UNIVERSITY OF OREGON

2022 UNDERGRADUATE RESEARCH SYMPOSIUM

undergradsymposium.uoregon.edu

EVENT PROGRAM

2022
UNDERGRADUATE RESEARCH SYMPOSIUM

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UNIVERSITY OF OREGON

Resilience in Research and Creative Work

May 26, 2022

We are honored to welcome you to the 12th Annual Undergraduate Research Symposium. The symposium debuted in 2011 with 69 presenters and 40 faculty mentors spanning 20 majors and four colleges, and reached a pre-COVID-19 high-water mark in size and breadth its ninth year with 513 presenters and 290 faculty mentors spanning 75 majors, 21 minor programs, 33 minors, and eight colleges. Over the past 11 years the Symposium has hosted nearly 3,200 student presenters.

In response to the COVID-19 pandemic we shifted to a virtual symposium in 2020 and 2021, allowing 667 students to continue to present their research and creative work with expanded reach to families, alumni, donors, and the community. This opportunity to record these presentations catalyzed the creation of a permanent digital exhibit of UO undergraduate research on the symposium YouTube Channel, curating more than 800 research presentations. Videos include the presenters' abstracts and links to full-resolution images of research posters.

This year the symposium adopts a hybrid format with 278 students choosing to present in-person in the EMU and Allan Price Science Learning Commons and Library, and 74 preferring virtual presentations via Zoom webinars.

Despite the profound disruptions to research and creative work experienced by students and faculty over the past two years, we are inspired to celebrate the work of 327 presenters and their 253 research mentors at the 2022 symposium. The 352 presentations encompass all eight colleges, the Phil and Penny Knight Campus for Accelerating Scientific Impact, 63 majors,

18 minor programs, 45 minors, and 30 institutes and centers. We also wish to acknowledge the unprecedented number of 60 graduate student mentors this year.

We believe that hosting a hybrid symposium demonstrates our institutional commitment to our undergraduate students' scholarly and creative development. As a top-tier research institution, discovery and inquiry underlie everything we do. Part of our mission is to help individuals question critically, think logically, reason effectively, communicate clearly, and act creatively. The Undergraduate Research Symposium is an embodiment of that mission. To celebrate the students the symposium and its campus partners cosponsor 27 awards totaling more than $12,000.

The reach of the symposium continues to expand through the hybrid platform, creating new avenues for engagement with families, friends, alumni, donors, high school students and teachers, and community members who have traditionally been unable to participate in the on-campus event.

The symposium is privileged to partner with the Summer Academy to Inspire Learning (SAIL), which has developed a robust pre-college collaboration day, including a welcome ceremony, interactive sessions with poster presenters, lab and studio visits, campus tours, and panels with undergraduates. SAIL will host 200 high school students and their teachers at the event this year.

Our collaborations with Lane Community College and Central Oregon Community College have also culminated with the highest number of community college student presentations and visitors at the symposium to date, as well as a new series of transfer student and community college student panels facilitated by the UO Alliance for Diversity in Science and Engineering.

In 2022 we are also honored to host undergraduates involved in multi-institutional research and relationships with the UO from institutions including the University of the Basque

Country (Euskal Herriko Unibertsitatea), Arizona State University, and the United States Air Force Academy.

We welcome visitors from far and near and hope that this showcase of undergraduate research and creative work can inspire hope, curiosity, innovation, and discovery during these unprecedented times. Our keynoter this year embodies this spirit. Neila "Nina" Kerkebane '20 is an alum of the UO Ronald E. McNair Scholars Program and former Symposium presenter who won a National Science Foundation Graduate Research Fellowship and will begin the PhD Program in Economic and Social Policy in the Harris School of Public Policy at the University of Chicago.

Congratulations to all the student participants and faculty and graduate student mentors who have made this event happen! Best wishes from your fans and supporters in Undergraduate Education and Student Success and the Office of the Vice President for Research and Innovation!

Kevin Hatfield
Cochair, Undergraduate Research Symposium Planning Committee

Nadia Singh
Cochair, Undergraduate Research Symposium Planning Committee

A Letter to Symposium Participants

May 26, 2022

Isabelle Cullen

I remember being in your shoes four years ago during my first symposium presentation. It feels like ages ago but also like yesterday. I was shaking with nervousness (and too much caffeine), terrified I would forget my words, and feeling underprepared. But as soon as I stepped up to that podium and began talking about my research, all of those feelings melted away. I became exhilarated explaining my findings to a crowd of strangers. I likely spoke at 90 miles a minute, but I was just excited. Excited to talk about autism. Excited to talk about policy law. Excited to just share my findings, even if completely wrong.

That's what the symposium is all about. This is a chance to just be excited and explore the topics, disciplines, and things you are most passionate about. Research is truly for everyone, and what makes me love the symposium. Whether it is business, English, Romance languages, theater, sociology, or STEM, there is a place for you here today and in research. There are endless questions to be answered in all disciplines, and today, we get to share more than 370 questions with you through poster and oral presentations along with creative works and data stories.

As an old, graduating senior, I wish to leave you with some departing symposium wisdom. While presenting may feel scary and very daunting, take a deep breath and remember you're going to get through it. Remember what in your research makes you excited to be here today and let that curiosity and passion be your driver. Don't be afraid to ask questions, even if you feel they're stupid as someone else might be wondering the same thing. But lastly,

don't be afraid to reach out and try research. It will be difficult at times, but it will be oh so rewarding as you gain new knowledge and skills towards an area you love. The UO has many dedicated faculty members and research centers to help you find a mentor or start your own research project independently. Even if research isn't your favorite, I truly believe there is no such thing as a bad experience. It just helps redirect you toward what you are more interested in.

Even if you never participate in the symposium again, I hope you feel that feeling of exhilaration in presenting today, have fun in talking to others about their research, and find your niche here at the UO.

Isabelle Cullen

Isabelle Cullen
Neuroscience, Class of 2022
Lead Coordinator, Affiliated Students for Undergraduate Research and Engagement (ASURE)

Agenda Overview

Visit the symposium web page to see the full schedule with room locations for the EMU and Allan Price Science Learning Commons and Library, as well as links to the remote Zoom webinar sessions, presenter names, and abstract titles.

