demonstrate the effectiveness of prison arts programs.

3:00 PM   51
Low Self-Esteem:
The Hidden Public Health Problem
Bryant Barraza, Interdisciplinary Studies (U)

The trajectory of people's lives is a matter of self-esteem. This project set out to research the prevalence of low self-esteem (LSE) prior to incarceration, which led to designing a social impact campaign to help address determinants of LSE. If you have high self-esteem, you are likely to feel competent and worthy. If you have low self-esteem, you are more likely to feel incompetent, unworthy and insecure. LSE is primarily linked to child abuse. It has a long-term impact on our children but a longer impact on the state: it affects our health care system, our schools, and populates prisons. LSE has a strong correlation to mental disorders, substance abuse, and criminal behavior. The research surveyed 100 randomly chosen incarcerated individuals. Results were 94% of participants had experienced at least a one-year span of LSE prior to incarceration. Additionally, 78% of participants indicated that their experiences with LSE were directly related to the choices and behaviors that led them to prison. Results support existing studies that suggest LSE has a positive correlation to criminal behavior and can be a predictor to incarceration. These findings reveal the need to address determinants of LSE. In response to the findings, the presenter designed a social impact campaign called Nourish. The campaign promotes nourishing self-esteem, educates the public on the consequences of child abuse, and intends to eradicate societal problems. Using interdisciplinary knowledge of graphic design, media, and communication, the presenter designed wordmark, brand mark, and combo logos for the campaign. LSE is a hidden public health problem because of its long-term effects on people and the state. Focus needs to be placed on addressing the primary determinant of LSE - child abuse. Nourishing healthy self-esteem would vastly reduce the need for incarceration and save the state a fortune.

3:00 PM   52
The Power of Education:
Rehabilitation vs Recidivism
E'drick Brown, Journalism and Media Studies (U)

In an attempt to try to comprehend the disparities between rehabilitation and recidivism, peer-to-peer interviews and data collected through surveys were scrutinized and it was determined that education is the #1 combatant to recidivism. Since 1980, the state of California has built 22 prisons compared to just one university. These alarming stats are due to discriminatory laws that enable mass incarceration along with non-existing rehabilitative opportunities for offenders. Subsequently creating a revolving door. The California Department of Corrections and Rehabilitation bases recidivism on the number of incarcerated individuals who were convicted of subsequent crimes within three years of their release from state prison. In the U.S. alone, approximately 68% of people are rearrested within that three-year benchmark of their initial release. Within the first year, 57% of those reoffended. In the year of 2004, CDCR adopted the "R" to its acronym to represent rehabilitation as another direct approach to combat the recidivism rate. By an incarcerated person participating in academia, and/or self-help programs during their term of incarceration, that effort alone reduces their chances of recidivating by up to 51%. Not only does education provide the incarcerated population with skill sets which increase employment opportunities by 13%, it also increases an individual's self-worth. Research indicates that every dollar invested in prison education programs save the taxpayers upwards of five dollars. These findings reaffirm that rehabilitative programming effectively redirects antisocial norms created by institutionalization, ultimately replacing negative warped belief systems with prosocial ideologies.

3:00 PM   53
The Art of Rehabilitation
Phillip Christianson, Journalism and Media Studies (U)

Good afternoon. My name is Phillip Christianson, and I am with the JMS VISTA program. My presentation is on the art of rehabilitation. Art is an excellent way for people to cope with pain and release the emotions that they have suppressed within themselves. Art therapy is a valuable tool to individuals who do not seek help outside their own cell. I had a questionnaire sent to 50 different incarcerated individuals that posed two questions: 1. What art style do you prefer?, and 2. Do you feel that doing an art form has helped, or would help, your rehabilitation? The findings were clear – most surveyed individuals do perform some type of art, and a large number of these individuals participate in more than one art form. Most individuals feel that art has been beneficial to their rehabilitation. Being able to cope with certain traumas they have caused, or were done to them, allows these individuals to recover through a positive means. Since it can be difficult for many incarcerated to seek that help from an outside source, art allows them to take steps forward in their rehabilitation.

3:00 PM   54
Bentham & Foucault's Vision for the Future of Corrections: Discursive Formation Theory and the Panopticon
Jamie Creech, Interdisciplinary Studies (U)

Foucault's Discursive Formation Theory provides valuable insight into the evolution of correctional education and

ABSTRACTS

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rehabilitative programs in American penitentiaries. His theory emphasizes how language, ideas, and structures shape knowledge and societal norms across different historical periods. One of the most significant developments in prison reform was Jeremy Bentham's panopticon, proposed in 1798, which introduced the concepts of surveillance and rehabilitation over retribution and punishment. This model established a system in which incarcerated individuals were under constant observation, reinforcing behavioral control through the perception of being watched. Foucault expanded on these ideas in Discipline and Punish: The Birth of the Prison, where he examined discursive practices—the language and ideologies that define institutions such as prisons, medical clinics, and mental hospitals. His work reveals how these practices enable power structures that shape individual behavior and societal expectations. In modern corrections, transformation is not solely about institutional restructuring but rather the development of self-awareness and personal agency. Programs that teach soft skills such as negotiation, interpersonal communication, and conflict resolution contribute to this shift, reinforcing rehabilitation as a core principle of correctional education. Over the past 40 years, the U.S. prison system has seen a growing emphasis on educational and rehabilitative initiatives. Innovative programs now provide incarcerated individuals with opportunities for insight, personal growth, and reintegration into society. By fostering self-reflection and critical thinking, these programs align with the rehabilitative mission envisioned by Bentham and Foucault, shaping a more progressive approach to incarceration.

3:00 PM   55

Smart Phones: Effects on Face-to-Face Interactions
Ian Ellis, Interdisciplinary Studies (U)

This literature review aimed to determine smartphone's effects on face-to-face interaction using thematic analysis. This research is important because with the emergence of technological innovations, the arrival of unpredictable, inescapable and far-ranging consequences is expected. Face-to-face interaction has many benefits including boosting mood, reducing stress and helping us build a sense of community. Phubbing (the combination of two words, snub and phone) is a new phenomenon that emerged and is becoming prevalent. This behavior occurs when a person ignores their real-world interaction in favor of their phone. Recipients of this behavior have reported lower relationship satisfaction and hurt feelings. In spite of phubbing's effects, the animated Spiderman movie normalizes this behavior when Spiderman phubbs the villain as they fight. FOMO (fear of missing out) is another troubling condition experienced by those who develop excessive smartphone use. The uneasiness felt during FOMO is adversely affecting peoples' attentiveness in a conversation. Competing with the smartphone to gain a persons' attention makes the process more challenging. Smartphones are adversely affecting face-to-face interaction and other implications of this research include diminished communication skills, lower self-esteem, lower relationship satisfaction, new etiquette norms (phone on table while eating with friends?) and decreasing attention spans.

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3:00 PM   56

Does the Education of Incarcerated Individuals Have an Effect on Society?
David Fitzgerald II, Journalism and Media Studies (U)

The higher education of incarcerated individuals has been in the spotlight for many justice-impacted people over the last few decades. From educational programs for the incarcerated being granted up until the 90s, the revocation of Pell grants for the incarcerated and elimination of many educational programs inside prison, back to the reinstatement of Pell grant funding for incarcerated people and the creation of educational programs in 2023. The decision to reinstate funding for higher education in prison will have a profound effect on society and this was the question I posed for my audience, "Does the Education of Incarcerated Individuals Have an Effect on Society"? To answer the question posed in this poster presentation I relied on 3 academic journals as well as my own personal experience in the justice system. This can be found in the methods section of the poster. I begin my presentation by laying out some of the costs of incarceration on society, from reduced rates of employment, higher recidivism, and less social engagement. This information can be found in the background section of the poster. I then lay out the benefits of educating an individual in prison. Some of these benefits are the skills that are learned such as hard skills like reading and writing to soft skills like empathy, creativity, compassion, and responsibility. These skills, once learned, can have transformative effects on the individual and their communities once the individual is released back to society. There are many studies looking into the benefits of education on individuals in prison but the academic journals I chose to prove my point encompass everything I wanted to say. I know from personal experience that education can instill a sense of self-worth and pride in an individual because it has done this for me. Education has allowed me to grow into a problem-solving critical thinker with self-esteem and self-worth. I now have pride and respect the person I have become through my educational achievements. I know education can transform an individual because it has transformed me. I have been disciplinary free since the day I started pursuing my education and I only get better with the more I learn. One thing is certain, I could have never done it without education. I put it all together in my conclusion section and state all the things education can be to an individual, especially in prison, but most of all what education means to me, is HOPE!

3:00 PM   57

Social Lens: The Social Theories that Explain how Society Changes and Functions
Erick Fuentes, Journalism and Media Studies (U)

This creative project explores the three major sociological theories. It is a simple breakdown of Structural Functionalism, Symbolic Interactionism, and Conflict Theory. By presenting

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these theories in an informative manner, its purpose is to bring awareness to how these theories view society. The work aims to evoke a desire for contribution to society and invite viewers to question their own roles in society.

3:00 PM   58

English Only Curriculum for Non-English Speakers in ABE Facilities: Examining Communication and English Hegemony in a Prison Education Context

Swan Galarze, Interdisciplinary Studies (U)

Background/Objectives: Historically, educational institutions in the United States have worked as a means of perpetuating English hegemony. The literature examining the type of communication, English-only curricula and their impact on English-Language Learners (ELLs) in schools is vast; however, there is a lack of research conducted on adult basic education (ABE) facilities within California prisons. This study aimed to explore how individuals communicate in a California prison ABE context, and examine the perceived challenges or advantages of an English–only curriculum. Methods: In-person and correspondence based, (n=13) semi structured interviews were conducted with 13 employees of the California prison education system and students receiving ABE assistance. The data were analyzed using thematic analysis. Findings: Three themes emerged from the analysis. Theme 1, Expectations and cultural assimilation, showed participants' emphasis on motivation and the responsibility of ELLs for language acquisition. Theme 2, Equity in education, identified participants' desire for equity, reflecting the negative impact the current English-only curriculum has on ELLs; also highlighting the importance and need for curriculum inclusivity. Theme 3, Power and compliance, participants' responses demonstrated the power dynamics influencing communication and the meanings constructed from it. While some participants voiced criticism of the system's handling of ELLs, all participants reflected (at different levels) adherence to institutional guidelines. Discussion: Findings suggest that regardless of attitudes toward ELL responsibility or the need for curriculum inclusivity, the California prison ABE system maintains conditions that make English language acquisition a necessity for non-English speakers. In addition, power played a significant role in different communication contexts. While participants in positions of power uphold existing communication systems, others expressed resistance through vocal criticisms of structural limitations and ELL accommodation.

3:00 PM   59

To Do or Not to Do

Rigoberto Ganceda, Journalism and Media Studies (U)

The mindset of a number of incarcerated individuals is still entrenched in criminal thinking. They are holding on to the warped beliefs that led them to prison to begin with. This research focuses on Dr. Carol Dweck' theory of Growth and Fixed Mindsets. Through her studies of human motivation she wrote Mindset: The New Psychology of Success. Literature review on Dr. Dweck' theory brought light to the fact that a number of incarcerated individuals were progressing through the fixed mindset by asking themselves the hard questions

they once avoided. When the incarcerated population is able to understand that their thinking habits can change, society is safer for it. By developing a growth mindset an incarcerated individual will come to believe that their basic qualities are not set in stone, they can be refined through effort. By using the vibrant split complementary colors of yellow, red-violet, and blue-violet the presentation is a visual demonstration of the powerful impact that a growth mindset can have on an individual. The mindset that is willing to turn from fixed to growth will face their fears and change their ways. The lie that colors define is replaced with the truth that all colors are radiant and worthy. The incarcerated population can adapt and change, turning from criminality to a pro social extension of the communities they came from. When taught that intelligence can be developed, and they are not their worst mistake

3:00 PM   60

The Impact of Transformative Curriculums on the Incarcerated through The Change Parallel Project A Nonprofit Organization

Marlon Gray, Interdisciplinary Studies (U)

This study examines the impact of peer-to-peer transformative curricula on incarcerated individuals through the Change Parallel Project, a nonprofit organization specializing in the development of transformative curricula. The research explores how self-help programs influence personal growth, behavioral change from criminal thinking, and post-incarceration outcomes. Findings - achieved through 12-sessions with a 15-person group, for a 9-month duration, consisting of storytelling, dialogue, and journaling - indicate that a structured curriculum facilitated by peers, motivates critical thinking, emotional intelligence, and a sense of self-worth among participants. A substantial percentage of individuals reported behavioral change, improved decision-making skills, and increased motivation for rehabilitation. The study highlights the necessity of educational interventions within correctional facilities and advocates for policy changes to integrate peer-to-peer-transformative learning into rehabilitative programs. By focusing on the needs and outcomes of incarcerated learners, the Change Parallel Project demonstrates that reconnecting with one's humanity can be a powerful tool for breaking cycles of incarceration and preparing incarcerated persons for reintegration into society. The importance of this study correlates with social justice reform and the reduction of recidivism. Incarcerated persons are reintegrating into society, and it is the intention of the Change Parallel to equip these formerly incarcerated men and women with the skills and tools to succeed post-incarceration. Today's incarcerated person is tomorrow's neighbor - in any community.

3:00 PM   61

Human Exploitation and Trafficking Stoppage (H.E.A.T.S.) / Influencing Motivating Productive And Constructive Thoughts (I.M.P.A.C.T.)

Floyd Greene, Journalism and Media Studies (U)

As a currently incarcerated man at Centinela State Prison, I observed the growing problem of Human Trafficking and Fraud impact our communities and country in so many ways

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it's hard to ignore even when it doesn't affect you directly. However, there has been over 500 million invested by our local government along with private companies to combat this problem. The issue is, a large portion of the money earmarked for the eradication of this problem is going to policing. We know that crime and punishment is a system that doesn't work without rehabilitation programs, changing the way someone who commits crime thinks and sees the world. Over-policing without rehabilitating those who actually commit crime is a flawed system and designed to fail. H.E.A.T.S. I.M.P.A.C.T. is just that, a rehabilitative program geared towards those who commit crimes of Human Trafficking and/or Fraud in order to reshape the way those who have the capacity to commit crime see the world around them. To invest so much money in just the prosecution and imprisonment of those who commit these crimes without changing their state of mind towards the criminal acts they commit, is only perpetuating the very behavior the justice system is attempting to correct. H.E.A.T.S. I.M.P.A.C.T. provides the avenue for rehabilitation in an environment that doesn't have a rehabilitative group for this section of criminal classes and reduces recidivism. Thank you and please feel free to submit any questions you may have.

3:00 PM 62
Non-Verbal Artifacts and Their Effects on Academia
Jason Hernández, Interdisciplinary Studies (U)

The author seeks to determine whether a correlation exists between nonverbal artifacts and distraction in academics, as nonverbal communication accounts for 70% of the message humans convey. This research poster employs quantitative research through a survey conducted in the field of academics, specifically at the Centinela Desert Institute. The survey questions explore how nonverbal artifacts affect academia. Are students and instructors distracted or preoccupied by certain emblems, religious symbols, and sports gear? Do certificates and diplomas displayed on classroom walls enhance the credibility of instructors? After reviewing the 173 survey responses received, the author concludes that nonverbal artifacts do indeed affect both instructors and students in academic settings. Nonverbal artifacts can disrupt communication channels and impact focus in the classroom setting.

Session I-10

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Montezuma Hall

3:00 PM 63
With Liberty and Justice for All? The Case for Incarcerated Voting Rights
Silas Johnson, Interdisciplinary Studies (U)

Voter rights suppression in the United States is as American as apple pie. During the Constitutional Convention in 1787, the "Three-Fifths Compromise" stated that enslaved people be

counted as three-fifths of a person for the purposes of taxation and representation in the House of Representatives. This gave slaveholding states disproportionate power in the federal government. This research examines how current incarcerated voting restrictions revokes American citizenship, and defers political power to the elite. It also builds a case that as a result, the "Three-Fifths Compromise" has expanded beyond Blacks to all impoverished minorities, by swapping the label of slave to "criminal." Research included an examination of the Three-Fifths Compromise, Incarcerated Voter Rights in the Czech Republic, and The Voting Rights Act of 1965. My findings uncovered that impoverished minorities are incarcerated at disproportionate rates, that incarcerated voter suppression undermines The 1965 Voting Rights Act, and is tantamount to citizenship revocation, and a racialized voting system that mirrors a century-old (and defunct) communist Czechoslovakia, more than a 21st century democratic America. I conclude that voting rights are an integral part of American citizenship, reintegration and socialization.

3:00 PM 64
Finding a New Normal: Protecting our Mental Health
Gabriel Lira, Interdisciplinary Studies (U)

In a world full of misconceptions, what does it mean to be normal? The aim of this project is to increase the awareness of mental health within academic settings. Research has shown an alarming number of students seeking wellness solutions in the hopes of reducing the daily stressors of being full-time scholars. Moreover, mental health is a taboo topic, making it difficult for those who are seeking treatment. This phenomenon affects many campus students and California prison residents alike. The current era holds its share of challenges, and more so for those individuals who face the stigma associated with mental health. Due to the stigma associated with mental health disorders, many people face ridicule on and off campus institutions. Moreover, students who struggle with academic deadlines would benefit from solution center workshops. Such amenities would include Nurture by Nature, a setting with comfortable furniture while soaking in the sun, clearing your mind as you sit in tranquility (Alpha Chamber, and Wall- Art, Mental Motivation). By creating a culture of well-being, we set a foundation that will foster a need to implement solution centers that all students can benefit from. Mental health should be a priority in our lives, and I will continue advocating for those who need a voice. With the approach that I am proposing, I will help defeat the stigma that has overwhelmed our student population.