May 26

7:00 a.m.	Individual poster presentation videos released for viewing on YouTube channel
8:00 a.m.	Symposium Welcome Video: Remarks from Provost and Senior Vice President Patrick Phillips and Interim Vice President for Research and Innovation Cassandra Moseley
9:00 a.m.–3:15 p.m.	Pre-College Collaboration Day
9:00–10:30 a.m.	Concurrent Sessions
10:45 a.m.–12:15 p.m.	Concurrent Sessions
1:15–2:45 p.m.	Concurrent Sessions
3:00–4:30 p.m.	Concurrent Sessions
3:00–4:30 p.m.	Poster Session 1
4:30–5:00 p.m.	"Linearity Is Optional, Perseverence Is Not" Nina Kerkebane, Alumni Keynote Speaker
5:00–6:00 p.m.	Poster Session 1

May 28

All remote presentation videos will be available on the symposium YouTube channel as an ongoing digital exhibit of undergraduate research and creative work. Videos are organized into thematic playlists and are keyword searchable.

Alumni Keynote Speaker

Nina Kerkebane
Linearity Is Optional, Perseverence Is Not

Thursday, May 26, 2022, 4:30–5:00 p.m., EMU Redwood Auditorium
Also available on the symposium YouTube channel

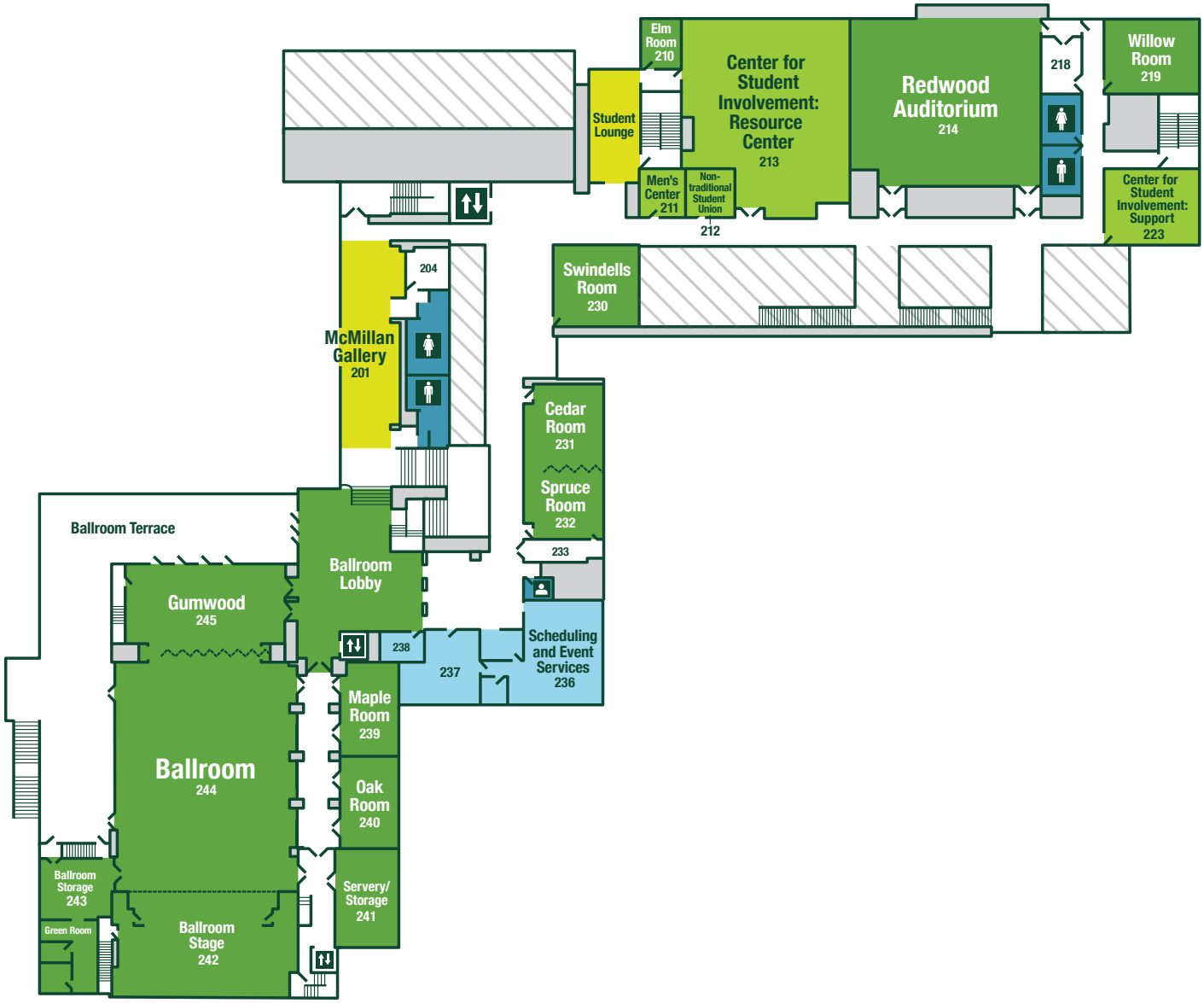

Nina Kerkebane

Nina Kerkebane, '20 cum laude, majored in economics and minored in math. She is a fellow of the National Science Foundation Graduate Research Fellowship Program and will be starting her PhD in economics and social policy at the University of Chicago in fall 2022.