3:00 PM 65
How Materiality Can Shape Identities
Cesar Martinez, Journalism and Media Studies (U)

How do objects, ideas, beliefs, and behaviors become tangible, and how do they influence our actions, identities, and perspectives through materiality? Examining our perceptions and practices is key to understanding how these dynamics have shaped the roles and self-concepts we inhabit—psychologically, physically, and culturally. This development is contingent on the modalities and spaces

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in which these elements are cultivated. This presentation explores how teachers, students, subjects, objects, and space collectively shape educational environments and learning experiences in carceral settings. Furthermore, it examines the ineffectiveness of outdated penal reform models, highlighting how long-standing perceptions of reformation have perpetuated systemic failures for centuries.

3:00 PM   66
Love Thine Ocean: Clean It Up
David Olvera, Interdisciplinary Studies (U)

The ocean covers more than 70% of the earth's surface. It's home to 94% of earth's wildlife, and produces 70% of earth's oxygen. However, up to 12 million metric tons of plastics are dumped into the ocean every year, some releasing chemicals that affect the ocean's ability to produce oxygen. This is why we must clean it up, protect it, and preserve it for our posterity.

3:00 PM   67
12-Steps of Destruction: An Apologetic Discourse on the Dangers of the Vagueness of "God as We Understand Him"
Jaime Ozaeta II, Interdisciplinary Studies (U)

The purpose of this research was to find the source and reason for the vagueness of God as we understood Him. Methods of research; peer-reviewed articles on EBSCO, literature review, periodical review, and Biblical analysis. Within many of the 12-Step programs, we find these axioms, once an addict always an addict and anything can be your Higher Power. This and the belief that an addict is always an addict is theologically, ethically and dangerously wrong. That is due to the vague use of God found in the 12-Step. Findings, the God spoken of within the 12-Steps is the God of the Bible: Yahweh, Jesus, and Holy Spirit. Conclusion, the 12-Steps transgress and contradict the ambit of Biblical nature and healing power of God. This researcher encourages everyone to read the Bible to know God and receive His transformative power.

3:00 PM   68
The Effect Higher Education in a Carceral Setting has on Society
Shawn Powell, Journalism and Media Studies (U)

This campaign seeks to empower all people to contribute in the cleaning of the world's oceans of all the pollution it is currently contaminated with using a new innovative icon. The purpose of the new icon is to raise awareness in a refreshing way by moving away from the outdated and loosely used icon, that is the red circle with the slash. Regularly used for prohibiting many things. The new Icon I have created uses attractive colors that includes a meaningful message using an eye-catching custom font as well as an image that illustrates very clearly the focus of the problem.

3:00 PM   69
To Understand the Viking Age We Must Understand Intercultural Tensions between Economics, Religion, Communication, and Warfare
Joseph Rice, Interdisciplinary Studies (U)

This poster is an accumulation of facts developed from my literature review paper with the goal of gaining a better understanding of just how deeply rooted the Viking culture has had on northern Europe. I focused on three intercultural challenges the Vikings faced when in contact with separate cultures: cultural shock with the Muslim culture, a privilege-disadvantage dialectic with Christian England, and assimilation with the Frankish culture. I began by answering the question of how does a Scandinavian fishing and trading society transform into the piracy, looting, and slave trading Vikings that we know today. The Muslim contact elicited trade devaluation of Scandinavian goods stimulating a transformation of societal values in order to meet the new slave demands of the Muslims. A thirst for Muslim silver led to an overhaul of the Scandinavian social structure with states controlled by groups of men called Magnates. These Magnates organized bands of men to set sail the North Sea to pillage and plunder in search for riches and slaves. This new Scandinavian social structure are the Vikings that we are so familiar with today. Separate magnate groups began their raiding expeditions along the coastlines of Francia and England. Viking and English contact caused a privilege-disadvantage dialectic as the Christians of England felt the illiterate Vikings inferior resulting in a war of religious ideologies. Instead of fighting the Vikings, the Franks decided to assimilate with the Vikings by giving a magnate named Rollo land and marriage with a princess of Francia for his conversion into the Christian religion. The Vikings eventually conquered the English and converted to Christianity. As generations passed Francia grew in power culminating with Rollo's direct descendent William the Conqueror, invading and conquering the Viking controlled England. William the Conqueror brought new values such as the centralization of royal power and the commercialization of the economy. In conclusion, Viking Culture is ingrained in the entire fabric of Western culture through the power of commercialization. As seen today in the American and European economic structure and contract laws of America's legal system.

Session I-11

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3:00 PM   70
The Effects of Childhood Trauma
Arturo Suarez, Journalism and Media Studies (U)

This may then evolve into a movement and brand allowing us to hold beach or ocean cleaning events to remove pollution and most importantly plastics from the world's oceans but it

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all begins with a new image, a fresh way of looking at things. According to National Geographic, The first plastics were invented in 1869 to create a substitute for Ivory. Now, there is so much plastic in our oceans they are destroying entire ecosystems and preventing the ocean from producing oxygen as effectively as it should. This is a real problem that requires our immediate attention. However it is not too late for us to design a solution. This is my vision, my belief.

3:00 PM   71
Facts are Facts:
"A Better Way to Lower Recidivism"
Walter Thomas, Interdisciplinary Studies (U)

When we ask how to fix the problem of high crime, often the answer is incarceration. Although incarceration may be a deterrent for some people who commit crime, we have to consider the possibilities of creating a system that promotes change for education instead of incarceration. Research shows that higher education makes people less likely to reoffend. Higher education brings forth critical thinking and communication skills that are necessary for productive people in everyday society. The recidivism rate according to data from Emory University shows that people with Associate's degrees have a 13.7% chance of recidivism. This number falls to a 5.6% chance of recidivism for a Bachelor's degree, and a zero percent chance of recidivism with a Master's Degree. California's Legislative Analyst's Office reported that the state spent an average of $106,000 per incarcerated individual housed in California Department of Corrections and Rehabilitation in 2020-2021. Housing one person each year could pay for four Bachelor's degrees at a university. This begs the question as to why would we not make higher education mandatory? If society held education at the forefront in the way it holds incarceration, our neighborhoods and communities would be better served in countless ways.

3:00 PM   72
"Choose Freedom" design art project
Jose Torres, Interdisciplinary Studies (U)

This creative project explores the concept of Freedom through the artistic lens of surrealism. By combining ink, watercolor pencils, one- and two-point perspectives while creating a graphic design piece that allowed me to project my idea and experience through visual and textual context. Challenged to draw out a building on the prison facility yard, choose a color that would likely become the Pantone color of the year and create a mural to be displayed on this building conveying a message of my choice. Also tasked with creating a complimentary piece inside our cell. The message conveyed in this mural is "choices can lead to freedom". Aiming to evoke the taboo concept of UFOs in a metaphorical way of being teleported from one reality to another depending on the choices we make. Viktor Frankl's quote seamlessly provided the textual element complimenting the visuals in an artistic way. Also incorporating a color choice with color psychology in mind to give the feel of joy, happiness, and

social communication, to bring brightness to an otherwise dark place. In Graphic Design, it is imperative to be intentional in your work to capture your message in totality, in life it is just as imperative to be intentional in your choices. The work aims to inspire one to be mindful of their choices, inviting viewers that the possibility of freedom is attainable.

3:00 PM   73
OMCP: Offender Mentor Certification Program
Alex Valencia, Journalism and Media Studies (U)

Substance use disorders are a growing problem in America. Untreated substance use disorders lead to a myriad of issues like mass incarceration, homelessness, and death. This presentation about the Offender Mentor Certification Program (OMCP) presents a part of the solution. OMCP is a program within the California Department of Corrections and Rehabilitation (CDCR) designed to train and educate long-term incarcerated individuals to become Substance Use Disorder Certified Counselors (SUDCC). Individuals who have been disciplinary-free for the past two years and have at least five years left to serve on their sentence can submit an application for the program. Individuals granted the opportunity to become mentors go through a two-year long process for certification that includes treatment for themselves, education, training, and internship. During the internship phase and beyond, individuals are assigned to co-facilitate evidence-based curricula across CDCR institutions. This also allows them to secure employment as SUDCCs and help facilitate a successful transition back into the community upon release. My findings show that this kind of program works. Research indicates that enrolling in a tailored, evidence-based, peer-led program decreases one's psychiatric symptoms and increases housing stability and employment (Hansen, 2022). Studies also indicate that peer-led support groups increase client engagement and likelihood of completion, and reduce recidivism and time spent in jail.

3:00 PM   74
Strategic Communication
Manuel Vela, Interdisciplinary Studies (U)

Every aspect of a person's life depends on communication. Not everyone possesses competent communication skills, which can have a significant impact on a person's personal and professional success. Accomplishing one's goals and needs is reliant on the effectiveness of their communication aptitude. The purpose of this literature review is to uncover and share some techniques and linguistics that improve the efficacy of one's daily communication. The review included what holds people attention, verb tense, profanity, and emoticons. The findings indicated that uncertainty and high arousal held attention the longest, speaking in the present rather than past tense is more effective for believability, profanity conveys two meanings and can show comradery, and emoticons can help show emotion online and in text messages. The implications are that communication competency should be taught in all levels of education.

(U)=Undergraduate; (M)=Masters; (D)=Doctoral

3:00 PM   75

The Power of Education

Juan Castro, Interdisciplinary Studies (U)

Does providing education to the incarcerated population work to reduce recidivism rates? This study examines the recidivism rates of the incarcerated population. It conducts literature review and conducts a meta-analysis examination. A systematic literature search was electronically done on online databases using EBSCO College. Evidence shows that an incarcerated individual has a 14% recidivism rate when obtaining an Associate Degree, a 6% recidivism rate when obtaining a Bachelor Degree, and a 0% recidivism rate when obtaining a Master Degree. These findings show that providing higher education to the incarcerated population does reduce recidivism rates. These findings reveal the power behind education and how it can create safer prisons. These findings suggest that education is key to reducing crime rates, rehabilitation, promoting peace amongst the incarcerated, and dismantling the cycle of mass incarceration.

3:00 PM   76

Expanding the Frame

Gabriel Madrigal, Journalism and Media Studies (U)

The researcher explores the meaning of learning communities and the benefits of education in prisons. This study was conducted through a literature review, analyzing studies from the U.S. and other countries that examine the role of learning communities in prisons. The research suggests that the world itself is a learning community, where societies can learn from one another to better humanity. Learning communities serve as a vehicle for expanding collective knowledge while also fostering individual growth, ultimately producing stronger, contributing members of society. Studies highlight the contrast between past U.S. prison systems—when rehabilitation was not a focus—and present-day shifts toward a rehabilitative approach. The researcher chose this topic and named it 'Expanding the Frame' to propose an idea of mind expansion, thinking outside the box, and expanding the frame of mind. The study aims to stimulate ideas of educational communities in prison and explore how far expanding the frame can take humanity. The desired outcome of this study is to emphasize the importance of community-based learning, including self-help classes, while addressing the gap in research on such programs. Self-help classes function as learning communities in their own right, offering group therapy, self-development, and soft skills training—all of which contribute to both individual growth and the collective good.

Abstracts of Presentations

Session L

SDSU | San Diego State University

(U)=Undergraduate; (M)=Masters; (D)=Doctoral

Session L-1

Cancer Research (G) 1
Friday, February 28, 2025 9:00 AM
Montezuma Hall

9:00 AM   78

Ligand-dependent clustering of galectin-3
on two-dimensional membrane surfaces
Ani Chakhrakia, Chemistry/ Biochemistry (D)

Galectin-3 (Gal-3) is a ubiquitous carbohydrate-binding protein that can be found both in intra- and extracellular environments, as well as on the plasma membrane. Gal-3 is involved in diverse cellular processes such as immune response, homeostasis, pathogen recognition and it can participate in many diseases like fibrosis, inflammation and cancer. Its intrinsically disordered non-lectin N-terminal domain (NTD) is essential for oligomerization and liquid-liquid phase separation (LLPS), whereas its C-terminal carbohydrate-binding domain (CRD) allows for interacting with a variety of ligands in cells. Understanding protein-protein and protein-ligand interactions can uncover the diverse biological and therapeutic roles of Galectins. Gal-3 has been shown to bind to poly-N-acetyl-lactosamine oligosaccharides such as lacto-N-tetraose (LNT) and lacto-N-neotetraose (LNnT), which have been recently identified in bladder and lung cancer cells. Although these ligands are structurally similar, their binding to Gal-3 results in distinct protein behavior and can potentially alter its structural and functional changes. Despite significant advancements in Galectin research, the precise characteristics and mechanisms through which specific ligand interactions modulate Gal-3 cluster formation on cell surfaces remain still understudied. We have utilized the supported lipid bilayers (SLB) technology as a flexible platform to stabilize the protein for imaging via total internal reflection fluorescence microscopy (TIRF) and characterized its behavior under physiological conditions. We have monitored the clustering events in the presence of various ligands such as LNnT, LNT and lactose. We found that Gal-3 alone forms a low number of small clusters on the membrane, while lactose stabilizes the monomeric state of the protein. In contrast to the no-ligand and lactose samples, the addition of LNnT triggered immediate clustering events, with the cluster size being inherently restricted to the nanoscale. We also found that while LNnT induced rapid and extensive clustering, LNT facilitated the formation of a limited number of small clusters on the membrane. This study provides new insights in the ligand-specific behavior of Gal-3 on cellular membranes, enhancing our understanding of its biological functions in both normal and pathogenic pathways.

9:00 AM   79

Developing New Tools to Investigate
Peroxisomal Lipid Metabolism
Brittany Conley, Biochemistry (D)

Human isocitrate dehydrogenase 1 (IDH1) is an enzyme involved in metabolic processes within our cells and catalyzes the oxidative decarboxylation of isocitrate to produce α-ketoglutarate (αKG) and NADPH. IDH1 localizes to the cytosol and the peroxisome of cells. Peroxisomes house many metabolic processes, including fatty acid oxidation and reactive oxygen species detoxification. Many lipid biosynthesis pathways within peroxisomes require αKG and/or NADPH, for which there is no known peroxisomal import process for these metabolites. This suggests that IDH1 likely plays a role in providing these key substrates to fuel these metabolic pathways. Developing new tools to investigate the role of IDH1 in the peroxisome is valuable to better understand the mechanisms of lipid metabolism within cells. IDH1 localizes to the peroxisomes due to its 3-amino acid tag, AKL, which allows it to be recognized by peroxisome shuttle protein PEX5 for recruitment inside the peroxisome, though the SKL sequence is a stronger recruitment sequence. Thus, we can leverage site-directed mutagenesis to equip IDH1 with this enhanced SKL sequence, increasing its localization in the peroxisome, while removing the native AKL tag. By adding a green fluorescent protein (GFP) tag to IDH1 and expressing these constructs in cells lacking IDH1, we can target the peroxisomes with specific fluorescent markers to identify IDH1 within peroxisomes and compare the differences in tag import capacity and peroxisomal IDH1 function. These new tools will allow us to monitor the changes to peroxisomal lipid metabolism resulting from cytosolic-only IDH1 and peroxisomal-only IDH1, increasing our understanding of the role of IDH1 in the mechanisms that drive this biosynthetic process.

9:00 AM   80

Kinetic and Structural Characterization of
Human Isocitrate Dehydrogenase 1
Elene Albekioni, Chemistry & Biochemistry (D)

Metabolic enzyme isocitrate dehydrogenase 1 (IDH1) supports cellular metabolite and redox environment balance through facilitating NADP+-dependent oxidative decarboxylation of isocitrate (ICT) to α-ketoglutarate (αKG). Catalytically competent wild type enzymes form homodimers under physiological conditions and dimerization is critical for turning over the reaction. Tumor-driving mutations in IDH1 usually adopt a new neomorphic function to catalyze reduction of αKG to oncometabolite D-2-hydroxyglutarate (D2HG) with concurrent oxidation of NADPH. The physiological role of D2HG is unknown, however multiple tumor types are associated with accumulation of this metabolite in cells, such as glioma, cholangiocarcinoma, chondrosarcoma and acute myeloid leukemia. The most frequent mutations occur at the active site residue R132, which coordinates ICT. Currently, all selective inhibitors that target IDH1 mutants are allosteric and bind at the dimer interface; however secondary point mutations in IDH1 gene can lead to therapeutic resistance. Although extensive work has been done uncovering the structural properties of apo and holoenzyme, there remains a lack of understanding of how dimerization patterns influence the enzyme's efficiency. Since almost all reported mutations are heterozygous, three species of dimers are theoretically possible: WT/WT homodimers, mutant/mutant homodimers, and WT/mutant heterodimers. To characterize dimer preference between WT and mutant

(U) = Undergraduate ; (M) = Masters ; (D) = Doctoral

IDH1 monomers, we used mass photometry tools, specifically interferometric scattering microscopy (iSCAT), which relies on scattering intensities of species with different sizes. We first developed a gene construct introducing mass difference between WT and mutant IDH1 monomers large enough for iSCAT resolution power and optimized overexpression conditions. We allowed dimerization equilibration under two different conditions: by mixing independently expressed and isolated enzymes and by co-expressing two gene constructs within the same cell, then measuring the size of the dimers formed in the solution. Our iSCAT experiments show that in the mixture of independently isolated WT and R132H or R132Q variants, the absolute majority of the species formed are homodimers. Since the assumption in the field is that heterodimer populations dominate, we also adopted native gel electrophoresis technique that allowed us to observe separation of dimers in native conditions with different molecular masses. We show that at various pH and salt concentration, homodimerization is still favored. Then we extended our interest probing steady-state kinetic properties of mixture of WT and mutant IDH1 and used spectroscopic tools to investigate reaction rates. As expected, the kinetic rates of mutant enzymes in neomorphic reaction with and without the presence of WT enzymes were comparable. Establishing dimer assembly preference and understanding whether the monomers of IDH1 have any effect on each other in conventional or neomorphic catalysis will help develop improved therapeutics.

9:00 AM   81

Intracellular Consequences of IDH1 Mutations in U87MG Glioma Cells

Grace Chao, Biological Sciences (D)

Isocitrate dehydrogenase 1 (IDH1) catalyzes the NADP+-dependent conversion of isocitrate to α-ketoglutarate (α-KG) in the cytosol and peroxisomes. Mutations in IDH1 drive a variety of cancers, most notably gliomas and glioblastomas. Though IDH1 mutations typically ablate IDH1 activity, some mutations confer a neomorphic reaction, leading to the production of the oncometabolite D-2-hydroxyglutarate with decreased levels of α-KG. Because lipid biosynthesis is dependent on IDH1-derived NADPH, we predict that cells expressing mutant IDH1 have dysregulated lipid levels and increased oxidative stress due to NADPH deficiency. Using isogenic cancer cell lines, we show by transmission electron microscopy that IDH1 R132H mutant cells exhibit increased intracellular lipid droplets, which can act as storage sites to protect lipids from lipid peroxidation, a consequence caused by reactive oxygen species (ROS). Using orthogonal ROS assays, we show that IDH1 mutants exhibit less oxidative stress compared to IDH1 wt glioma cells, but not in chondrosarcoma cells. Interestingly, our chondrosarcoma line showed oxidative stress in a time-dependent manner. These results suggest that lipid droplets may serve to reduce cellular stress, potentially as a response to maintain growth and survival in IDH1 mutant cells, and highlight differences in IDH1 mutation burden among different cancers.

9:00 AM   82

Investigating the role of Noncanonical NF-kB/Notch signaling in promoting ovarian cancer stem-like cells

Gregory Jordan, Cell and Molecular Biology (D)

In the United States, ovarian cancer is the most lethal gynecological malignancy and the fifth most lethal cancer for those at risk. Although patients typically respond well to initial chemotherapy treatments, approximately 80% of patients will relapse with chemotherapy-resistant disease. Studies suggest a subpopulation of ovarian cancer cells, termed cancer stem-like cells (CSCs), can resist chemotherapy and repopulate tumors following treatment. The mechanisms enabling these cells to survive chemotherapy and re-establish heterogeneous tumors are unclear but likely involve the activation of multiple survival and developmental pathways. Our previous work shows that the noncanonical NF-kB transcription factor, RelB, supports ovarian CSCs, and our preliminary data suggests RelB regulates the expression of Notch pathway genes. Notably, Notch is upregulated in patient-matched tumors following chemotherapy relative to pre-treatment samples. We hypothesize that RelB-mediated upregulation of Notch signaling is required to maintain CSCs and facilitate tumor regrowth after chemotherapy. To test this hypothesis, we first used qRT-PCR and western blot to assess the expression of different Notch receptors and ligands under spheroid-forming 3D culture conditions relative to monolayer 2D conditions. We observed increased expression of most Notch genes in 3D conditions. Interestingly, in sorted CD117+ CSCs, Notch receptor expression (Notch 1 and Notch 3) was maintained, while expression of Notch ligands (DLL1 and DLL3) was reduced, and Jag2 expression was elevated relative to CD117- bulk tumor cells. Additionally, we observed a consistent increase in the Notch target gene CDKN1A in 3D growth conditions relative to 2D. To confirm and further assess Notch activity, we are currently using Notch reporter cells under various conditions, including spheroid culture, treatment with carboplatin and paclitaxel, RelB knockdown, and RelB activation. Our preliminary in vitro data suggests that RelB upregulates Notch signaling in CSCs to enhance stemness and tumor initiation following chemotherapy. These findings will be validated in an in vivo relapse model to assess the requirement for Notch signaling during relapse. This work highlights a novel collaboration between RelB and Notch activity in CSCs, which may guide the design of more effective therapeutic strategies to reduce relapse and improve survival outcomes for ovarian cancer patients.

9:00 AM   83

CarD-T: An Automated Pipeline for the Nomination and Analysis of Probable Human Carcinogens

Jamey O'Neill, Bioengineering JDP (D)

The identification and classification of carcinogens is critical in cancer epidemiology. We introduce the Carcinogen Detection via Transformers (CarD-T) framework, combining transformer-based machine learning with probabilistic analysis to efficiently nominate potential carcinogens from scientific texts. Trained on 60% of established carcinogens, CarD-T

ABSTRACTS

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correctly identifies all remaining known carcinogens and nominates ~1,600 potential new carcinogens. Comparative assessment against GPT-4 reveals CarD-T's comparable precision (0.894 vs 0.903), and superior recall (0.857 vs 0.705), implying improved ability to classify carcinogens not in major databases. The framework reveals significant shifts in research focus on carcinogenic agents over time, from chemical carcinogens to broader categories including environmental factors (18%), biological agents (10%), and emerging threats like COVID-19, supported by 577 publications since 2020. Additionally, CarD-T highlights 554 entities with disputing evidence, which are further analyzed using a Bayesian Probabilistic Carcinogenic Denomination (PCarD) to provide likelihood with respect to time and evidence. This framework enhances the agility of public health responses to carcinogen identification, setting a new benchmark for automated, scalable toxicological investigations.

9:00 AM   84

The Influence of BRaf Regulatory Domains on Membrane Association
Julian Grim, Chemistry JDP (D)

Raf Kinase is a signalling protein that is activated in the Mitogen-Activated Protein Kinase (MAPK) pathway by its KRas GTPase-driven membrane recruitment. Both Raf and Ras are often found mutated across a wide variety of cancers, necessitating research into their activity and possible methods of pharmaceutical treatment. In this work, I aim to establish the effects on membrane recruitment kinetics of each of the three general domains of the N-terminal regulatory half of the BRaf isoform. Using fluorescence spectroscopy and determination of the relationship between fluorescence intensity and density of the labeled protein, I have been able to help develop a method of fast and precise measurement of protein recruitment to a model 2-dimensional supported lipid bilayer. Importantly within these findings is that the largely disordered BRaf-Specific Region (BSR) effectively negates the strong Ras-independent membrane affinity of BRaf's Cysteine-Rich Domain (CRD), helping to block aberrant signaling outside of proper recruitment mechanisms through activated KRas.

Session L-2

Cultivating a Sustainable Food Future (U/G)
Friday, February 28, 2025 11:00 AM
Montezuma Hall

11:00 AM   77

Complete Water Balance of the Imperial Valley
Erik Lawrence, Environmental Sciences (U)

According to the Imperial Irrigation District, the Imperial Valley of California is delivered to 3.1 million acre-feet of water of the 19.3 million acre-feet that flows through Colorado yearly (Rocchio, 2024). With around a sixth of the water flowing to the Imperial Valley, every drop counts, and reducing the loss of that water matters as much. This study would aim to access a target plant that is the most abundant and has the highest rates of Evapotranspiration (ET), a process, as defined by the USGS, as evaporation from the ground surface and vegetation surfaces. Both water evaporation on the surface and water taken up from plants and root systems return water to the atmosphere. Through these determinations, a species will be studied for the amount of water produced at an average rate during its growing period, alongside the growth of the said species with different conditions and tools to limit the amount of water lost within the system as a whole, including the soils natural release of water through evaporation. The hope is to reduce water ET in plants by a percentage, even 2%, which would save 62,000 acre-feet of water for the county alone.

11:00 AM   78

A Look at CaliBaja Ethnobotany Through a Gastronomic Lens
Justin Shorty, Biology with an Emphasis in Cellular and Molecular Biology (U)

Indigenous knowledge is a cornerstone for many aspects of our modern lives. From resource management to community development, native wisdom continues to serve as a repository for western cultures. This is especially evident in the ethnobotanical uses of native edible plants across the North American landscape. Our project focuses on documenting and analyzing native edible plants in the CaliBaja region. We aim to collect first-hand accounts of indigenous uses and preparations for these native edible plants and quantify their nutritional profiles, many of which remain undocumented in scientific literature. Our initial fieldwork involved sampling the fruits ofQuercus agrifoliaandXylococcus bicolor from Mission Trails Regional Park. Using ArcGIS, we recorded the geolocation of the individuals sampled. Additionally, native seeds, including those from desert chia (Salvia columbariae), were collected for analysis. Samples were stored in a -18â„f freezer for long term storage. Preliminary data from proximate analysis ofSalvia columbariae seeds revealed a nutritional composition of 40.2 Â± 2.1% carbohydrates, 32.8 Â± 2.0% lipids, 16.4 Â± 0.8% proteins, 6.0 Â± 0.0% moisture, and 5.0 Â± 0.2% ash. These findings highlight the significant nutritional potential of this native food source. As a culmination of our efforts, we plan to develop a comprehensive database to document the nutritional profiles and historical preparational methods of native edible plants. We will collaborate with indigenous communities to ensure the database aligns with their needs and respects their cultural heritage. This database will serve as a resource for indigenous communities and inform them about the nutritional value of their traditional foods.It will also promote broader public awareness and appreciation of native edible plants.

11:00 AM   79

Protein language model-based prediction of potential allergens in Chlorella vulgaris
Sofia Teran, Foods and Nutrition (U)

Microalgae are a promising and sustainable nutrient source due to their rapid growth, high biomass yield, excellent nutritional profile, and ability to grow on non-arable land.

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However, as microalgae gain popularity as a novel food source, the risk of related allergies may increase. This study aims to identify potential allergens in the green microalga Chlorella vulgaris using pLM4Alg, a state-of-the-art protein language model-based predictor for allergenic proteins. A total of 11,486 C. vulgaris proteins from UniProt were analyzed, with 1,721 and 1,017 proteins identified as putative allergens by the pLM4Alg-1280 and pLM4Alg-2560 models, respectively. Among 90 reviewed proteins, the following were identified as potential allergens by both models: tubulin alpha chain, ribulose bisphosphate carboxylase large chain, and an uncharacterized 28.3 kDa protein. Additionally, nitrate reductase was identified as a potential allergen by the pLM4Alg-2560 model. The predicted allergens had a significantly lower aliphatic index compared to non-allergens (P = 0.006). Tubulin alpha chain also showed strong evidence of allergenicity according to AllerCatPro 2.0, displaying high sequence similarity to known environmental allergens such as Per a 17 (93.8% identity), Tyr p 33 (93.8%), Lep d 33 (93.8%), Der p 33 (90.0%), and Der f 33 (87.5%). Immunoreactivity of this potential allergen will be confirmed by expressing it as a recombinant protein and testing it with patient IgE. The sequence GIQPDGQMPSDKTIGGGD-DA, located between residues 29 and 48 of the tubulin alpha chain, was predicted by Bepipred Linear Epitope Prediction 2.0 as the most likely B cell epitope. It appears as a flexible loop structure protruding outward. By characterizing the molecular biology of potential allergens in microalgae, we can assess the risk of cross-reactivity and develop detection, diagnostic, and immunotherapy strategies.

11:00 AM   80

Nutrient composition and functional properties of microalgae as food ingredients

Corissa Williams, Nutritional Sciences (M)

Microalgae are an eco-friendly protein source gaining popularity and making their way into diverse food applications. This study aimed to analyze the nutrient composition and physicochemical properties of different microalgae species and assess their incorporation into a space guacamole product. Commercial microalgae species, Anthrospira platensis, Dunaliella salina, Nannochloropsis gaditina, Nannochloropsis salina, Haematococcus pluviasis, and Chlorella pyrendoidosa were analyzed for nutrient composition, water activity, and color. A. platensis, C. pyrendoidosa, N. gaditina, and N. salina had high protein contents ranging from 39.9% to 56.1%, while H. pluvialis and D. salina had lower protein levels at 16.2% and 0.9%, respectively. The essential amino acid index of the microalgae species ranged from 83.6% to 90.5%, using whole egg protein as the reference. Water holding capacity varied between microalgae, with N. gaditana holding the highest at 260.0%, C. pyrendoidosa, A. plantensis, and H. pluviasis ranging between 206.7% and 136.4%, and A. Plantensis holding the least amount at 86.8%. All microalgae powders exhibited low water activity (0.12-0.40), indicating good shelf stability. Color varied considerably among the species. A. platensis, C. pyrendoidosa, N. gaditana, and N. salina appeared green with negative a* values, whereas D. salina and H. pluvialis, exhibited orange and red colors, respectively,

with positive a* values. Incorporating 5% A. platensis into a freeze-dried guacamole mix to enhance its nutritional value resulted in a darker color, more than doubled protein content, a thicker and stickier consistency, and a decreased overall liking score from 7.18 to 5.64 on a 9-point hedonic scale (P <0.05). It also increased the pH of the rehydrated guacamole from 4.87 to 5.22, leading to a perceivable reduction in sourness. Replacing 1% of the A. platensis with D. salina produced similar color, protein content, and pH, but resulted in a texture and liking score (6.55, P > 0.05) comparable to the control guacamole. These findings demonstrated the potential of microalgae as functional food ingredients, though careful evaluation is needed when incorporating them into different food products.

11:00 AM   81

Expressing Kinases FAM20C and CK2 to Phosphorylate Milk Protein Î±1-Casein via Bacterial Fermentation

Mia Bartolovich, Masters in Chemistry (M)

Dairy farming has a considerable impact on the environment, contributing most significantly to the production of greenhouse gases and increased water usage. This research aims to provide sustainable alternatives to traditional dairy farming by focusing on the production of phosphorylated milk proteins, specifically caseins, using bacterial systems. The phosphorylation of caseins in the bovine mammary gland is imperative to its synthesis and functional properties of milk. Thus, to replicate this, we are developing a system that displays active kinases on the surface of Escherichia coli (E. coli) to efficiently phosphorylate caseins during production. Previous work in the Love Lab led to the development of the Bacterial Surface Display (BSD) system, which allows us to express fluorescent labeled kinases FAM20C and CK2 on the bacterial surface; These kinases efficiently phosphorylate serine and threonine residues in milk proteins. The BSD system will display these kinases as they phosphorylate lab grown Î±S1-casein, fused to a protein G scaffold. The red fluorescent protein label mCherry will allow us to visually assess the expression efficiency on the bacterial surface by the appearance of pink cells. We will assess the phosphorylation efficiency by mass spectrometry, allowing us to identify specific phosphorylation sites on the protein by analyzing the mass-to-charge ratio of the peptides produced. Transient tertiary structure (TTS) tags were designed using Alpha Fold to provide temporary structure and solubility to the typically unstructured casein proteins, which will aid in their production and purification. Once phosphorylated by the surface-displayed kinases, the TTS tags will be cleaved using TEV protease, leaving behind functional Î±S1-casein with properties similar to those of natural milk proteins. Our approach seeks to reduce the environmental impact of traditional dairy farming by integrating phosphorylation techniques and protein engineering to produce milk proteins. By targeting the essential process of phosphorylation, we can create a scalable, bacterial-based system for producing caseins with the functional properties necessary for cheese and other dairy products.

(U)=Undergraduate; (M)=Masters; (D)=Doctoral

11:00 AM   82

Understanding Drivers of Dairy Production, Effects of Drought and Farmer Adaptations in Rondônia, Brazil

Elise Piazza, Geography (M)

Farmers in the Amazon are faced with poor soil fertility and limited soil water availability during the dry season. Forests in the Amazon maintain the nutrient cycle, and deforestation for agriculture interrupts this cycle by removing organic matter and losing nutrients to runoff. Between 2000 and 2013, approximately 32.4 million hectares were deforested for human uses in the Brazilian Legal Amazon and, of that, approximately 20.2 million hectares were cleared for pastures, the dominant land use in the Amazon. Due to both inherently low fertility and to the interruption in the nutrient cycle, pastures in the Amazon may have poor soil fertility. To understand the drivers of pasture health, the effects of drought and farmer adaptations to variable pasture quality and a changing climate, I propose a mixed-methods analysis that uses data on cattle milk productivity collected by government extension agencies and other researchers to quantitatively model the drivers of pasture health. I will then compare the results of these models with qualitative interviews conducted in August 2024 with farmers on their perceptions of pasture health and climate. Preliminary analysis shows that when comparing milk productivity with environmental variables such as percent base saturation, percent clay, or geology, visual patterns between the predicted (milk productivity) and predictor (environmental) variables emerge. Additionally, interviews with farmers resulted in several themes across the state that tell us that the top difficulties (water availability, soil quality, market prices, etc.) for farmers vary by region.