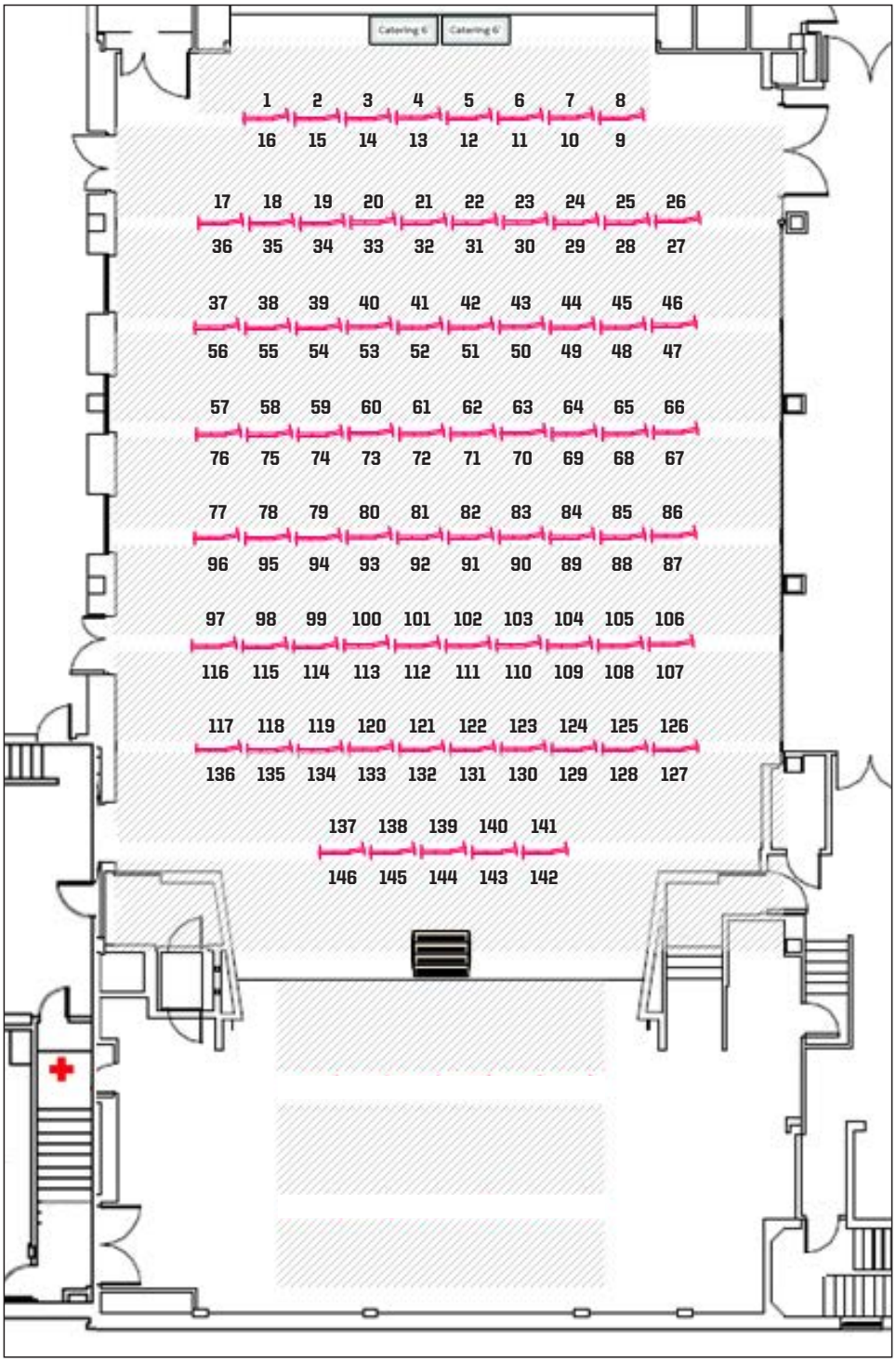
During her time at the UO, Nina was involved in undergraduate research as a McNair Scholar and through the department of economics. She worked as a research assistant at the World Bank under the supervision of Professor Jonathan Davis. She was also involved on campus as the copresident of the Nontraditional Student Union and a member of the African Student Union. Nina is currently working as a research associate/predoctorate fellow at the University of Chicago under the supervision of Professor Damon Jones.

Nina was born and raised in Algeria. Her background and nonlinear experience with higher education influences her research interest and drives her passion for investigating topics of inequality using economic models. She will share how her background and her experience at the UO prepared her for a career in research.

Erb Memorial Union Second Floor



Erb Memorial Union Ballroom



Acknowledgments

Sponsors

Division of Undergraduate Education and Student Success
Office of the Vice President for Research and Innovation
Center for Undergraduate Research and Engagement
Institute of Neuroscience
University Housing
University of Oregon Libraries
Robert D. Clark Honors College
Ronald E. McNair Scholars Program
Undergraduate Research Opportunities Program

We wish to recognize the University of Oregon Libraries and the Institute of Neuroscience for funding the printing of all presenter posters.

Undergraduate Research Symposium Planning Committee

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Faculty, History

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Alexis Han
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Tillena Trebon
Coordinator

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Special Thanks

Joe Black
Interim Facilities Manager, Carpenter, University Housing
For designing and fabricating the poster installation stands

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Annie Zeidman-Karpinski
Singer Science Librarian, UO Libraries

The University of Oregon's Undergraduate Research Symposium, and the Summer Academy to Inspire Learning (SAIL) pre-college program are hosting local—and beyond local— high school students to join our in-person campus event. The Undergraduate Research Symposium empowers undergraduate college students to share their ideas, discoveries, and artistic work with the campus and local community. This is an opportunity for high school students to make near peer connections and envision themselves having these opportunities in higher education.

This year Pre-College Day is on May 26 and will feature college students as they share their college research, and experiences, through specialized campus tours, lab demonstrations, and poster presentations. High school students will experience a unique immersive campus tour while they discover:

- What college classes are really like
- What to expect from different majors
- What job opportunities to expect from each major
- How to get involved in undergraduate research

This interactive campus visit is designed to give high school students a firsthand college experience while fostering campus relationships. The Summer Academy to Inspire Learning (SAIL) program is an additional *free* resource for high school students to spend an entire week on campus, during the summer, to further explore college opportunities. It is our hope that students will leave the event inspired, and with a greater knowledge of what higher education has to offer.

sail.uoregon.edu

Presenter Statistics

The Undergraduate Research Symposium debuted in 2011 with 69 presenters and 40 faculty mentors spanning 20 majors and four colleges, and reached a pre-pandemic high-water mark in size and breadth in its ninth year with 513 presenters and 290 faculty mentors spanning 75 majors, 21 minor programs, 33 minors, and eight colleges.