11:00 AM   83

Phototrophic-Heterotrophic Community Interactions and their Implications for the Construction of Community Metabolic Models

Alannah Harnden, Molecular Biology, Cell and Molecular Biology (M)

Most microorganisms live in nature as heterogeneous populations in which individual members contribute key functions to enhance the overall community performance. An example of highly resilient microbial communities are those composed by a photosynthetic autotroph (photobiont), typically a cyanobacterium or green alga, and a heterotrophic partner, bacteria and/or fungi. These phototrophic communities are prevalent on Earth, and their resilience and survival is impacted by interactions between its members. However the drivers of those interactions remain unclear. Obtaining a greater phenotypic understanding can complement the construction of community metabolic models that, together, illuminate how symbiosis and other complex functions can be exploited for synthesis of novel biotechnologies, including food bioproduction. Thus, optimizing culturing conditions of model microorganisms is essential for community culturing and downstream metabolic analyses. This study focuses on identifying those for the heterotrophic bacteria Bacillus subtilis

and Lactobacillus plantarum; the yeast, Saccharomyces cerevisiae, and the photobiont Haematococcus pluvialis, a freshwater microalgae.To begin, growth phenotypes will be characterized under various prepared culture media. This includes Yeast Extract Peptone Dextrose (YEPD), Lennox Broth (LB), and Tryptic Soy Broth (TSB) and agar (TSA). Additionally, growth was measured in liquid media at OD600 using an automated Tecan plate. Measurements were recorded mainly up to 17 consecutive hours. Growth rates were calculated with the logarithmic growth rate formula. Preliminary monoculture data revealed trends: each microorganism has the fastest specific growth rates at 12-16-hour cutoffs in these enriched liquid media with shaking incubation. B. subtilis grew the quickest, between 35-37°C, while S. cerevisiae's growth rates improved at 30°C from 28°C. The most fastidious heterotroph, L. plantarum, experienced the slowest growth, with the same optimal temperature range as B. subtilis. A bioreactor pilot experiment of culturing H. pluvialis in minimal medium showed growth on the entire wavelength spectrum. Overall, nutrient-dense growth conditions for starter cultures have been determined.Currently, the heterotrophs are being adjusted to minimal medium for eventually growing on the microalgae's supernatant. Once this community culture is assembled, omics will be used for informing central genes, activity, reaction pathways, and metabolic exchange that elucidates increased success of microbial communities and modeling design.

Session L-3

Cancer Research (U/G) 1
Friday, February 28, 2025 11:00 AM
Montezuma Hall

11:00 AM   84

Purification and site-directed mutagenesis within the IDH2 enzyme

Darius Hyde, Chemistry with emphasis in Biochemistry (M)

Isocitrate dehydrogenase 2 (IDH2) is an enzyme found in the mitochondria, where it plays a critical role in cellular metabolism by converting isocitrate into alpha-ketoglutarate. There is much interest in understanding the catalytic features of IDH2, as point mutants and overexpression of this enzyme can drive tumor formation. Due to challenges in expressing and purifying IDH2, our understanding of IDH2 catalysis is limited. Here, I will use site-directed mutagenesis to introduce specific, targeted changes to the DNA sequence of the IDH2 gene that I predict, based on studies of bacterial forms of IDH2 and human IDH1, will have an important role in catalysis. By analyzing the activity of these designed IDH2 mutations, I can understand the impact of these residues on the enzyme's function. First, I focused on aligning the protein sequences of human IDH1, bacterial IDH, and IDH2 to compare the protein sequences. These enzymes' conserved sequences point to evolutionary pressure to preserve essential roles despite their distinct cellular environments. I found a highly conserved lysine (K72 in IDH1, K100 in E. coli IDH, and K112 in IDH2) that has previously

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been shown to support catalysis by destabilizing ground state binding of substrates through its ability to ionize as a charged amino acid. I designed four IDH2 K112 mutations (K112M, K112Q, K112R, and K112N) to allow me to probe the effects on the critical active sites that I want to target. The shapes of the amino acids (methionine, glutamine, arginine, and asparagine) are similar to that of lysine; however, the properties of the side chains on each of the amino acids vary in charge, polarity, and reactivity. Essentially, selecting these four mutations allows for a wide range of amino acids, which will help determine how this residue's ability to ionize affects catalysis. After designing mutagenesis primers, I successfully used site-directed mutagenesis to introduce these mutations. Next, I began the expression and purification of these mutants. In the future, I will use steady-state kinetics to determine how this residue supports the activity of the enzyme, hypothesizing that there is no catalytic activity, as similar results were shown in the kinetic data of the homologous IDH1 residue. With this, we hope to learn if residue K112 plays a catalytic role, meaning that it is an amino acid found in the active site of an enzyme that actively takes part in the chemical process that the enzyme catalyzes. Understanding the enzyme activity of IDH2 will ultimately allow us to design inhibitors for therapeutic uses.

11:00 AM   85

Role of TWEAK cytokine in determining ovarian cancer cell fate

Harshada Sapre, Cell and Molecular Biology (M)

High-Grade Serous Ovarian Cancer (HGSOC) is the most lethal gynecologic malignancy in the United States, with 90% of patients experiencing resistance to standard-of-care chemotherapies, Carboplatin and Paclitaxel. This chemoresistance is hypothesized to stem from cancer stem-like cells (CSCs), a subpopulation of quiescent, multipotent cells. Previous findings in our lab indicate TWEAK, a pro-inflammatory cytokine, as a critical mediator of CSC features like spheroid formation, chemoresistance, and expression of stem genes. Since much of this work was completed using human cancer cell lines in an immune-compromised mouse model, we hypothesize that TWEAK produced in a competent immune model will also induce these CSC features in the post-chemotherapy tumor microenvironment. We will utilize the murine ovarian surface epithelial cell lines, ID8 and p53-mutant ID8, since over 96% of HGSOC patients have a p53 mutation. First, we will identify IC50 values for Carboplatin and Paclitaxel in ID8 cell lines. We found that WT ID8 cells have similar IC50 values to human ovarian cancer cell lines. Second, we will assess potential surface markers by flow cytometry, including expression of CSC markers: CD133, Lgr5, GRP78, CD117, Fn14 and αVβ3. Flow cytometric analysis revealed that baseline expression of these markers in WT ID8 cells was low for all except CD117 (2.6% Lgr5, 70% CD117+, 4.3% GRP78+, 2.7% CD133+, 32% Fn14+, 1.6% αVβ3+). Following chemotherapy treatment, only surface markers Lgr5, GRP78, and aVb3 increased expression in WT ID8 cells, suggesting possible CSC markers. All markers were present at similar or increased levels in p53-mutant ID8 cells, with the largest increase in Fn14, the TWEAK receptor. These results suggest Lgr5, GRP78, αVβ3 are promising markers for murine CSCs, with Fn14 as an additional marker for p53-mutant cells. Further research will utilize fluorescence-activated cell sorting (FACS) to sort for CSCs using the identified markers and comparing a panel of stem genes for both ID8 cell lines. Future work will investigate ID8 cell lines in CSC functional assays including spheroid formation, chemoresistance assays, and in vivo murine relapse models. Utilizing an immunocompetent mouse model to study the interaction of TWEAK with CSCs provides promising insights into the mechanisms driving chemoresistance.

11:00 AM   86

Sexual Health Perspectives: HPV Vaccine Knowledge and Perceptions Among Pediatric Frontline Clinical Office Staff in California

Olivia Keleman, Master of Public Health - HPBS (M)

Objective: Medical Assistants (MAs) and Licensed Vocational Nurses (LVNs) are a culturally diverse workforce trusted by patients and parents. We aim to understand if sociodemographic characteristics among pediatric clinical office staff are associated with HPV vaccine knowledge and perceptions.Methods: California MAs and LVNs working in pediatric primary care completed a 50-item online survey (Aug to Dec 2024); respondents received $30 gift card incentives. The survey included sociodemographic characteristics (age, race/ethnicity, and religion), a 10-item battery assessing HPV vaccine knowledge, and two perception questions related to sexually stigmatizing beliefs about the HPV vaccine. Bivariate analyses (chi-square, t-tests, and ANOVA) explored the association between sociodemographic characteristics and the sexuality-associated HPV vaccine knowledge and perception items.Results: Of the 459 respondents, the mean age was 35±10.6 years old and 93% identified as women. Respondents were ethnically diverse, with 67% identifying as Hispanic/Latino and the remainder identifying as many other racial demographics. The most common religious affiliation was Catholic (48%); 19% were other Christian, 30% had no religious affiliation, and 3% were another religion. In bivariate analyses, religion was not associated with the knowledge items, however, HPV vaccine misperceptions differed between the largest religious groups: 34% of Catholics, 20% of Non-Catholic Christians, and 22% of those with no religious affiliation ($p<0.036$). HPV vaccine knowledge increased with age (18-28y: 5.1±1.9; 30-49y: 5.9±1.9; 50+y: 6.1±1.8) and sexually stigmatizing perceptions were higher among younger participants (18-28 y/o). The belief that the HPV vaccine promotes promiscuity was significantly associated with race/ethnicity: 30% of Hispanic/Latino, 11% of non-Hispanic whites, and 32% of non-Hispanic Other ($p<0.016$). This was replicated with the knowledge items through a small cell size chi-square test and no association was observed between race/ethnicity and knowledge items.Conclusion: Culturally tailored education in this workforce may correct sexually stigmatizing beliefs about the vaccine, promoting uptake among parents and patients.

(U)=Undergraduate; (M)=Masters; (D)=Doctoral

11:00 AM   87
A Supervised Machine Learning Approach To Predict Tumor Status Through Telomere Content Variation Analysis
Priyanshi Shah, Bioinformatics and Medical Informatics (M)

Cancer is recognized as one of the most complex diseases faced by humanity. Over 200 distinct types of cancer have been identified, each characterized by unique molecular profiles that necessitate specialized therapeutic approaches (Tomczak et al., 2015). Telomeres are protective caps at chromosome ends that consist of repetitive nucleotide sequences (e.g. TTAGGG in humans).Previous research indicates that short and long telomeric content is associated with an increased risk of developing cancer, indicating a complex relationship between telomere length and cancer risk. To address this, we develop a supervised machine learning model to predict tumor status based on telomere content, genomic, and phenotypic data. Here, we use 33 different types of cancer data from the Cancer Genome Atlas (TCGA) program to develop a model that was able to accurately predict tumor status with an accuracy of 82.04 %. Our goal is to use this model to improve cancer diagnostics and risk assessment with a novel multidisciplinary approach that utilizes genomic and phenotypic data from Biobank-scale datasets. Additionally, we explore the possible usefulness of telomere length as a predictive indicator in cancer.

11:00 AM   88
Leveraging Large Language Models to Predict Cancer Risk
Surangi Jayasinghe, MS Bioinformatics and Medical Informatics (M)

Gaining insight into the associations by which genetic variations, called Single Nucleotide Polymorphisms (SNPs) influence cancer susceptibility is crucial for deciphering the molecular pathogenesis of cancers. From a clinical standpoint, SNPs present potential diagnostic and therapeutic biomarkers in many cancer types.Here we present a deep learning approach for predicting cancer risk based on SNP data using the Bidirectional Encoder Representations from Transformers (BERT) large language model. We trained BERT models using data comprising 4,542 patients, by integrating clinical and mutational data for cancer risk prediction from the NIH TCGA database. Hyperparameter optimization was performed using Bayesian optimization to enhance model performance. The models were evaluated for accuracy and F1 macro scores were used to assess model effectiveness, with logistic regression employed as a baseline model. Preliminary results demonstrate an accuracy of 0.82, precision of 0.77, recall score of 0.74, and F1 macro score of 0.73. This study highlights the potential of BERT-based models to improve cancer risk prediction by capturing complex patterns in genomic data, outperforming traditional methods in terms of predictive accuracy and class balance.

11:00 AM   89
Utilizing Dihedral Angle Control as a Strategy to Obtain Selective Diarylamine Kinase Inhibitors
Madeline Rougier, Chemistry, emphasis in Biochemistry (U)

Atropisomerism is a type of conformational chirality that occurs when there is hindered rotation about a chiral bond. Our group has shown that Class-1 atropisomers bind to targets in a small subset of conformations, and that different targets can prefer different subsets of conformations about the atropisomeric axis. Building on this hypothesis, we have shown that tuning the dihedral angle of the atropisomeric axis towards the target's preferred low-energy dihedral angle conformation can cause significant gains in the selectivity of kinase inhibitors. Diarylamines, which possess two contiguous axes, are one of the most privileged scaffolds in drug discovery. Dihedral angle analysis of various diarylamine/protein co-crystal structures reveals that Neratinib, a promiscuous irreversible kinase inhibitor, binds HER2 in a planar conformation along its electron-poor quinoline ring. HER2 is a receptor tyrosine kinase that is significantly overexpressed and/or mutated in breast cancer, as well as gastric, bladder, and ovarian cancers. We hypothesize that the selectivity of Neratinib can be significantly improved by preorganizing or tuning' its quinoline C-N axis towards the preferred low-energy binding conformation of HER2, thus reducing off-target side effects in the clinic. Currently, we have synthesized a dihedral angle-tuned Neratinib analog that is significantly more selective towards HER2 compared to Neratinib based on single-point kinase inhibition assays and IC50 data. We are working on synthesizing more dihedral angle-tuned Neratinib analogs, and evaluating the efficacy of our compounds in breast and ovarian cancer cell lines. Furthermore, in a collaboration with the Backus group at UCLA, we have found that atropisomerically stable Neratinib analogs in which both C-N axes are tuned in a planar-orthogonal conformation prefer to bind to different kinase targets that are upregulated in a variety of cancers.

11:00 AM   90
Structural Barriers in Cancer Care Within the U.S-Mexico Border
Ana Tolentino, Psychology (U)

Cancer patients living along the US"Mexico border face prevalent challenges to accessing adequate healthcare due to low socioeconomic status, language barriers, and access to support services (Yanez et al., 2016). In this presentation, we discuss four case studies of people who have cancer who reside in the Imperial Valley border region. The Imperial Valley is a rural agricultural region 120 miles east of San Diego which borders on Mexicali, Mexico. 86.3% of residents identify as Hispanic with 75.1% speaking a language other than English at home (US Census Bureau, 2023). The case studies we discuss are drawn from 20 semi-structured interviews that were conducted with people who have or had cancer living in the Imperial Valley. We did a thematic analysis of four of the interview transcripts using NVivo software. This study focuses on four female participants who identified as Mexican with ages

ranging from 51 to 75 years. All participants had a diagnosis of breast cancer with the exception of one who had breast and cervical cancer. Emerging themes that were common across the cases include restricted doctor-patient interactions and limited access to information and resources such as support groups. This led participants to perceive a lack of quality of care. Some of the issues that participants cited included limited time with doctors, and few opportunities to ask questions. Furthermore, a lack of Spanish speaking doctors and Spanish-language information and low patient health literacy negatively influenced patient-physician relationships (cf. Ko, 2018). Doctor-patient interactions and access to information and resources, including support groups, are important to cancer outcomes and contribute to the structural barriers to cancer care in this region (Yanez et al., 2016). These results may be used in development of interventions to strengthen doctor-patient interactions, improve language-based information, and cancer care in US-Mexico border regions.

Session L-4

Cancer Research (U) 1
Friday, February 28, 2025 1:00 PM
Montezuma Hall

1:00 PM   59
SD PATH HPV Inventory Assessment:
Two-Years with Indian Health Center
Andrea Suhyoun, Psychology (U)

SD PATH HPV Vaccination Inventory Assessment: Two-Years with Indian Health CenterAndrea Suhyoun, Elena Martinez, PHD, Margaux Stack-Babich, MPH, Jesse Norodora, DrPHDepartment of Public Health at UC San Diego Moores Cancer CenterHuman papillomavirus (HPV) remains the most prevalent sexually transmitted infection in the U.S., with 14 million new cases annually. Despite the availability of vaccines capable of preventing up to 90% of HPV infections, vaccination rates among adolescents remain below the Healthy People 2030 goal of 80% completion. This study, part of our third annual strategic review, assesses HPV vaccination practices, policies, and resources across 10 healthcare providers in San Diego County, with a focused case study on the Indian Health Center (IHC). Over two years, IHC demonstrated significant progress in its HPV vaccination initiatives. By 2023, IHC expanded its service lines and introduced formal policies to vaccinate children starting at age 9. Rural sites became active participants, supported by project-specific funding from the Native American Research Centers for Health. Vaccination completion rates increased for both males and females, with notable improvements in Dose 3 uptake. However, challenges remain, such as inconsistent provider practices during sick visits and the lack of LGBTQIA+ training on HPV vaccination. This comparative analysis underscores the importance of tailored interventions, including provider prompts, mailed reminders, and community outreach. The findings provide actionable insights for enhancing vaccination rates and serve as a blueprint for other regional health systems. Moving forward,

the study emphasizes the need for robust data systems and comprehensive training to address persistent gaps and support the Healthy People 2030 goals.Activities reported in this presentation are supported by the National Cancer Institute of the National Institutes of Health under award numbers: U54CA285117 (SDSU) & U54CA285115 (UC San Diego). UC San Diego Moores Cancer Center (MCC) partnered with the San Diego Immunization Program (SDIP) to conduct 38 interviews for an environmental scan funded by NCI (Grant 3P30CA023100-31S6) to identify strategies to improve local HPV vaccination rates.

1:00 PM   60
Fibroblast autophagy inhibition alters
mammary gland development
Bianca Rollbusch, Biology - Cellular and Molecular Biology (U)

Breast cancer remains a prevalent threat to countless lives, impacting approximately 1 in 8 American women, being the second leading cause of cancer deaths in women[1]. Understanding the complex mechanisms and cellular communications behind this disease is vital for the development of combative medical treatments. One prominent non-tumor cell factor contributing to cancer development is extracellular matrix accumulation due to its tumor-promoting nature. Generally, the extracellular matrix (ECM) plays an important role in mammary gland development because of the numerous fibrous proteins that form the connective tissue and stroma surrounding the basic components of the mammary gland[2]. Fibroblasts create these proteins, which assist in the development of the tissue and can play a role in promoting tumorigenesis within the glands; doing so by altering ECM deposition. The literature suggests that loss of fibroblast autophagy"a process upregulated by stress that allows for metabolic adaptation"impairs tumor growth. This motivated our studies examining whether loss of fibroblast autophagy alters mammary gland development by disrupting the ECM network. Through transgenic knockout of essential autophagy proteins via 10-week-old FspCre Atg5 mice and controls, we can measure changes in morphological features, proliferation, and ECM components. This enables a greater understanding of how this genetic expression affects the development of mammary tissue. These data may suggest the significance of previously unknown factors that may predispose patients to breast cancer.https://www.cancer.org/content/dam/CRC/PDF/Public/8577.00.pdfhttps://www.sciencedirect.com/science/article/pii/S2542364917300225

1:00 PM   61
Examining the cultural and structural factors
that Mr. Chacon faced while living in the rural
area of Imperial Valley
Bryan Alexander, Psychology (U)

This study explores cultural and structural factors that influenced the experience of a 59-year-old Mr. Chacon is a man with liver cancer residing in the Imperial Valley, CA, a rural desert region near the US-Mexico border. It was while living in the Philippines with his wife and two children that Mr. Chacon

(U)=Undergraduate; (M)=Masters; (D)=Doctoral

discovered he had cancer. Mr. Chacon believed the Filipino doctors were not administering proper care. A death in the family caused him to relocate back to the Imperial Valley where he was informed of the type of cancer he had. A semi-structured interview was conducted with a set of 95 questions aimed to better understand the participants' culture, work, family, religion, and any other aspects of his cancer and cancer care. The interview was audio recorded, and then we coded the transcript using NVivo. After evaluating the interview several themes became evident: (1)The increased risk of cancer from long-term drug abuse. Mr. Chacon had a prior diagnosis of Hep-C due to mainlining heroin. According to the American Cancer Society (2019), the most common risk factor for liver cancer is Hepatitis-C. Additionally, The Office of Public Affairs reported that there has been an increase in deaths due to opioids in the Imperial Valley. (2) The importance of family motivated Mr. Chacon to try any form of medical treatment that had the potential to help prolong his lifespan. When asked about the secondary effects of treatment Mr. Chacon stated œIf it means I lose all my hair and general health to possibly stay alive for my family so be it. (3) The importance of spirituality, Mr. Chacon expressed he was Christian and had a working relationship with God. He acknowledged keeping in frequent contact with his pastor in order to continue practicing his religious beliefs. Furthermore, at the time of the interview, he was living at New Creations, a Christian men's home in Brawley, CA. This interview sheds light on not only Mr. Chacon's story but also provides insight into what cultural and structural factors all people that have cancer face while living in Imperial Valley.

1:00 PM   62

Development and Implementation of an Academic-Community Partnership to Address the Breast Cancer Survival Disparity Among Black Women in San Diego by Increasing Enrollment in Clinical Trials

Dani Macahilig, Nursing (U)

Black women are over 40% more likely to die from breast cancer than non-Hispanic White (NHW) women. Increasing the participation of Black breast cancer patients in clinical studies could alter that survival disparity. Although clinical trials may offer breakthrough therapies, Black women make up 3% or less of enrollees, which is only 22% of their expected enrollment. NHW women account for 26%, 98% of their expected enrollment. This study aims to identify socioeconomic factors impacting the participation of Black breast cancer patients in clinical trials and elucidate whether a multilevel patient navigation intervention will increase their enrollment in clinical trials. Through a retrospective design utilizing multivariable, mixed-effects logistic regression models, we will examine the effect of socioeconomic factors (zip code, insurance status, income level, education level, race/ethnicity) on clinical trial enrollment among Black breast cancer patients compared to NHW patients from January 2010-2015 with data from UC San Diego Health's electronic medical record system (Epic). Additionally, we will develop and test a multilevel patient navigation intervention in conjunction with our key stakeholders

(Black breast cancer patient advocacy community partners, Tigerlily and Many Shades of Pink, healthcare providers, clinical trial coordinators, and social workers) to address these patients' barriers to clinical trial enrollment. This research is critical for achieving equity in breast cancer clinical trials and standards of care. Acknowledgments: The research reported in this abstract was supported by the National Cancer Institute of the National Institutes of Health under award numbers: U54CA285117 (SDSU) & U54CA285115 (UC San Diego).

1:00 PM   63

Development of Notch Reporter Cells to Investigate Ovarian Cancer Stem-like Cells and Chemoresistance

Daniela Cazares, Public Health (U)

One of the most threatening gynecological malignancies to U.S. women is ovarian cancer, posing a significant challenge to women's health. While chemotherapy is the standard treatment and initially shows effectiveness, approximately 80% of patients experience relapse with chemoresistant disease. This high recurrence rate highlights the difficulty of treating ovarian cancer, as recurrent cases are resistant to current therapies. Research suggests that ovarian cancer stem-like cells (CSCs), a subpopulation of cancer cells, play a role in chemotherapy resistance and contribute to tumor regrowth post-treatment. These CSCs, which have the ability to survive and regenerate tumors, are driven by mechanisms that are not fully understood. Recent research suggests the activation of pathways that aid in survival and development including the crucial Notch pathway. Importantly, Notch is upregulated in patient-matched tumors after chemotherapy compared to pretreatment tumors. We hypothesize that Notch signaling is essential for maintaining CSCs and promoting tumor regrowth following chemotherapy. To test this hypothesis, we generated ovarian cancer Notch reporter cells expressing a dual luciferase reporter under the control of the Notch promoter. We then stimulated the Notch pathway with recombinant Jag1 ligand to quantify luciferase activity and validate the successful transduction of the reporter cells. In future studies, we will optimize Notch stimulation conditions including: Jag1 concentration, stimulation time, and growth conditions to get the most accurate signal. Then we will use these reporter cells in 3D spheroid culture and post-chemotherapy conditions, to assess Notch involvement in CSC phenotypes. Findings from these studies could elucidate a dependence of CSCs on Notch, which could provide a potential avenue for targeted therapy.

1:00 PM   64

Investigating the Role of Heterogeneous Aging in Tumor Development & the Study of Differentially Aged Cell Population Interactions

Darby Dodge, Biology (U)

The goal of this study is to evaluate the incidence of cancer in aging tissues from a phenomenologically unique perspective, focusing on the dynamics of differentially aged cell populations. Traditional research cancer incidence and aging often attributes

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the increase in cancer risk primarily to the accumulation of specific genetic mutations over time. However, our approach seeks to understand how heterogenous aging within tissues and organs might influence tumor development independent of specific mutations. To explore this, we use both cancerous and non-cancerous cell lines, which are cultured to varying passages under identical conditions, with the only difference being the biological age (passage number) of the cell population. We are employing staining and imaging techniques to assess and compare the dynamics of these differentially passaged cell populations. The imaging data will provide crucial insights into how cellular behaviors and population dynamics change with passage and aging, laying the groundwork for developing and refining the mathematical model of cell population dynamics that we have developed. Our hypothesis posits that uneven aging within tissues, rather than specific genetic changes, can drive tumor incidence and growth. This perspective builds on recent theoretical work suggesting that while homogenous tissues maintain homeostasis, increased cellular heterogeneity and patchiness disrupt this balance and promote tumor-like growth. By combining detailed biological analyses of aging processes with mathematical modeling, this project aims to clarify how age-related changes in tissue microenvironments contribute to cancer development.

1:00 PM   65

Assessing the role of obesity in ovarian tumor metastasis

Emily Rodriguez, Cellular and Molecular Biology (U)

In every 100,000 American women, around 10 of them are diagnosed with ovarian cancer. Poor patient outcomes have been linked to obesity, with its factors aiding in angiogenesis, inflammation, and proliferation of tumor cells. Ovarian cancer preferentially metastasizes to the omentum, which is a fatty tissue sheet composed of adipocytes, preadipocytes, fibroblasts, and immune cells. Specifically, preadipocytes differentiate into adipocytes in elevated levels of obesity, induced by insulin-like growth factor 1 (IGF-1) signaling. Moreover, the NF-kB signaling pathway is essential for tumor metastasis's proliferation and cell survival. 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 injections of ACI23 cancer cells with high BMI or normal BMI preadipocytes from the omentum and quantify NF-kB activation of RelA or RelB using immunohistochemistry. Next, we will assess gene expression differences of ACI23 cancer cells with conditioned media from high or normal BMI preadipocytes to evaluate nutrient stress conditions to model metastasis. With this research, we hope to highlight the influence of obese tissue on ovarian cancer metastasis and progression. By focusing on the adipose tissue, we hope to understand the inflammatory nature of obesity in the omentum towards developing novel therapeutics for patients with this condition.

Session L-5

Cancer Research (U) 2
Friday, February 28, 2025 1:00 PM
Montezuma Hall

1:00 PM   66

MLH1 deficient cells can confer treatment resistance to wild-type breast cancer cells

Grace Girardot, Microbiology (U)

Estrogen receptor positive (ER+) breast cancer is the most commonly diagnosed breast cancer subtype that affects ~310,000 women in the US each year. Although standard in care endocrine therapy has greatly improved prognosis, nearly 40% of patients diagnosed with ER+ breast cancer develop resistance and recur. Therefore, there is a critical need to better identify which patients are at high risk of recurrence to prevent disease progression and improve targeted therapy. A driver of this resistance to endocrine therapy is somatic loss of MLH1, a tumor suppressor that plays a crucial role in DNA damage repair. Loss of MLH1 protein expression occurs in ER+ ~15% of patient tumors and loss of expression is often subclonal. Here, we investigate the hypothesis that MLH1 defective cells confer endocrine therapy resistance to wild-type (MLH1+) cancer cells when grown in co-cultured mixed populations. To begin to test this hypothesis, we conduct co-culture experiments of mixed populations of wild-type and MLH1-deficient tumor cells in addition to treating wild-type cells with conditioned media from MLH1-deficient cells and test proliferation and growth response to endocrine treatment. To mimic different levels of heterogeneity in patient tumors, we created heterogenous co-cultures of differing ratios of wild-type GFP tagged MLH1+ and RFP tagged MLH1- cells. From these tests, we were able to identify that MLH1+ cells grown alongside MLH1- cells exhibit increased proliferation and decreased apoptosis in response to fulvestrant (a standard endocrine therapy), relative to MLH1+ cells in homogeneous conditions. These findings suggest that subclonal loss of MLH1 expression, which occurs in ~15% of all ER+ breast cancer patient tumors, can drive resistance to endocrine therapy for the bulk population. It remains to be tested if the same is true for tumors in vivo.

1:00 PM   67

Characterizing the Structural and Catalytic Impact of IDH2 Mutations: Insights into Tumor Formation and Cancer Progression

Isabella Alves, Biology (U)

Isocitrate dehydrogenase (IDH) is an enzyme that is responsible for catalyzing the oxidative decarboxylation of isocitrate into alpha-ketoglutarate (É'-KG). However, when the IDH is mutated, the enzyme is prevented from converting isocitrate to É'-KG and instead produces the oncometabolite, D-2-hydroxy-glutarate (D2HG) from É'-KG. The increased production of D2HG depletes NADPH, thereby affecting redox homeostasis. Metabolic disruptions have shown to affect NAD+/NADH

ABSTRACTS

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ratios which contribute to cancer formation. Mutations in two specific isoforms of this enzyme, IDH1 and IDH2, are heavily studied in cancer research due to their frequent appearance in a large variety of tumors. Mutations in IDH1 and IDH2 are found in 80% of grade II-III gliomas and secondary glioblastomas, 20% acute myeloid leukemias, 80% of chondrosarcomas, and 20% of cholangiocarcinomas. One major difference between these two isoforms is their localization in the cell; IDH1 is found within the cytoplasm and peroxisomes while IDH2 is located within the mitochondria. Despite this commonality, there is still a large gap of knowledge between IDH1 and IDH2 in regards to their catalytic function and protein structure. We are interested in learning more about the difference in these aspects for IDH2 and how mutations at specific amino acid residues will affect overall protein function. In this study, we focused on elucidating the structural function and regulation of IDH2 by introducing targeted mutations at specific amino acid residues. The R172K mutant was selected due to it being the most frequent cancerous mutation of IDH2 in patients and the only mutation that produces high quantities of 2HG in lymphoid cells in patients with angioimmunoblastic T-cell lymphoma (AITL). Using site-directed mutagenesis, I successfully mutated arginine (R) at the 172 position to lysine (K) and confirmed this using Sanger sequencing. Assuming expression and purification of the mutated proteins in E. coli are successful, we will evaluate their catalytic activity using steady-state kinetics methods in further experiments. This study allows us to further understand the catalytic and structural activity of IDH2, which will ultimately lead to a deeper understanding of tumor formation and cancer overall.

1:00 PM   68

Role of social determinants of health on parental consent and voluntariness in pediatric cancer clinical trials

Kate Marinchev, Biology (U)

Background:Voluntariness, an ethical imperative in informed consent, refers to the willingness to participate in research without feeling pressured. Although parental consent is required for participation of children in research, investigations assessing the role of social determinants of health (SDOH), including health literacy (HL), on parental voluntariness in pediatric cancer clinical trials lack. Limited HL (ability to understand and act on medical information to navigate healthcare) is associated with poorer outcomes. Thus, investigating SDOH during informed consent can contribute to improving disparities in clinical trial accrual for marginalized populations.Objective:To examine associations between SDOH and voluntariness during informed consent for clinical trials among parents of children with cancer.Design/Methods:This cross-sectional study enrolled parents of children newly-diagnosed with cancer at Rady Children's Hospital (2014-2024). Multivariable regression assessed associations between SDOH and voluntariness, including subdomains of self-control and absence of control. Results:Of 354 participants, 189 were Hispanic (53.4%), 230 were female (65.0%), 110 used Spanish for medical communication (31.1%), and 131 had limited HL (37.0%). In multivariable analysis, lower voluntariness was significantly

associated with Spanish language use (r=-3.067, p=0.002) and limited HL (r=-2.132, p=0.006). Spanish language use was associated with lower perception of self-control (r=-0.664, p=0.053); and Spanish language use (r =-1.848, p<0.001) and limited HL (r=-0.762, p=0.030) were associated with absence of control.Conclusion(s):Lower parental voluntariness was significantly associated with Spanish language use for medical communication and limited HL. Our findings emphasize the need for HL and language-concordant recruitment interventions to ensure voluntary and equitable research participation.

1:00 PM   69

MICAL2 expression promotes invasion and metastasis by cell autonomous and non-cell autonomous mechanisms in Pancreatic Cells

Katherine Simms, Mechanical Engineering with an Emphasis in Bioengineering (U)

Pancreatic ductal adenocarcinoma (PDAC) is a lethal cancer due to its propensity for early metastasis. MICAL (microtu-bule-associated monooxygenase) proteins are one of the highly expressed genes in PDAC) that induce actin depolymerization, but despite this knowledge, the holistic impact of MICAL2 on cytoskeleton states of cells remains a major question. Here, we have taken a multi-scale modeling approach to connect cytoskeletal gene expression programs exhibited by pancreatic cancer cells to connect biochemical signaling networks and extracellular matrix conditions that regulate the cellular mechanical state. Our model allows us to determine how the expression of MICAL2 impacts pancreatic cancer cell migration across soft and stiff substrates. Overall metastasis-related emergent behavior reveals hidden cell migration dynamics and durotaxis in 3D environments.

1:00 PM   70

Bulk Transcriptomic Analysis Reveals the Effect of Endocrine Disrupting Chemicals on Cancer Gene Networks During Embryonic Development

Kathleen Nguyen, Cell and Molecular Biology (U)

Exposure to endocrine-disrupting chemicals (EDCs) during the embryonic stage has been shown to alter developmental processes and increase susceptibility to various diseases. While previous studies have explored the effects of EDCs on liver function, the mechanisms by which EDC exposure during early development may contribute to cancer remain underexplored. In this study, we hypothesize that exposure to EDCs during the developmental stage disrupts the expression of key cancer-related signaling pathways, potentially increasing the risk of cancer formation later in life. To investigate this, we utilized RNA sequencing to profile the transcriptomes of zebrafish embryos exposed to EDCs. Our analysis focused on identifying molecular biomarkers linked to cancer pathways across multiple organs and evaluating the long-term effects of EDC exposure during development. Preliminary results reveal significant alterations in cancer-related gene networks and metabolic pathways, suggesting a potential link between early

ABSTRACTS

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EDC exposure and later cancer susceptibility. These findings emphasize the importance of understanding the long-term health impacts of EDCs from the developmental stage. Insights gained from this study could inform early interventions aimed at reducing the risk of cancer and other chronic diseases through targeted therapeutic strategies.