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Despite the continuing recovery from the profound disruptions to research and creative work experience by students and faculty over the past two years, we are inspired to celebrate the work of 327 presenters and their 253 faculty mentors at the 2022 Symposium. The 352 presentations encompass all eight colleges, the Phil and Penny Knight Campus for Accelerating Scientific Impact, 63 majors, 18 minor programs, 45 minors, and 30 institutes and centers.

In 2022 we are honored to host 11 Lane Community College student presenters, a visiting group from Central Oregon Community College, and students from the University of the Basque Country (Euskal Herriko Unibertsitatea), Arizona State University, and the United States Air Force Academy. The Summer Academy to Inspire Learning (SAIL) will also host 200 local high school and their teachers at the symposium!

The symposium and its campus partners will also offer 27 awards totaling over $12,000 to presenters.

Presenter Profile

Total presentations 352
Total presenters 327
Total faculty mentors 253

All Colleges: Major and Minor Programs Represented

Colleges 8
Campuses 2
Majors 63
Minor programs 18
Minors 45

Institutional Profile

UO–FTFT students 290
UO–Transfer students 37
ARC students (former and current) 64
Lane Community College students 11
Visiting McNair Scholars 4

Class Standing

First-year (0–44.99 credits) 19 (6%)
Sophomores (45–89.99 credits) 33 (10%)
Juniors (90–134.99 credits) 44 (13%)
Seniors (≥135 credits) 231 (71%)

Presentation Type

Poster 194 (55%)
Oral 132 (38%)
Data Stories 12 (3%)
Academic Residential Communities . . . 8 (2%)
Creative works 6 (2%)

Presentation Mode

In-person 278 (79%)
Virtual 74 (21%)

Research Area by Presentations

Natural/physical sciences 168 (48%)
Social science projects 150 (43%)
Humanities projects 25 (7%)
Design 7 (2%)
Fine/performance arts projects ..... 2 (<1%)

UO Major and Minor Programs Represented by College

College of Arts and Sciences

Majors 41

Psychology 43
Human Physiology 33
Biology 28
Environmental Studies 21
Biochemistry 20
Anthropology 17
Sociology 17
Neuroscience 14
Political Science 13
English 12
Environmental Science 12
Global Studies 11
Chemistry 10
Marine Biology 8
Physics 8
Economics 7
Earth Sciences 6
History 6
Computer and Information Science 5
Exploring 5
Philosophy 5
Geography 4
Mathematics 4
Mathematics and Computer Science 4
Spanish 4
Spatial Data Science and Technology 4
General Science 3
Cinema Studies 2
Data Science 2
Japanese 2
Linguistics 2
Multidisciplinary Science 2
Romance Languages 2
Asian Studies 1
French 1
General Social Science 1
Indigenous, Race and Ethnic Studies 1
Italian 1
Latin American Studies 1
Medieval Studies 1
Pre-Global Studies 1

Minor Programs 14

Global Health 19
Writing, Public Speaking, and Critical Reasoning 7
Creative Writing 5
Ethics 5
Food Studies 4
Global Service 3

College of Design

School of Music and Dance

School of Journalism and Communication

Lundquist College of Business

School of Law 1

Centers and Institutes

Sponsored/Funded Research Sources

Students of Color Opportunities for Research Enrichment (SCORE) 4
Center for Undergraduate Research and Engagement (CURE) Travel Award. 3
Mercer Family Foundation 3
O'Day Fellowship in Biological Sciences 3
UnderGrEBES Research Award. 3
College of Arts and Sciences Continuing Student Scholarship 2
Center for Undergraduate Research and Engagement (CURE) Small Grant Award 2
National Institutes of Health (NIH) Grant . . .2
Robert D. Clark Honors College Mentored Research Award. 2
Summer Program for Undergraduate Scholars (SPUR) 2
UO Department of Earth Sciences 2
Eunice Kennedy Shriver National Institute of Child Health and Human Development Grant 1
Ford Family Foundation Scholarship 1
Judy Fosdick Oliphant Scholarship in International Studies 1
PChem Undergraduate Fellowship 1
Robert and Catherine Miller Foundation. 1
UO Department of Mathematics. 1

Lane Community College

Majors 9
Biology 3
Educational Foundations 2
Art History 1
Business Administration 1
English 1
Environmental Science 1
History 1
Sociology 1