1:00 PM   71

Optimizing expansion microscopy resolution through deconvolution for improved tissue imaging analysis

Larissa Reyes, Biology (U)

Many innovations in microscopy have contributed to the success of analyzing and identifying complex ultrastructures in tissues. Super-resolution microscopy can pass the diffraction limit to define structures at high magnifications (SRM); its resolution ranges from ~250 nm to ~20 nm. However, SRMs are costly investments and require training for operation. An alternative is Expansion Microscopy (ExM). A recently developed technique that works by physically swelling the tissue isotropically, increasing its flexibility, and softening its structure, allowing for mechanical modification. We will use a series of antibodies, including P53, to evaluate the enlargement and analyze the resulting decoding, allowing for more straightforward quantification.The tissues will be immunoreacted with the antibodies and treated with acryloyl-X, a solution for protein anchoring, and a gelling solution for in-situ polymerization. Afterward, the tissue is homogenized by protein digestion with Proteinase K and stained twice with DAPI to increase fluorescence intensity and examined using widefield and confocal microscopy. We are now assessing the formation of a gel solution, with a base composed of acrylamide and sodium acrylate. We induced the polymerization of the gel using different concentrations of an ammonium persulfate initiator, 4-HT Tempo inhibitor, and TEMED. Successful gel formation was confirmed by observing untreated tissue slides under a confocal microscope, revealing that the gel solution increased tissue dimensions approximately twofold. Initially cut to a thickness of 5 microns, the tissue sections expanded between 8 and 12 microns. However, challenges have arisen with chromogen and hematoxylin staining, requiring further refinement of staining techniques to more effectively resolved the expanded tissue structure.Our objective is to establish and standardized protocols for ExM as an accessible, cost-effective method to overcome the diffraction limit, potentially serving as a practical alternative in pathology. ExM could provide enhanced visualization of ultracellular structures, improving the detection of abnormalities within tumor cells. Through these standardized protocols, we aim to simplify the technique, making it more user-friendly for widespread use in clinical and research settings.This research was supported by the National Cancer Institute of the National Institutes of Health under award numbers U54CA285117 (SDSU), U54CA285115 & P30CA023100 (UC San Diego).

1:00 PM   72

Assessing Patient Experiences Post-Cancer Treatment: Health, Quality of Life, and Psychological Impact

Lena Adnan, B.S. Biology with an emphasis in Cellular and Molecular Biology (U)

As cancer centers in low- and middle-income countries (LMICs) adopt new tools for cancer treatment, management of cervical cancer in sub-Saharan Africa remains a critical concern. Cervical cancer is one of the most prevalent cancers in this region primarily treated with a combination of chemotherapy and radiation, brachytherapy being a crucial component. Standard treatment has been 2D brachytherapy. For three decades, Western countries have used 3D brachytherapy, which improves toxicity management. 3D brachytherapy uses CT/MRI to precisely place radioactive sources in or near tumors, optimizing radiation dose while sparing healthy tissue, while 2D brachytherapy uses X-rays, which is less precise and may expose healthy tissues more. This study aims to develop and implement a survey to assess pain levels, treatment efficacy, and post-treatment complications in patients undergoing 2D and 3D brachytherapy in Tanzania. Given the constraints in providing adequate sedation, pain medication, and anesthesia, it's crucial to understand patient experience and outcomes associated with these treatment modalities.Every patient getting 2D or 3D brachytherapy at our Tanzanian partner hospital will be surveyed. The survey will evaluate pain levels during treatment, the perceived efficacy of the treatment, and any complications experienced post-treatment. This survey will provide a full understanding of resource-limited brachytherapy difficulties and patient experiences. We expect the findings to show that Tanzanian cervical cancer patients need better pain control and sedation to make brachytherapy more effective and tolerable. This survey will shed light on Tanzanian cervical cancer brachytherapy, emphasizing the need for sedation and pain management.

Session L-6

Cancer Research (G) 2
Friday, February 28, 2025 3:00 PM
Montezuma Hall

3:00 PM   37

Utilizing RNAseq to Investigate Metabolic Gene Regulation of Cancer Cells Expressing Mutant IDH1

Katelyn Yunker, JDP Chemistry (D)

Metabolism is a series of chemical reactions and pathways that cells undergo to produce energy and sustain life. This process consists of various enzymes that are responsible for catalyzing these reactions. However, an enzymatic mistake, misregulation, or mutation can lead to uncontrolled growth and/or disease, including cancer. Our focus is on the metabolic enzyme IDH1, an enzyme located in the peroxisomes and cytosol that is responsible for the conversion of isocitrate into â°-ketoglutarate.

(U)=Undergraduate; (M)=Masters; (D)=Doctoral

Mutations in IDH1 result in the reduction of â°-ketoglutarate into D-2-hydroxyglutarate, an oncometabolite that promotes tumorigenesis. Our goal is to understand why there is significant regulation in these pathways, and how this regulation gives both biological advantages and disadvantages to cancer cells. In this study, we used RNA sequencing (RNAseq) to investigate the gene expression profiles of cancer cells expressing mutant IDH1. By identifying genes that are upregulated or downregulated, RNA sequencing provides insights into the metabolic pathways influenced by cancer. Using bioinformatic platforms such as KEGG and Cytoscope, we analyzed the data to identify pathways that are differentially regulated upon expression of IDH1 mutants. Through analyzing various pathways, we observed significant gene regulation in ribosomal biogenesis and lipid metabolism, highlighting how IDH1 mutations can alter cellular metabolism in cancer cells. These results provide a deeper understanding of cancer metabolism and identify ribosomal biogenesis and lipid metabolism as potential pathways could be targeted to counteract metabolic regulation of cancer cells expressing mutant IDH1.

3:00 PM   38

Cooperative roles of RBD and CRD in Raf membrane recruitment and activation via Ras-GTP and lipids
Kesaria Tevdorashvili, Chemistry (D)

Membrane localization is a critical step for activating signaling proteins involved in many essential cellular pathways. In the Ras-Raf pathway, this step plays a central role in transmitting signals that govern cell growth and survival. The kinase Raf is activated at the plasma membrane through interactions with Ras and membrane lipids, which are mediated by two key domains: the Ras-binding domain (RBD) and the cysteine-rich domain (CRD). While these domains are known to be important, their specific roles in Raf activation and membrane recruitment remain unclear. Using total internal reflection fluorescence (TIRF) microscopy, we examined how RBD and CRD interact to facilitate Raf's association with the membrane. We discovered that RBD's interaction with Ras enhances CRD's ability to bind lipids, which in turn reinforces Raf's membrane attachment. Conversely, CRD's lipid interactions stabilize the RBD-Ras binding, resulting in prolonged Raf localization at the membrane. These findings highlight a cooperative mechanism that ensures stable Ras-Raf signaling, offering fresh perspectives on this pathway's regulation and new opportunities for therapeutic targeting in cancer.

3:00 PM   39

ID1-4 proteins Contribution to Cancer Stem-like Cell Maintenance and Ovarian Cancer Recurrence Following Chemotherapy
Megan Keene, SDSU/UCSD Joint Doctoral Program - Cell and Molecular Biology (D)

Although most patients initially respond to chemotherapy, ovarian cancer (OC) remains the most lethal gynecological cancer, primarily because over 80% of advanced cases relapse within 24 months. Current research suggests that cancer recurrence can be 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 or inhibitors of DNA binding proteins, 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, but their role in OC CSCs and recurrence is unclear. We have previously found that ID1-3 gene expression increases following chemotherapy treatment in OC clinical samples and cell lines, and the elevated gene expression of ID1 and ID3 is associated with worse clinical outcomes. In subcutaneous xenograft mouse models, we have found that ID2 and ID4 protein expression significantly increases acutely following carboplatin treatment as compared to vehicle groups, but this effect is lost over time. In OVCAR5, OVCAR8, and OV90 OC cell lines, we see a 10-40 fold increase in ID gene expression following two cycles of chemotherapy treatment. We hypothesize that ID proteins are required for OC CSC survival, self-renewal, and tumor recurrence following chemotherapy. Using a pan-ID inhibitor, AGX51, we have significantly knocked down ID expression in chemotherapy-naÃ¯ve (OVCAR5, OV90) and chemotherapy-re-sistant (OVCAR4, OVCAR8) OC cell lines. Our data suggest pan-ID inhibition in OC cell lines reduces chemotherapy resistance, and reduces chemotherapy-dependent increases in CSC surface marker expression by flow cytometry, stemness and EMT genes by qRT-PCR, and downstream targets, including IL-6. Future studies will use siRNA silencing to further investigate the role of specific ID proteins in chemotherapy resistance, asymmetric division, spheroid formation, CSC maintenance by gene expression and flow cytometry, and signaling to downstream targets. These studies highlight a novel target important in CSC maintenance in response to chemotherapy that contributes to tumor progression and relapse. Understanding these mechanisms will allow us to develop novel therapeutic approaches to overcome chemother-apy-induced relapse, and better clinical outcomes.

3:00 PM   40

Exploring the Role of Autophagy in Cancer-Associated Fibroblasts: Implications for Tumor Desmoplasia and Metastasis
Nancy Leon-Rivera, Joint Doctoral Program in Cell and Molecular Biology (SDSU & UCSD) (D)

Breast cancer is the most common cancer among women worldwide, with triple-negative breast cancer (TNBC) being one of the most aggressive subtypes. TNBC lacks targeted therapies, leaving patients with limited treatment options. Tumor progression in TNBC is heavily influenced by desmoplasia, characterized by a specific set of histological characteristics of the tumor microenvironment (TME), including increased cytokine secretion, vascularization, collagen deposition, and extracellular matrix (ECM) remodeling. Cancer-associated fibroblasts (CAFs), a key component of the TME, contributes to desmoplasia by remodeling the ECM and enhancing tumor growth. Autophagy, a process that degrades and recycles

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damaged cellular components, plays a dual role in cancer: it suppresses early tumorigenesis by maintaining cellular homeostasis but facilitates tumor progression in advanced cancers by providing nutrients under stress. While autophagy in tumor cells is well-studied, its role in CAFs, which are the most abundant stromal cells in primary and metastatic tumors, remains largely unexplored. Therefore, I aim to define the role of autophagy in stromal fibroblasts within the TME and its influence on tumor desmoplasia and metastasis. Building on previous findings, I will investigate how inhibiting autophagy in fibroblasts affects tumor growth, desmoplasia, and metastatic potential. I am using established fibroblast-specific autophagy-inhibited transgenic mouse models (FSP-Cre; Atg5/12), orthotopically implanted with EO771 TNBC cells. We are monitoring tumor growth, metastatic burden, and tumor and metastasis histology. Preliminary data suggest that autophagy inhibition in fibroblasts reduces lung metastasis, highlighting the potential role of autophagy in promoting metastasis. By testing for decreased desmoplasia and its implications for metastasis, I aim to elucidate the complex interactions within the TME that promote cancer progression. The significance of this research lies in its potential to identify novel targets for intervention and improve outcomes for patients with breast cancer. These findings may also enhance the understanding of autophagy inhibition's impact on the TME, offering insights into potential for autophagy inhibition as a targeted therapy. Overall, my project seeks to contribute to developing effective strategies for combating metastatic breast cancer by utilizing alternative cell lines to dissect the molecular biology of desmoplasia, which is understudied in breast cancer research.

3:00 PM   41
Exploring The Kinetics, Dynamics, And Structure Of Idh2

Nino Mamasakhlisi, Chemistry/Biochemistry (D)

Numerous human cancers, including over 80% of low-grade gliomas, 40% of chondrosarcomas, and approximately 12% of acute myeloid leukemia cases, contain somatic point mutations in the genes encoding isocitrate dehydrogenases 1 and 2 (IDH1 and IDH2). These mutations affect residues within the enzyme's active sites, leading to a gain-of-function in cancer cells and resulting in the production and accumulation of the oncometabolite D-2- hydroxyglutarate (D2HG). Given the significant impact of these mutations, extensive research has been dedicated to developing small molecule inhibitors. However, resistance to these inhibitors remains a major challenge. The limited functional and structural studies on IDH2, largely attributed to its low expression yield in Escherichia coli, present a significant barrier to understand the critical role of the enzyme in cancer metabolism. To address this gap, high-yield expression of IDH2 in E. coli was achieved through meticulous optimization of expression systems and construct design, as well as refining purification protocols. Moreover, efficient folding and enzymatic activity were confirmed through kinetic characterization of wild-type IDH2, accompanied by a pH sensitivity study. Here we discovered that the efficiency of human WT IDH2 in conventional reaction is heavily affected by the pH of the reaction. Specifically, studies conducted in 5.5-8.5

pH range, we found that lower pH significantly decreases reaction turnover rate; Furthermore, with increasing reaction pH the efficiency of the IDH2 WT increases in conventional reaction. We extended our interest exploring the structure of IDH2 WT. The crystals of IDH2 WT apo and holo enzyme in different conditions were grown and shown to diffract, though additional optimization is required. Overall, this study aims to uncover the mechanistic insights and structural dynamics of both wild-type and mutant forms of IDH2. The findings from these studies have the potential to improve existing allosteric inhibitors and facilitate the design of novel targeted therapies.

3:00 PM   42
Alternative NF-ÄˌB inhibits MAPK activity to Promote Quiescence and Drug Resistance in Ovarian Cancer

Cecilia Gallo, Cellular and Molecular Biology (M)

Ovarian Cancer (OC) is the most lethal gynecological malignancy in the United States and despite good initial response to chemotherapy, approximately 80% of late-stage patients relapse. Recent studies suggest that a subpopulation of tumor cells with stem-like characteristics, called Cancer Stem-like Cells (CSCs), resist treatment and drive recurrence. Several signalling pathways, including MAPK and NF-ÄˌB, are known for their roles in tumor initiation, disease progression, and drug resistance in ovarian cancer. We previously showed that the canonical NF-ÄˌB factor, RelA, primarily promotes proliferation, while the non-canonical NF-ÄˌB factor, RelB, promotes quiescence. Additionally, activation of MAPK/ERK has been implicated in proliferation of ovarian cancer cells. NF-ÄˌB and MAPK signaling cascades are both critical for OC progression, although their precise roles in maintaining CSCs remain unclear. Our preliminary data showed that knockdown (KD) of RelB in vivo following chemotherapy did not decrease growth of residual tumors, whereas KD of RelA or inhibition of MAPK alone reduced growth of residual tumors. However, combining RelB KD with MAPK inhibition reduced growth of residual tumors comparable to RelA KD or MAPK inhibition alone. Therefore, we hypothesize that RelB supports quiescence in CSCs by downregulating MAPK activity. Western Blot analysis indicated increased MAPK activity in the absence of RelB in two high grade serous ovarian cancer (HGSOC) cell lines. Moreover, in vitro cell cycle studies revealed an increase in the percentage of CSCs in the S phase following RelB KD whereas combining RelB KD with MAPK inhibition rescued this phenotype. Taken together, our findings suggest that RelB downregulates MAPK activity to support quiescence in ovarian CSCs. Ongoing studies are investigating the expression of S phase specific cyclins in the absence of RelB to further elucidate mechanisms of proliferation and cell cycle progression regulated by RelB and MAPK. Additionally, immunohistochemistry (IHC) analysis using tissues derived from control, RelB KD, and RelB KD with MAPK inhibition tumors will be used to evaluate changes in NF-ÄˌB, MAPK and cell cycle proteins in residual and regrown tumors. This work reveals novel mechanisms of how RelB supports drug resistance in ovarian CSCs and information gleaned from this study could inform future therapeutic studies.

(U)=Undergraduate; (M)=Masters; (D)=Doctoral

3:00 PM   43

The Wnt9a Mimetic: A Review of a Novel Tool for Hematopoietic Stem Cell Signaling and Differentiation

Dareana Cabada, Microbiology (M)

Wnt signaling plays a crucial role in hematopoietic stem cell (HSC) development and maintenance. Recent studies have highlighted the specific importance of Wnt9a in HSC emergence and expansion. However, the hydrophobic nature of Wnt proteins presents significant challenges for their use in research and potential therapeutic applications. This review examines the development and initial testing of a novel Wnt9a mimetic designed to overcome these limitations.We discuss the structural basis of the Wnt9a mimetic, a tailored antibody that targets both Frizzled 9 (Fzd9) and LRP5/6 co-receptors. This design aims to recapitulate the signaling specificity of Wnt9a without the complications associated with lipid modifications. Our preliminary findings, using Western blot analysis, demonstrate that the Wnt9a mimetic effectively stabilizes β-catenin in a dose-dependent manner, comparable to Wnt3a positive controls. These results suggest successful activation of the canonical Wnt pathway.The potential implications of this Wnt9a mimetic for studying HSC biology and its possible applications in generating hematopoietic stem and progenitor cells (HSPCs) from induced pluripotent stem cells are considered. While our current work focuses on pathway activation, future directions include investigating the effects of the mimetic on HSPC differentiation and expansion. This review underscores the promise of engineered protein mimetics in overcoming the limitations of native Wnt proteins for both basic research and potential therapeutic applications in hematological disorders.

Session L-7

Cancer Research (U) 3
Friday, February 28, 2025 3:00 PM
Montezuma Hall

3:00 PM   44

Voices for Change: Three Case Studies Exploring Limitations in Cancer Care in the Imperial Valley, CA

Linda Diaz, Psychology (U)

Cancer is the second most common cause of death within the Hispanic population, accounting for 17% of all deaths (American Cancer Society, 2024). Despite medical advancements, many Hispanics, particularly those who live in rural or low-income areas, such as the Imperial Valley and other communities along the U.S.-Mexico border, continue to have inadequate cancer care due to a lack of infrastructure and specialized services and insurance issues (Beyer et al., 2013 and Eberhardt & Pamuk, 2004, as cited in Peacher at al., 2013). These limitations contribute to disparities in cancer survival rates caused by delayed diagnosis and

treatment and inadequate preventative care, among other issues. In this presentation, we discuss three case studies that explore the factors that shape people's experience with cancer and cancer care in the Imperial Valley border region. Semi-structured interviews were conducted with three Mexican American men residing in the Imperial Valley: a 58-year-old with Leukemia and Lymphoma, a 64-year-old with non-Hodgkin's Lymphoma, and a 20-year-old with neuroendocrine cancer. We conducted a thematic analysis of the interview transcripts using NVivo software. Some major common themes were: inadequate general and specialized local care, the need to seek care outside of the Imperial Valley (e.g., in San Diego and Mexicali), delayed diagnosis, the importance of self-advocacy for patients, and lack of emotional and social support, all of which profoundly impacted participants' experiences with cancer. Additionally, two participants identified environmental contaminants related to agriculture (e.g., pesticides) and poor air quality as having caused their cancer. These issues, many of which are common to border regions that are largely populated by Hispanics, affect mental and physical health, hindering recovery and adding stress to patients' experience. Addressing these complex challenges requires a different approach to healthcare reform that includes improved environmental policies, clearer medical communication, and better community support systems to enhance overall health outcomes and reduce cancer burdens in this and similar populations.