Arizona State University

Majors 1
Astronomy and Planetary Science 1

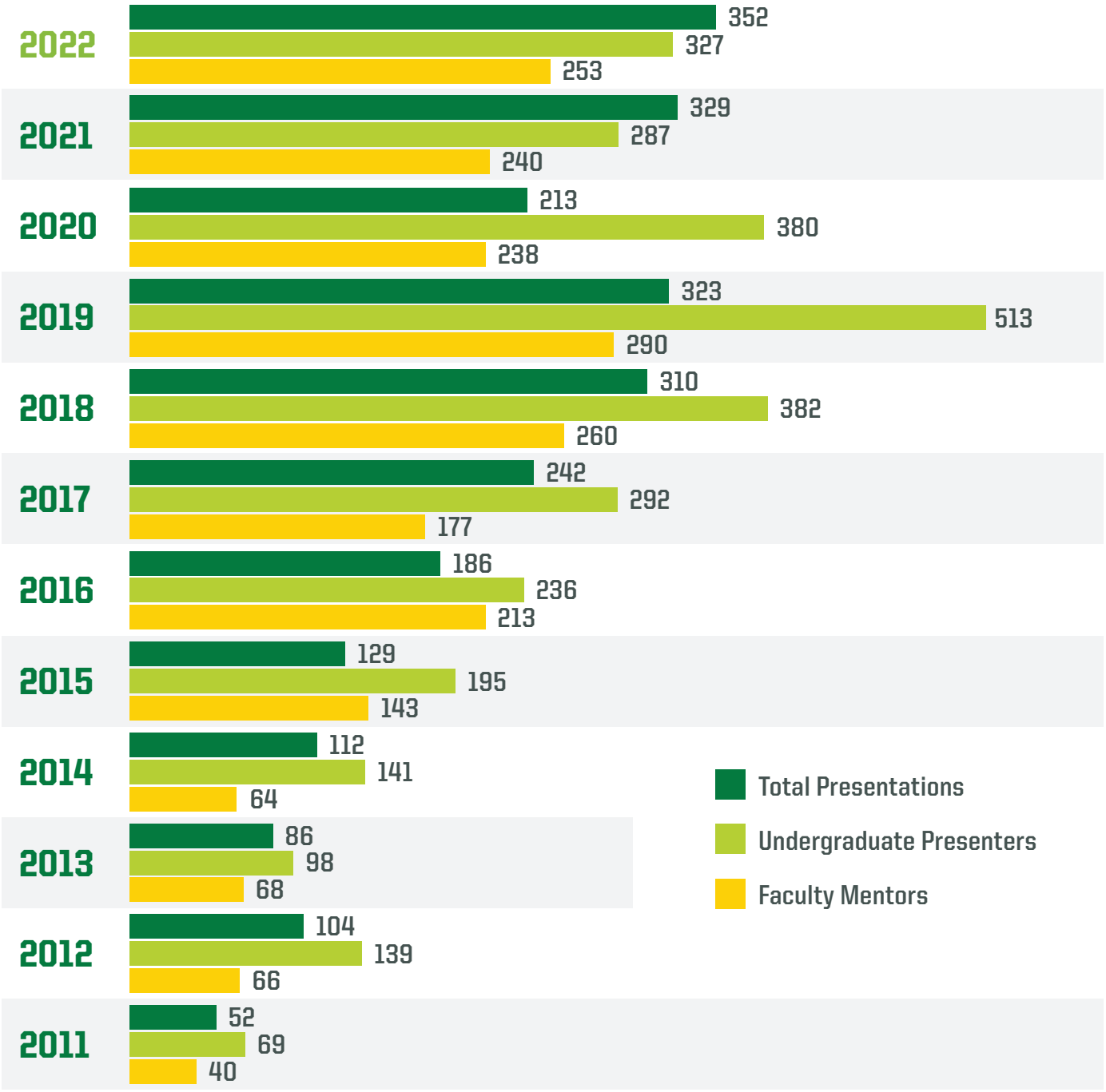
United States Air Force Academy

Majors 1
Physics 2

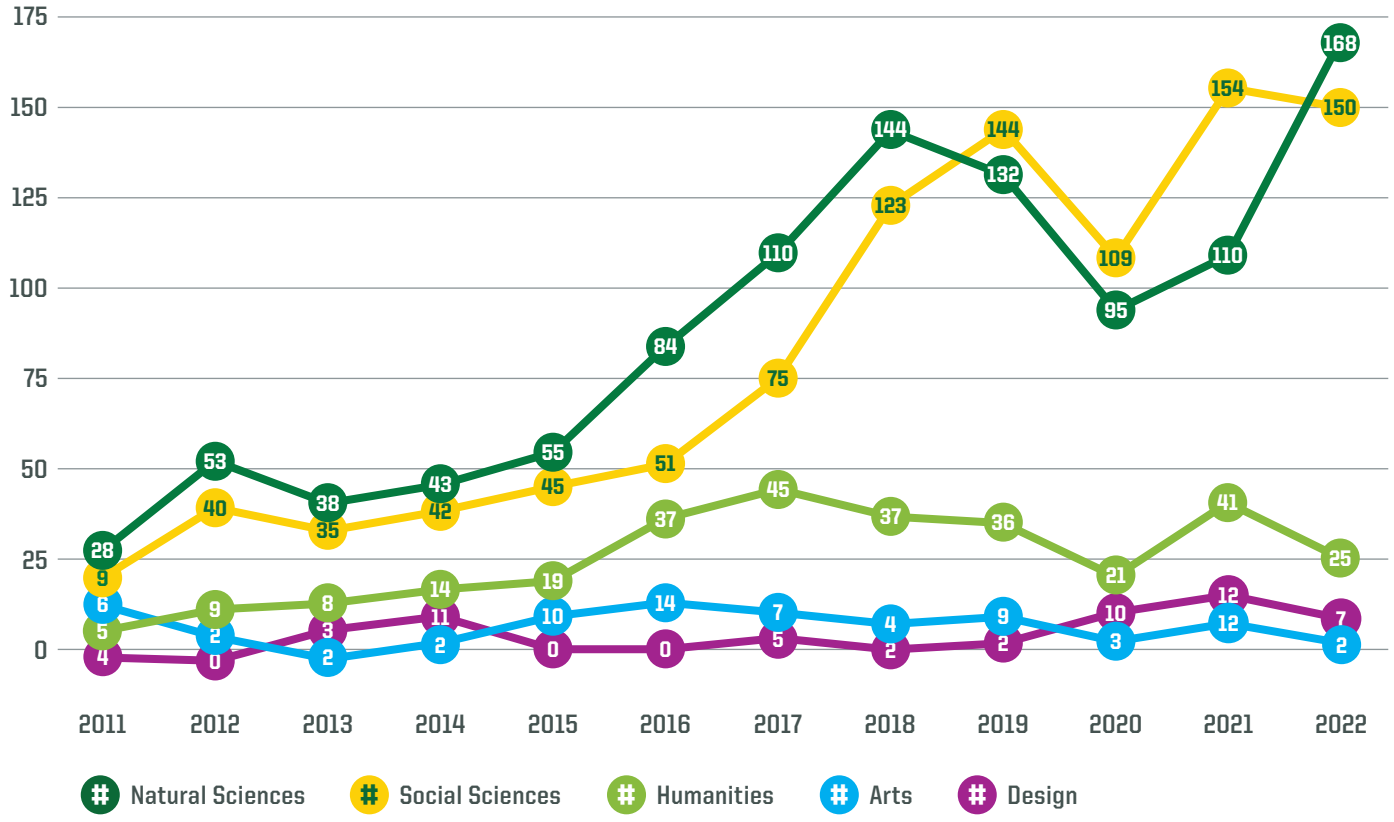
University of the Basque Country

Majors 1
Economics 1

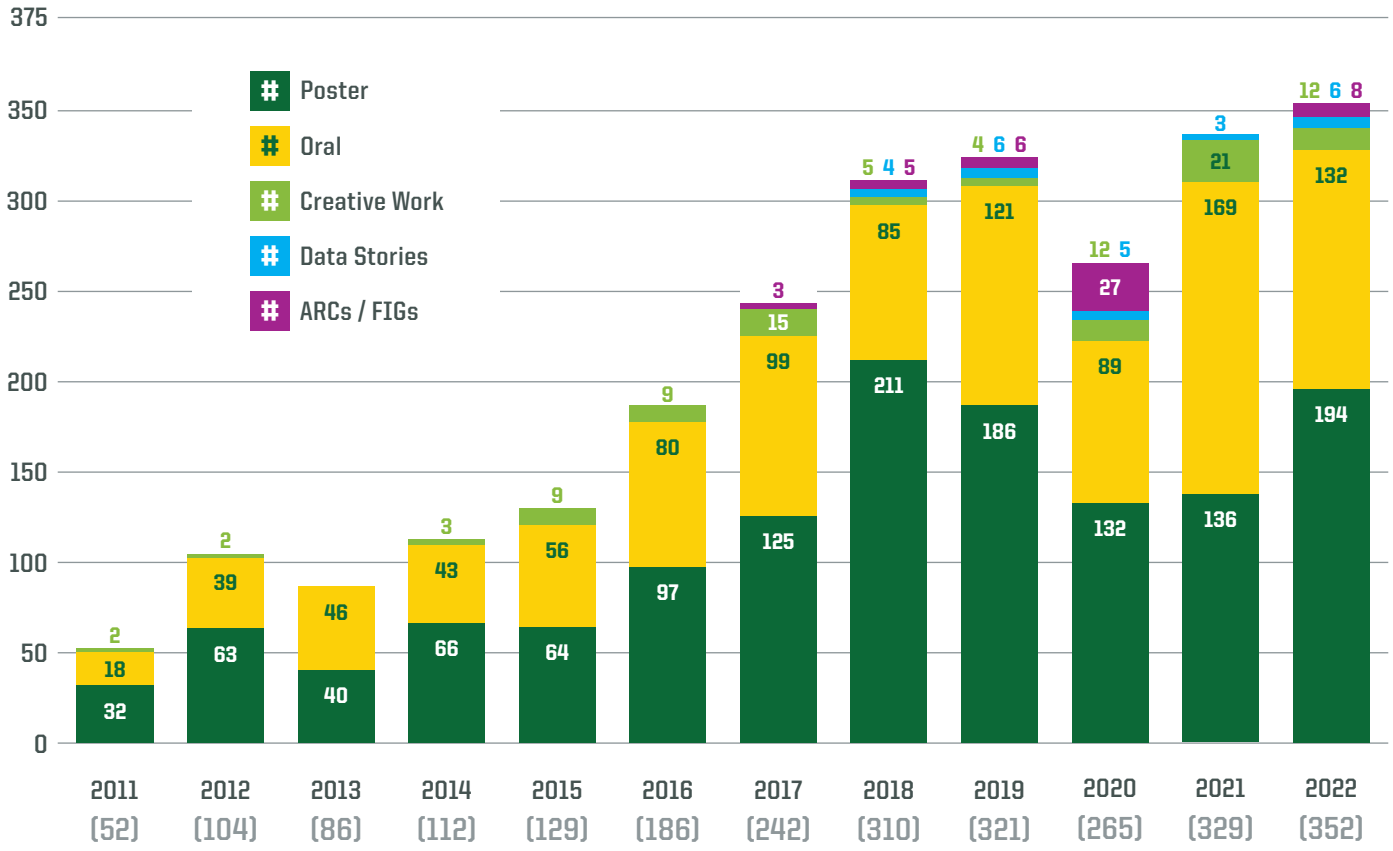
Total Presentations, Presenters, and Faculty Mentors



Total Presentations by Divisional Area



Total Presentations by Type



Symposium Presenters

Acree, Jasmine
Agterberg, Serena
Agterberg, Serena
Aguilar Aguilar, Odalis
Alexander, Elijah
Andrews, Abby
Angeloni, Ryan
Anthony, Kobe
Archer, Ava
Arora, Nayantara
Arquilevich, Max
Ashoubi, Armon
Aston, Sydney
Aviles, Jules
Baeza, Simone
Bagay, Cody
Bailey, Zoey
Basak, Sanjana
Bauer, Temerity
Beaton, Brooke
Beaudoin, Sarah
Bedell, Brad
Berry, Miles