3:00 PM   45

Regional differences in precision medicine awareness in a large US-Mexico border county

Lisa Nguyen, Statistics, with emphasis in Data Science (U)

Purpose: Breakthroughs in genome-wide sequencing, AI, data analytics, and immuno-oncology research have advanced precision medicine, yet disparities in cancer outcomes persist across the United States. Familiarity and comfort with these concepts is a critical first step to adopting their use when indicated. We sought to determine whether familiarity with precision medicine terminology varied by region within San Diego county, along with demographic indicators.Methods: A 2019 county-wide mailed population health assessment included 13 items to assess familiarity with precision medicine terms as well as home ZIP code. Respondent ZIP codes were used to classify participants by County of San Diego Health and Human Services Agency (HHSA) region. Precision medicine term awareness items were dichotomized into high and low familiarity; chi-square tests assessed regional differences in individual term awareness using a Bonferroni-corrected alpha of 0.0038 to account for multiple comparisons. Overall sum scores were computed (possible range 13-65) and assessed for regional differences using ANOVA and post-hoc tests. Multiple linear regression was used to determine the association between sociodemographic factors (occupational status, education level, insurance coverage, income status, and common language spoken at home) and precision medicine awareness sum scores.Results: Terms such as biobank, precision medicine, pharmacogenomics, and social determinants of health had low familiarity across all regions,

ABSTRACTS

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with fewer than 25% of respondents reporting moderate to extreme familiarity. Familiarity with the terms 'gene' and 'genome' varied by region (p<0.0004). Summed awareness scores varied by region, with the lowest mean awareness observed in the south (37.9), followed by east (40.0), north central (42.0), north inland (43.3), central (43.7), and north coastal (44.5; ANOVA p<.001) regions. Post hoc analyses using ScheffÃ© and Tukey HSD tests identified significant differences between the south and the central, north coastal, and north inland regions (p<0.05). Regression analyses showed higher awareness among individuals who were students and/or had education beyond high school and lower awareness among individuals who spoke languages other than English.Conclusions: The south region of San Diego County, which includes the US-Mexico border, had lower precision medicine awareness compared to other HHSA regions. English proficiency and completion of K-12 education are associated with greater awareness. Implementing geo-graphically-based health promotion and policy interventions within existing public health regional infrastructures could help address these challenges in diverse and remote communities. Further investigation of public health constructs by geographic region or service area can support focused efforts to improve population health.

3:00 PM   46

Recombinant Adeno-Associated Virus (AAV) Depletes PARP1 and Other DNA Damage Response Proteins Required for Cell Division

Miriam Garcia, Biology (U)

Recombinant Adeno-associated virus (AAV) is gaining traction as a viral vector for human gene therapy, but our lab has found that it can be toxic to developing neurons, raising concerns about risks to the developing neurons. In this study, we aim to clarify the mechanisms behind AAV-induced toxicity, specifically investigating DNA damage induced by viral infection. We'll focus on how AAV impacts human neural progenitor cells (NPCs), particularly the role of DNA damage response (DDR) proteins. Our strategy includes modifying the AAV structure to reduce its toxic effects, which could significantly influence the future of gene therapy.

3:00 PM   47

Novel Actin Interacting Protein - MLH1

Rozet Parinas, Biology - Cell and Molecular (U)

Estrogen receptor positive (ER+) breast cancer, the most commonly diagnosed cancer in women, is a leading cause of cancer-related death.Death from ER+ breast cancer is largely due to treatment resistance and subsequent metastasis, which occurs in ~40% of patients. The Haricharan lab previously established loss of a DNA repair protein, MLH1, as a novel driver of this treatment resistance.In continuing studies, we now identify MLH1 loss as also causal to metastatic phenotypes in vitro and in vivo. However, the underlying mechanism remains unknown. Identifying this mechanism could help develop novel therapeutic strategies.To identify the underlying mechanism,

we used transcriptomic, proteomic, and morphological screens of ER+ breast cancer cells with and without MLH1 and found that MLH1 loss alters actin localization and cell membrane organization. Changes in organization of cytoskeletal components such as actin have been shown to influence the ability of cancer cells to migrate and invade to distant organs. However, how MLH1 loss alters actin dynamics, and whether this induces metastasis of ER+ breast cancer cells is not yet known. Using an immunoprecipitation (IP) assay, we confirmed that MLH1 interacts with actin in ER+ breast cancer cells. To demonstrate a direct interaction, we examined the MLH1 sequence and identified a conserved putative actin-binding motif. Following introduction of site-specific mutations at key residues in this motif, we observed loss of the interaction with F-actin. In future studies, we will test whether the loss of actin interaction prevents the metastasis observed in MLH1- ER+ breast cancer cells.Our initial studies and planned work can identify a previously uncharacterized interaction between actin and MLH1, shedding novel insight into cytoskeletal organization. Further, by identifying a new role for MLH1 in regulating ER+ breast cancer metastasis, the results of this work could uncover novel treatment strategies for a hard to treat patient population.

3:00 PM   48

Examining Guideline Concordant Care Among Limited English Proficiency Cancer Patients

Sophia Butler, Biology (U)

Foreign-born patients with limited English proficiency (LEP), a substantial 8% of the US population and 18% of California's population, have decreased access to and lower quality of cancer care. Providing guideline-concordant care (GCC) has well-demonstrated survival benefits for patients with cancer, but little is known about GCC rates among LEP patients, particularly in patients with gastric and colon cancers. To fill this gap, we will employ a mixed methods approach to determine the prevalence of language-based disparities in GCC and to identify barriers and facilitators to guideline-concordant treatment for gastric and colon cancers within the 6 UC health systems, which serve a large LEP patient population. This study aims to: 1) determine rates of GCC for colon and gastric cancer among LEP patients vs. comparable non-LEP patients, 2) determine whether there are survival differences in LEP vs comparable non-LEP patients with colon and gastric cancer and to what extent this difference is driven by disparities in GCC, and 3) use semi-structured qualitative interviews of patients and providers to characterize barriers and facilitators of GCC among LEP patients treated for colon and gastric cancer at UCSD, our home UC health system. Findings from this study will identify factors driving disparities in gastric and colon cancer treatment and outcomes among the LEP population. Ultimately this work will inform interventions focused on patient-centered, clinically informed, and system-focused approaches to address these disparities. This work is supported by the National Cancer Institute of the National Institutes of Health under award numbers: U54CA285117 & U54CA285115.

Session L-8

Food Insecurity (U/G)
Friday, February 28, 2025 3:00 PM
Montezuma Hall

3:00 PM   49

Assessing the consumer nutrition environment of non-traditional food stores accepting CalFresh/SNAP EBT in the SDSU campus area

Griffin Sparrow, Food and Nutrition (U)

Background: Food insecurity is prevalent among college students, particularly students from marginalized backgrounds. In California, college students enrolled at least half-time and meeting requirements are eligible for food assistance through CalFresh/SNAP. CalFresh provides monthly food benefits through Electronic Transfer Benefit (EBT) to low-income individuals/households . While most supermarkets and grocery stores accept CalFresh/SNAP EBT, college students face unique barriers to accessing these stores and often have greater access to non-traditional stores, like convenience stores, dollar stores, and pharmacies.Objective: We aimed to document the access and quality of non-traditional food stores accepting CalFresh/SNAP EBT within a one-mile radius of San Diego State University (SDSU).Methods: Students enrolled in NUTR 510 (Community Nutrition) conducted a cross-sectional quantitative study in Fall 2024 consisting of ground-truthing and conducting Nutritional Environment Measures Survey - Corner Store (NEMS-CS) audits at non-traditional food stores. SDSU Professor Swayne and her students from the course, City Planning and Geographical Information Systems, mapped CalFresh/SNAP food stores generated from the USDA SNAP Retailer Location database. NUTR 510 students first verified the existence of these stores and noted food stores not included in the database (ground-truthing). Then, they conducted store audits using the NEMS-CS, which assesses the consumer nutrition environment, including availability, price, and food item quality. Scores range from 0 to 61; higher scores indicate a healthier consumer nutrition environment.Results: The USDA database generated 27 food retailers accepting CalFresh/SNAP EBT within a one-mile radius of campus: 15 non-traditional stores, five restaurant meal programs, four superstores, two supermarkets, and one grocery store. Ground-truthing revealed every retailer accepted CalFresh/SNAP EBT, except one which was permanently closed. Of the 14 non-traditional stores audited, NEMS-CS scores ranged from 3 (convenience store) to 37 (dollar store), with a mean of 12.6. Stores scored highest for milk, fruit, beverages, and baked chips. Stores scored lowest for vegetables, ground beef, and hot dogs.Conclusions: While many stores near campus accept CalFresh/SNAP EBT, the availability of nutritious foods in non-traditional stores is inconsistent. Opportunities exist to improve the food environment for SDSU students from low-resource backgrounds.

3:00 PM   50

Vital Tidal: An Affordable Meal Replacement to Address Food Insecurity and Nutrient Deficiency in Southern California

Stacey Lehrer, Food science and nutrition (U)

We developed Vital Tidal, an innovative meal-replacement product formulated with bioavailable collagen peptides, microalgae, and vitamins, designed to alleviate food insecurity and combat nutrient deficiencies within Southern California's marginalized populations. This current beginning research evaluates the efficacy of Vital Tidal in enhancing nutrient absorption and improving health outcomes. By offering a culturally adaptable and allergen-free solution at an economical price point of $1.24 per packet, the product addresses gaps in current market offerings.Comparative analysis underscores its advantages over existing products. WhileHuel serves a premium segment with a wide range of plant-based nutrients, it lacks cultural adaptability and is comparatively costlier.Ensure, although targeting similar demographics, is limited by the presence of allergens, reducing its accessibility, whereasVital Tidal offers a lower-cost, allergen-free alternative.Meanwhile, Plumpy'Nut, designed for acute malnutrition emergencies, falls short in addressing long-term food insecurity challenges due to its limited nutritional diversity, lack of cultural specificity, and major allergenic potential.This study highlights Vital Tidal's potential as a strategic, middle-ground solution, characterized by its cost-effectiveness, flavor adaptability, and bioavailability. Its lightweight and portable nature facilitates distribution and preparation, advancing the vision of sustainable community health enhancement. Through collaboration with local food banks and in-depth research initiatives, Vital Tidal aspires to not only ameliorate health outcomes but also secure widespread community acceptance and integration.

3:00 PM   51

Bringing nutritious food and health literacy to Southeastern San Diego through the Project New Village Peoples Produce Mobile Farmers Market: A process evaluation

Griselda Luna, Nutritional Sciences (M)

AbstractBackground: Unhealthy diets significantly contribute to cardiometabolic diseases, which are prevalent among communities of color and low-income households where economic and physical access to healthy food is limited. The People's Produce Mobile Farmers' Market (PPMFM) is a community-driven initiative started by Project New Village, a San Diego grassroots nonprofit, to improve access to fresh produce for historically marginalized communities in greater southeastern San Diego. In October 2022, the PPMFM began operation alongside SDSU students providing nutrition education and conducting surveys with customers. The objective of this study is to describe the nutrition-related activities conducted at the PPMFM and the number and characteristics of customers completing the surveys over

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12 months (February 2023 " January 2024).Methods: This process evaluation describes the PPMFM implementation. The PPMFM is a refrigerated truck visiting different sites throughout the week to sell locally grown, affordable fresh fruits and vegetables. Trained SDSU nutrition students invited PPMFM adult customers (â‰¥18 years) to participate in a brief nutrition education session and complete a survey to collect sociodemographic data. Customers completing these activities received a $10 coupon redeemable at the PPMFM for fresh fruits and vegetables. Data were managed and summarized in Excel.Results: The PPMFM regularly served six different weekly sites and a total of 2976 customers completed surveys between February 2023 and 2024. Almost two-thirds of customers reported being food insecure (65.1%), but a small proportion reported participating in food assistance programs (29.4%). Most customers were aged 50+ (48.8%) and identified as Black (25.5%), Asian (20.7%), white (19.7%), or mixed race/ethnicity (6.9%), and 35.5% identified as Hispanic/Latino ethnicity. Students delivered nutrition education materials and sessions on the nutrition profile of and storage and preparation tips for a variety of seasonal fruits and vegetables sold at the PPMFM, such as citrus, winter squash, collard greens, apples, lettuce, and strawberries, as well as shopping and meal planning on a budget.Conclusion: The PPMFM served diverse adults experiencing food insecurity and with low participation in food assistance programs. Our findings highlight the important role of the PPMFM in enhancing access to healthy, affordable foods for residents of southeastern San Diego.

3:00 PM   52

Understanding agency partnerships to address food insecurity in San Diego County, CA: a stakeholder mapping approach

Ruthie Grant-Williams, nutritional sciences (M)

Title: Understanding agency partnerships to address food insecurity in San Diego County, CA: a stakeholder mapping approachAuthors: Ruthie Grant-Williams, Hailey Nelson, Amanda C. McClainAbstractBackground: Food insecurity (FI) is defined as a household-level economic and social condition of limited or uncertain access to adequate food. FI inequitably affects marginalized communities and is associated with low diet quality and poor health outcomes. Local nonprofit and government agencies implement federal and local food and nutrition assistance programs to address FI. Our prior research showed that across-agency partnerships were critical to implementing programs and addressing FI holistically. Understanding characteristics of these partner relationships informs future organizational and systems approaches, enhancing the effectiveness of agencies addressing FI.Objective: The objective of this study was to understand partnership characteristics, including aspects of resiliency, among diverse community stakeholder agencies providing food- and nutrition-related services across San Diego County, CA.Methods: This cross-sectional study used data from semi-structured interviews completed between 2019 and 2021

with 23 key informants at 16 stakeholder agencies providing food- and nutrition-related services across San Diego County, CA. We conducted stakeholder mapping to examine partner agency relationships, which consisted of categorizing each stakeholder agency and investigating the relationships between agencies, inside and outside of the study. The research team reviewed transcripts and developed an actor linkage matrix in Google Sheets to describe the agency type (local nonprofit, local government, or local chapter of a nationwide nonprofit), services provided, and partner relationship characteristics. The research team used the matrix to identify patterns in the relationships by agency type and service provided.Results: We identified three categories of relationship characteristics: complementary, communication, and financial. Local nonprofit agencies and local government agencies had primarily complementary partner relationships, meaning both agencies benefited mutually. Local chapters of nationwide nonprofit agencies had mainly financial relationships, meaning other agencies benefited in the form of funds or goods. Communication was noted as a minor characteristic in all three agency types. Relationship characteristics built resiliency during the COVID-19 pandemic, strengthened partnerships, and were integrated into the services provided to clients.Conclusions: Identifying partner relationship characteristics revealed the ways agencies worked together to address FI in San Diego County, CA and showed the development of agency resilience. Findings can inform approaches to maximize the effectiveness of partner relationships between agencies.

Abstracts of Presentations

Session J

SDSU | San Diego State University

Session J-1

Visual Arts Exhibit (U) 1
Friday, February 28, 2025 11:00 AM
Montezuma Hall

11:00 AM
Designing for Disability:
Color Coded Buttons for Jonah
Lila Zeichner, Applied Design (Un)

This project addresses a personal and practical challenge: my older brother, who has Down syndrome, struggles with buttoning his Hawaiian shirts correctly due to difficulty with pattern recognition. To help him, I created colored buttons and matching colored buttonholes, making the buttoning process more intuitive and promoting his independence.Inspired by Down syndrome's chromosomal basis, I designed five shapes, each with four convex curves representing a chromosome's structure. The central button shape, with six convex curves, symbolizes the extra chromosome in trisomy 21. These shapes are used across different button sets, abstracted to fit each set while maintaining a cohesive design.I used a different process for each of the three sets of buttons, utilizing fine hand-work processes combined with computer-aided design and manufacturing. The first set was made from copper and vitreous enamel using a traditional technique called champleve where the copper was etched to create a recess, then filled with enamel, and finished with a dark patina. The second set was made of five different waterjet cut glass shapes, with the chromosome shapes sandblasted in the top. The glass buttons were placed in hand-fabricated silver settings with stable shanks to ensure functionality. The final set of buttons was made of wood, cut using a CNC milling machine, and hand-finished using leather dye to create bright colors.This project has been one of the most rewarding projects I've done. Blending technical skills with my personal mission, allowed for a vision that has thrived through practice-based research. By creating functional objects that improve my brother's daily life, I hope to start conversations about disability and the importance of inclusive design. Ultimately, this project shows how art and design can have a meaningful impact, fostering a more inclusive society where individuals with disabilities are recognized and valued.

Session J-2

Visual Arts Exhibit (U) 2
Friday, February 28, 2025 1:00 PM
Montezuma HalL

1:00 PM
Tactile Geothermal:
The Art of Light and Touch
Yewon Shin, Interior Architecture (U)

Based on the five senses"the ability to watch, hear, smell, taste, and touch"how can multisensory design provide an equal and accessible experience? Since each person has a different background and ability to access, the first idea was to reduce every sense from everyone equally. According to the World Health Organization (WHO), an estimated 40 to 45 million people are blind globally, and more than 1.5 billion people, or about 20% of the world's population, have some degree of hearing loss.For example, blocks the vision and audition, and does not provide a smell and taste experience only a sense of touch remains from the five senses.How can warmth and texture help achieve a unique multi sensory experience for viewers?According to a study by psychologists at Yale University, even something as simple as the temperature of a beverage can affect how we treat others. When the given element is warm, people tend to think more about others, and when the given element is cold, people tend to think more about themselves.Given the importance that the sense of touch has on humans to feel emotions, the combination of warmth, texture, and light will be able to achieve a soothing and relaxing experience for people who interact with Tactile geothermal. People regardless of their other senses and capabilities should be able to experience the same effect from their interaction with the textures, temperature, and light of Tactile Geothermal.

ABSTRACTS

(U)=Undergraduate; (M)=Masters; (D)=Doctoral

Session J-3

Visual Arts Exhibit (G) 1
Friday, February 28, 2025 3:00 PM
Montezuma Hall

3:00 PM

Decentering Social Norms:
Neurodivergent Resistance in Art
Mary Gowen, Master of Fine Arts (M)

Background and Research ContextIn recent years, a growing body of research has emerged at the intersection of autism studies and postcolonial theory, examining how colonial structures and societal norms continue to shape expectations around communication, knowledge, and inclusion. In his chapter Toward a Postcolonial Neurology: Autism, Tito Mukhopadhyay, and a New Geo-Poetics of the Body in Foundations of Disability Studies (2013), writer Ralph James Savarese explores the connections between colonialism and neurological differences. Similarly, architect Magda Mostafa's A Case for Sensory Decolonization: Autistic Escape exhibition at the 2021 Venice Biennale underscores the need to consider how societal structures impact neurodivergent individuals. Mostafa critiques architectural environments that fail to account for neurodivergence, making spaces inaccessible for many.Prior to encountering the work of Ralph James Savarese and Magda Mostafa, I had been independently exploring the connections between autism studies and postcolonial theory in my own research. My research examines how postcolonial strategies can serve as forms of resistance within art institutions, specifically focusing on how artists can use what I term antagonistic, vulnerable, and embedded resistance strategies to challenge ableist norms. While my work is not directly built upon the examples of Savarese and Mostafa, I share them to illustrate that such comparisons are becoming more prevalent in recent academic thought. This symposium offers an opportunity for me to put my research into practice, presenting it through visual and artistic expression. My goal is to explore how these forms of resistance"particularly in relation to neurodivergent experiences"can be conveyed through art in ways that provoke both intellectual reflection and emotional engagement from the audience.Overview of the Symposium PresentationAt the symposium, I will present three distinct works, each embodying one of three strategies of resistance. These strategies, inspired by postcolonial theory, examine neurodivergence and challenge conventional modes of communication and inclusion. The strategies"antagonistic, vulnerable, and embedded resistance"are informed by key theoretical frameworks, which are outlined as follows:1. Antagonistic Resistance: DOES THIS MEAN ANYTHING TO YOU? Inspired by Franz Fanon's exploration of masking and the violence inherent in decolonial processes, this piece examines how neurodivergent individuals must confront dominant societal structures directly and aggressively, resisting the pressure to mask' their true selves in order to conform. DOES THIS MEAN ANYTHING TO YOU?, a mixed media collage, takes an antagonistic approach, with its confrontational, uppercase questioning of whether the mixed-up letters themselves mean anything to the viewer. The bold, direct nature of the text reflects the confusion that verbal and spoken knowledge can impose on autistic individuals. Simultaneously, it forces the viewer to confront whether the work of the artist"and the awareness of ableism embedded within it"holds any real meaning for them at a personal level, challenging their own complicity in a system that marginalizes neurodivergent individuals.2. Vulnerable Resistance: Untitled 1 and Untitled 2 Untitled 1 and Untitled 2 are two paintings depicting my autistic sons riding on a train. In one painting, they are absorbed in their own worlds, and in the other, they are looking out the window together. These images juxtapose the isolation that neurodivergent individuals often experience with the hope for connection and understanding. The train ride symbolizes a journey toward a destination where neurodivergent individuals can truly belong"not merely included in a superficial sense, but valued and respected for their perspectives and contributions. This work reflects the emotional labor and resilience required to navigate a world that marginalizes them, while also holding onto the hope that they will one day arrive at a space where their ways of thinking and being are celebrated rather than tolerated. In relation to Gayatri Spivak's Can the Subaltern Speak?, Spivak's concept of the subaltern mirrors the silencing of neurodivergent individuals, particularly those on the autism spectrum, whose experiences are often overlooked or misunderstood. These paintings invite reflection on whether neurodivergent individuals can be truly heard or understood in a system that prioritizes verbal communication and normal social interaction. Spivak's conclusion"that the subaltern cannot speak"also resonates with the vulnerability of neurodivergent individuals, whose opportunities to contribute meaningfully to societal progress are limited by entrenched social standards. These paintings challenge those in power to create spaces where marginalized voices and alternative modes of communication can be heard. By exploring this vulnerability, I aim to highlight the consequences of a world where neurodivergent individuals are denied the platforms and recognition necessary to engage fully in societal growth.The piece is installed in the bathrooms"non-traditional spaces for art"because they are the only spaces where the artwork can be experienced without the interference of verbal knowledge. This location emphasizes the vulnerability of being marginalized or unseen, allowing viewers to engage with the piece in a direct, non-verbal way. It invites an encounter with the richness and depth of visual, intuitive, and emotional knowledge"qualities that visual art uniquely conveys"enabling a more holistic, right-brained connection with the work that reflects the lived experiences of neurodivergent individuals. The sensitive nature

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of watercolor as a medium further enhances this connection. Just as autistic people are sensitive to their surroundings, the paintings can be changed by touch, water, and environmental influences. The piece may change throughout the symposium, with each mark, touch, or interaction subtly altering its form. It will be considered complete only after the symposium, once the outside world has left its mark, reflecting the ongoing journey of neurodivergent individuals as they navigate and adapt to a world that often marginalizes them.3. Embedded Resistance: Typography/TopographyDrawing from Homi Bhabha's theories of mimicry and the third space, this work examines how neurodivergent individuals are often required to mimic normative behaviors in order to access spaces. At this symposium, the expected behavior is to deliver a spoken presentation to attendees. In the Typography/Topography performance, I will mimic this expected behavior while subverting the norm by inviting listeners to engage in a hands-on, kinesthetic, and visual activity. This activity will utilize materials similar to those in DOES THIS MEAN ANYTHING TO YOU?"mixed media papers combining typography and topography"reflecting the idea that, like plants thriving in different environments, people flourish in various contexts.The imagery in this piece connects to Untitled 1 and Untitled 2, particularly in how my autistic sons are depicted. Their engagement with the outside world becomes more vivid when the ocean is near, symbolizing a deeper connection to their environment. Similarly, in Untitled 1, the jumbled letters outside the train window reflect the dissonance and sensory overload neurodivergent individuals often experience in response to verbal communication. Just as salt-tolerant plants thrive in harsh coastal environments, neurodivergent individuals"especially those on the autism spectrum"may find belonging in unique societal 'topographies' that involve more challenging or unconventional conditions. These 'environments' can offer spaces where neurodivergent individuals are able to fully engage, unburdened by normative expectations.Participants will be encouraged to reflect more deeply on the themes of the work as they engage with the materials. They can either take their creations with them or contribute them to a community

piece that I will assemble after the event. The emotional and psychological toll of conforming, particularly from the perspective of my own experiences as an autistic individual, will also be documented through photographs, potentially displayed alongside DOES THIS MEAN ANYTHING TO YOU? once the symposium concludes.ConclusionThis symposium presentation offers a critical exploration of how postcolonial strategies can serve as tools for resistance in art institutions, particularly in relation to neurodivergent experiences. By employing antagonistic, vulnerable, and embedded resistance strategies, my work aims to challenge normative behaviors, communication structures, and spatial expectations that often marginalize neurodivergent individuals. Through mixed media collages, paintings, and participatory activities, I hope to create spaces where participants can reflect on the complex relationship between communication, belonging, and societal inclusion.These pieces, presented in unconventional formats and settings, seek to disrupt traditional modes of engagement and highlight the importance of fostering inclusive environments for diverse ways of knowing and being. By encouraging both intellectual and emotional reflection, I aim to challenge viewers to rethink the systems of knowledge and communication that often exclude those who do not conform to dominant norms. This work not only aims to honor neurodivergent experiences but also to invite broader conversations about how we can collectively reshape the spaces we inhabit, both physically and ideologically, in ways that celebrate difference rather than suppress it.

Abstracts of Presentations

Session K

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Session K-1

Performance Arts (U/G) 1
Friday, February 28, 2025 1:00 PM
Montezuma Theatre

1:05 PM

Code Red

Sean Burt, Television, Film, and New Media (U)

A college professor experiences a menstrual mishap and must figure out how best to address it before her class in 45 minutes.

1:35 PM

Affected Place: An existential tragicomedy in one act with a brief epilogue

Alexander Ameen, MA in Theatre Arts (M)

Affected Place is the story of a scientist named Eleanor who endeavors to repair her malfunctioning quantum computer in order to return to Natalie"the woman she loves"in her proper universe. Throughout the play, we learn how the relationship between Eleanor and Natalie formed, and how it tragically ended when Eleanor chose ambition over love. The ramifications of this decision deeply haunt Eleanor. However, with guidance and wisdom from an unexpected mentor, she begins to accept that some wounds take a very long time to heal.This play was developed during the Veterans Playwriting Workshop at La Jolla Playhouse. I relied on all of the skills I learned during the multiple iterations of the workshop in which I participated, including the use of mutually exclusive goals, reliance on the extraordinary, and the overarching structure of a set-up, build, and payoff. I also had the opportunity to participate in a staged reading of the play. During the week-long rehearsal process, I worked with a professional director and actors, making adjustments to dialogue and plot as necessary. My primary reason for writing Affected Place was to explore the duality of regret and wisdom. I have bipolar disorder, which went undiagnosed for many years. My lack of impulse control led me to make terrible decisions as a younger man: decisions which left me riddled with profound feelings of guilt, and indeed regret. Now that I'm lucid and receiving care, I have found that the wisdom that comes from a multi-faceted lifetime of experiences isn't always enough to reckon with the pain of the past. Creating this play is a significant part of my healing process, and I hope that its message of learning to grow beyond what we once were will resonate with others who have struggled.

ABSTRACTS

Abstracts of Presentations

Session M

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Session M-1

Dual Language and Critical Multilingual Learner Education Oral and Poster Session
Friday, February 28, 2025 3:00 PM
Online

3:10 PM

The Brightness of Education and UDL (Universal Design for Learning) to Better the Academic Experience of Newcomers
Tasnim Alsidnawi, M.A. Teaching (Elementary Education) (M)

Newcomers have many fears when they first come to the United States, particularly when their families don't speak English and are unfamiliar with the educational system (Maria & Vázquez Baur, 2024). They rely on the schools to help them. I came to the U.S. in 9th grade fluent in Arabic and speaking very little English. Academic expectations in my community were low. I felt I had to rely only on myself and the school to advance. As an educator now, I work with other newcomers. I see the possibility of UDL (Universal Design for Learning) to improve the experience of newcomers. In this oral presentation, I use auto-ethnographic methods (Baylorn & Orba, 2021) to explore the intersection of newcomer education, UDL and my own experiences as a newcomer. In my work in schools, I see many newcomers with lack of motivation and low confidence. My experience indicates that UDL principles of Representation, Engagement and Action/Expression -- the why, what and how of learning (CITE) -- provides newcomers with critical motivation, explicit directions, and tips for learning. When newcomer students have passion for learning, and support for the process, they will do more than required and extend their learning.

3:35 PM

Reality of Parental Involvement in Secondary Education in Mathematics Education In Two Local Schools Serving Minoritized Communities: Charter and Public
Esperanza Ochoa, Mathematics and Science Education Doctorate Program (D)

Parents from minoritized communities can make significant contributions towards the education of their children, especially at the middle school level. The structure of public schools and charter schools each have affordances and limitations to nurture meaningful parent-school collaboration, especially from Latinx parents in mathematics education. Drawing on Civil and colleagues' (2005) asset-based framework and Moll et. al. (1992)'s funds of knowledge, this work investigates how two public middle schools in low-income communities position parents from marginalized communities regarding mathematics education. Particularly, this work explores how teachers, school personnel, administrators, and parents in these schools describe their view of parental involvement, both in general and in mathematics education. In addition to interviews with parents, administrators, mathematics teachers, and school personnel who work more directly with parents, data collection includes ethnographic field visits to understand the parent-school relationships as well as how families draw on their funds of knowledge to enhance parental involvement in mathematics education. The data is analyzed using Kuckartz's (2019) 6-phase thematic (inductive and deductive) analysis approach. Preliminary results of these findings shed light on what each school is doing to strengthen the math-parent relationships at these schools, what structures promote and support meaningful Latinx parental involvement, and what helps students and teachers position Latinx parents as asset-based mathematical resources.

4:00: PM

The impact of ethnicity and preferred language on parent engagement in parent coaching interventions for toddlers with or at risk of Autism
Wendy Verbyla, M.A. Special Education with Behavior Analysis and Autism Concentration (M)

Caregiver involvement is crucial for a child's overall development, especially for early behavioral intervention services. For caregiver involvement to be successful, it is important for providers to be culturally responsive, meaning that they are conscious about cultural norms, and they have an understanding of any barriers related to the ability for the caregivers to engage in home-based interventions. Given the importance of cultural and linguistic competencies in early behavior interventions and the lack of research on this topic, the goal of the present study was to elucidate the role of the alignment in therapist and caregiver ethnicity and preferred language on the engagement of Hispanic caregivers of toddlers with or at risk of ASD, who participate in parent-coaching interventions. The data for this study came from a randomized waitlist control design that examined the efficacy of Project Impact within community-based early intervention settings throughout the state of California. The subset of data used for this project included survey data from the Project Impact about the demographics of the participating therapists, caregivers, and children. In addition, the recorded sessions from the Project Impact and Usual Care groups were coded using the Parent Empowerment and Coaching in Early Intervention (PEACE) coding protocol. Using the survey data, the ethnicities of each therapist-caregiver pair were compared to see how many pairs had matching ethnicities. Each therapist-caregiver pair was coded as one of the following four categories: 1) mismatch (n = 15; caregiver is Hispanic, therapist is not Hispanic); 2) mismatch (n = 15; caregiver is not Hispanic, therapist is Hispanic); 3) match (n = 21; both the caregiver and the therapist are Hispanic); or 4) other (n = 37; neither the caregiver nor the therapist are Hispanic). Next, the Kruskal Wallis test will be used to determine if any of the matching groups had significant differences in the PEACE codes related to collaboration. The results of this study will have important implications in the field of early intervention, especially understanding the importance of cultural and language competency in Autism.

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4:25 PM

Best Second Language Acquisition Practices:
An Intersection Between Visual Art and Second
Language Development

Leslie Valeria Castillo Lopez, Dual Language Education (M)

The present study explores arguments that support the importance of the Visual Arts Curriculum as an effective practice for English Language Learners and other emergent bilinguals. Although there has been an agreement that students must have access to elective classes (California Attorney General, 2023), this is not the case for many English Learners in the United States (Wei, Y. 2019). The visual arts curriculum aligns well with best second language acquisition practices and ensuring multilingual learners' access to visual arts curriculum could enhance their language acquisition. Further research is needed to identify stakeholders' stand on the issue. This study utilizes interviews with different stakeholders with open-ended questions on the benefits of the visual arts in second language acquisition to explore their perspectives, a methodology suggested by Creswell (2015). Thematic analysis of the initial responses indicates that stakeholders find high value and importance in accessing the visual arts curriculum for English Language Learners. The literature review demonstrates a strong correlation between visual arts curriculum and best second language acquisition practices.

Acknowledgements

Our thanks and appreciation to the following individuals, units, and groups for their support of student involvement in research, scholarship, and creative activities.

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A special thanks to the rest of the Division of Research and Innovation for helping make this event possible.

Mentors

Aaron Blashill

Aaron Iffland

Adam Engler

Alicia Kinoshita

Alyson, Abel

Amanda C. McClain

Ami Doshi

Amy Quandt

Ana Dueñas

Anca Segall

Andrew Beck

Aner Zhou

Angelica Riestra

Annika Linke

Ariana Stickel

ACKNOWLEDGEMENTS

Arion Mayes

Arun Sethuraman

Ashleigh Johnson

Atsushi Nara

Audrey Beck

Bahar Heydari

Bandoli

Beeta S. Heydari

Benjamin Aceves

Betty Samraj

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Dwayne Roach

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Gillian Sneed

Gloria Faraone

Grace Cheng

Greg Jordan

Gregory Talavera

Hajar Homayouni

Haley Ciborowski

Heather Corliss

Henrike Blumenfeld

ACKNOWLEDGEMENTS

Nathan Oestreich

Nathian Shae Rodriguez

Naveen K. Vaidya

Nicholas Barber

Nicholas Johnson

Nicholas Shikuma

Nicolas Lopez-Galvez

Nicole Mathwich

Oshyn Sky

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Zohir Chowdhury

ACKNOWLEDGEMENTS

Sponsors and Supporting Partners

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Dr. Satish Sharma, who supports the Women in Engineering Awards.

Special thanks to:

Academic Deans

Associated Students

Aztec Shops

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ACKNOWLEDGEMENTS

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