Bertelsen, Hans
Beyer, Kelby
Bhaskar, Mayurika
Bissonnette, Cheyenne
Blankenship, Leah
Bollenbaugh, Taylor
Bourn, Courtney
Brannon, Ernestine
Brazelton, Shaun
Brock, Hermya
Brown, Bennett
Bruce, Madeline
Bui, Alyssa
Bui, Alex
Burgin, Jasmine
Burns, Jenna
Byrne, Casper
Campbell, Sally
Capage, Mikala
Carl, Peyton
Chambers, Taylor
Chandler, Audrey
Chandler, Elizabeth
Chang, Anabel
Chu, Chang
Clarke, Katie
Coen, Jordan
Coen, Jordan
Cole, Cassie
Colley, Colleen
Cowen, Riley
Craig, Samuel
Cruz, Alonso
Cui, Hannah
Cullen, Isabelle
Dahl, Ian
Daley, Claire
Dayton, Amelia
Deluc, Lisa
Dominguez, Juanita
Domzalski, Kira
Dong, Katherine
Duncan, Noelia
Durfee, Malcolm
Eckrosh, Kevin
Elliot, Annaliese
Esquivel, Juliana
Falcon, Monique
Fale-Olsen, Ashley
Fan, Wendy
Fear, Karly
Feldman-Dragich, Maya

Symposium Presenters

Ford, Riley
Forsman, Sofi
Fretz, Piet
Froehlich, Eleanor
Ganzer, Mya
Garrison, Anna
Gastelu, Ana
Gaudreault, Yuki
Gentile, Santino
Getz, Madeleine
Gill, Lena
Ginieczki, Taylor
Gladis, Jess
Glass, Rowan
Goldstein, Gabe
Gomez Cabrera, Jonah
Goyal, Vithika
Grant, Adriana
Graumann, Frida
Graville, Gabriel
Gray, Piper
Greenblatt, Noah
Greenblum, Georgia
Greenwalt, Makenna
Grivette, Margaret
Grubb, Skye
Guo, Ethan
Gurley, Olivia
Gutierrez, Shawn
Hampton, Matthew
Han, Alexis
Hardin, Blake
Hartman-Warr, Amelia
Haupt, Zoë
Hawes, Robert
Hearn, Ava
Heller, Olivia
Henion, Catelynn
Hevelone, Orion
Hibbard, Julia
Hilkey, Alana
Hochstatter, Henry
Hoekstra, Kyle
Holah, Olivia
Holden, Charlie
Holeman, Sara
Holt, Sadie
Hopkins, Elle
Hullinger, Jackson
Jackson, William
Jackson, Quinten
Jagielski, Alexandra
James, Dante'
Joel, Hannah
Johansson, Laila
Johns, Bridget
Johnson, Wesley
Johnston, Breanna
Jones, Myrriah
Jones, Kate
Karlson, Samuel
Kataoka, Nat
Kavanagh, Emily
Keith, Kelly
Kennedy, Katie
Khalife-Hamdan, Raimy
Khurana, Aleena
Kirk, Fischer
Kirst, Nolan
Klein, Charlotte
Kleiner, Delaney
Koontz, Emma
Kordahl, Rose
Kraschel, Emily
Kreger, Shane
Kreppel, Amanda
Kuhns, Colin
Kundin, Semeredin
Kurtz, Amanda
Kusaka, Sonny
Kyne, Sean
Lauersdorf, Kyra
Laufer, Ellie
Laurie, Garret
Lawrence, Eliza
Lawson, Amelia
Le, Kevin

Symposium Presenters

Leibfried, Laura
Lengkong, Alvin
Lepe-Romero, Alberto
Leutwyler, Elijah
Lew, Sera
Lew, Dylan
Lewack, Hannah
Liao, Phyllis
Linskens, Amanda
Lisle, Rachel
Litty, Makenzie
Longnight, Faith
Lopez-Aparicio, David
Lovgren, Noah
Maddox, Kira
Mahoney, Sprout
Mahony, Ashling
Malamud, Nathan
Mantel, Chester
Mare, Anna
Martin, Greg
Martin, Kye
Martin, Sofia
Mattson, Anna
Mawhinney, Brinna
McCleary, Kenji
McDonald, Emilee
McDowall, Zag
McElderry, Julianne
McKeehan, Zoë
McLean, Jaidan
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Presentation Abstracts

Acree, Jasmine
Human Physiology | University of Oregon
Research Mentor(s): Dr. Nichole Kelly, Claire Guidinger
(In-Person) Poster Presentation

Association between Discrimination and Drive for Muscularity in Asian and Asian American Men

Coauthors: Nichole Kelly, Claire Guiding

Asian/Asian American men endorse amongst the highest rates of body dissatisfaction across racial groups. However, little research has been conducted on how experiences with race-related discrimination are connected to Asian men's body image and related behaviors. It was hypothesized that experiences with race-related discrimination would be associated with the greater drive for muscularity, and that this association would be stronger amongst those with greater internalization of the Western masculine body ideal. Participants completed an online survey answering questions regarding their demographics, experiences with racism, drive for muscularity, and internalization of muscularity and thinness appearance ideals. The primary results showed that there was a significant, positive link between Asian/Asian American men's experiences with both racism and microaggressions and the drive for muscularity, B's=2.10-2.21, p's<.001. Internalization of the thinness and muscularity appearance ideals functioned as moderators for both experiences with racism and microaggressions, with differential exacerbating and mitigating influences (B =-.17-.24, p's<.001). Importantly, Asian/Asian American men who experienced high microaggressions and had higher internalization of the thinness ideal endorsed the most severe drive for muscularity, p<.001. These findings indicate that experiences with discrimination can lead to increased harmful behaviors aimed at achieving Western masculine body ideals.

Agterberg, Serena
Psychology, Sociology | University of Oregon
Research Mentor(s): Sanjay Srivastava, Bradley Hughes
(In-Person) Oral Panel–Healthy Considerations, Poster Presentation

Using Personality to Predict Risky Sexual Behavior

To investigate the relationship between personality traits and risky sexual behavior (RSB) with the goal of understanding if students with different levels of stable individual differences may be more or less likely to engage in RSB, we collected data from N= 605 college students. Participants completed the Big Five Inventory-2 (BFI-2) and the Sexual Risk Survey (SRS). We estimated correlations of each Big Five domain and facet with overall sexual risk, and four subscales of risk: Sexual Risk Taking, Risky Sex Acts, Impulsive Sexual Behavior, and Intent to Engage in Risky Sexual Behaviors. The results suggest that students with high Extraversion, low Conscientiousness, and low Agreeableness are most likely to engage in overall RSB. Low Agreeableness is the strongest indicator of likelihood of participating in overall RSB, as well as all four subscales of risk. Several BFI-2 facets were significantly related to RSB including high sociability, high assertiveness, low respect, and low compassion. These results indicate that personality may be a valuable asset in identifying students who are more or less likely to engage in RSB.

Agterberg, Serena
Psychology,Sociology | University of Oregon
Research Mentor(s): Sanjay Srivastava, Bradley Hughes
(In-Person) Poster Presentation

Perceptions of Risky Sexual Behavior

College is a time when many young adults engage in sexual behavior that may involve physical, psychological, and/or emotional risk. Accurately assessing the ways in which college students are perceiving and engaging in sexual risk taking is an important step in understanding what information needs to be distributed on campuses to eliminate consequences of risk taking. The purpose of this study is to examine college students' perception of sexual risk taking in their own and others' behavior. This study will seek to answer the following research questions:
1. What sexual behaviors do college students consider to be "risky"?
2. How do individual differences affect views of and participation in sexual risk taking?
300 participants from the University of Oregon human subjects pool were recruited for this study. Participants were asked to write two narratives describing times in which they, someone close

to them, or someone they know participated in sexual behavior that they would consider to be "risky." Participants then answered questions about personality and were asked for demographic information. The narratives were analyzed using an inductive thematic analysis to idetify patterns in the responses. Identifying which behaviors are of concern to college students as well as examining which individual differences relate to attitudes about sexual risk taking will help in the creation and execution of sexual risk reduction strategies.

Aguilar Aguilar, Odalis
History, Latin American Studies, Spanish | University of Oregon
Research Mentor(s): Julie Weise
(In-Person) Poster Presentation

The recent history of PCUN and the victories of farmworkers in Oregon

For this project, I was approached by PCUN's executive director to document the last few years of the history of the organization. About 10 years ago, a profressor from the University of Oregon partnered up with the organization and since then, historic victories have been secured for the farm working and Latinx immigrant community. My approach was to analyze the ways in which organizers and staff retell their experiences working in legislative processes and also expand on what PCUN is and how they carry its mission. These interviews were done in both English and Spanish and are transcribed. While being in conversation with the folks I interviewed, I found that there was a turning point in PCUN's recent history that really catapulted their success and put PCUN on another playing field where usually dominant culture organizations are overwhelmingly present. This project not only serves as a historical piece, but it also strives to provide new and coming PCUN staff a document that can ground them and visualize themselves as leaders who will continue the legacy of PCUN elders.

Alexander, Elijah
Psychology | University of Oregon
Research Mentor(s): Sara Weston
(In-Person) Poster Presentation, Oral Panel–Covering Covid

Pandemic Investigation of Newly Burgeoning Acquired LGBTQAI+ Labels

Those with LGBTQ+ identities often live in the presence of "audiences" for whom they feel pressured to perform a heteronormative culture (Butler 1988). However, the COVID-19 pandemic and subsequent lockdowns may have removed such audiences from the daily lives of these individuals. Therefore, it is possible that the past year has seen an uncharacteristic emergence of queer gender identities

and non-heteronormative sexualities. In this study, we attempt to empirically document the change and development of queer and gender non-conforming identity during the COVID-19 pandemic and their associations with changing social experiences. Using data collected via Prolific (anticipated N = 221), we examine associations between changes in gender identity, sexual orientation, and peer/family acceptance. Specifically, we hypothesize that change in gender identity/sexual orientation will be predicted by increased use of virtual socializing (e.g., social media) over in-person socializing. By understanding these possible influencing factors, this study would serve as another stepping stone in queer psychology research as well as aiding in the development of new intervention methods for queer individuals.

Andrews, Abby
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Co-Presenter(s): Jenna Burns, Lucy Trapp, Sequoia Shand
(In-Person) Oral Panel–Learning from the Environment

Environmental Leadership Program–Aves Compartidas 2022

Coauthors: Isabella Cambell, Madeline Zweb, Gabriel Gaeta, Christie Clark, Caroline Debruine

Eugene, Oregon and Guanajuato, Mexico have more things in common than you might think, including 25 shared migratory birds that we introduced to students during our time at El Camino del Rio/River Road Dual Immersion Elementary. In light of the COVID-19 pandemic, outdoor education has become evermore important. As participants in the Environmental Leadership Program, we strive to rekindle youth's bond with nature that was neglected during the pandemic. This year, the Aves Compartidas Program taught elementary students about migratory birds through an environmental education lens, and fostered students' connection to their environment and to Guanajuato, Mexico. Our pedagogical approach focuses on the importance of connecting students with the local environment through the use of auditory, visual, and artistic group learning. Within six weeks, our team taught 42 classes, educating 128 students on migratory birds and related environmental issues, focusing on creating safe migration conditions. We incorporated the observation of World Migratory Bird Day, and highlighted this year's theme, "dim the lights for birds at night," in reference to the effect of light pollution on bird flight patterns. The materials created from the program include lesson plans, a project management plan, and an informational website. This will allow continued collaboration between Oregon and Mexico, to nurture the next generation of environmental stewards.

Angeloni, Ryan
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(In-Person) Poster Presentation

Effects of essential amino acid supplementation on muscle structure before and after eccentric exercise

Coauthors: Hans Dreyer, Noah Lovgren, Jaslena Gill, Helia Megowan, Joanna Nielsen

We have recently shown in older adults that daily ingestion of essential amino acids (EAAs) for seven consecutive days can increase muscle stem cells (satellite cells). We want to see if we can measure a similar increase in satellite cells in younger adults. Satellite cells are important for muscle maintenance and repair. One way to stimulate muscle repair is to perform eccentric-type contractions (muscle lengthens and is damaged under tension). As such, we gave subjects EAA or placebo 3x/day for 7 days before and after a single bout of damaging exercise to test the following hypotheses compared to placebo: 1) EAAs for 7 days will increase satellite cell numbers, 2) cause more satellite cells to be activated/proliferate 24 hours after damaging exercise, and 3) lead to more robust repair (less damage) 7 days after damaging exercise (14 days after EAAs began). Tissue samples from eight subjects have been processed. Additional subjects are in various stages of recruitment/consenting. Immunohistochemical methods will be used to measure muscle satellite cell and myonuclei numbers associated with type I, IIa and IIx fibers, satellite cell distance to nearest capillaries, and muscle fiber denervation and immune cell responses. Our overarching objective is to devise ways to boost resilience of muscle tissues in active and inactive young and older adults.

Anthony, Kobe
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Research Mentor(s): Jon Bellona
(In-Person) Creative Work–Learning from the Environment

Demystifying the Tracker Workflow: How exactly WAS video game music made?

Music trackers are instruments that artists leverage to compose videogame soundtracks. My goal is to understand how this music tracking software works in an effort to demystify the barrier between contemporary music and videogame music.

Trackers are unique from modern music sequencers. However, since the music recording industry relies primarily on digital audio workstations (DAW),The music tracker medium is underrepresented in creative research.

I have incorporated one such tracker, the Polyend Tracker, into a music EP by playing sound material directly from the tracker. Samples for the Polyend tracker will be based upon previous music I have created.

I have found throughout this research that the tracker workflow both strengthens and weakens aspects of the creative process, explaining both the reason early video game music has its characteristic sound, as well as the expertise that has gone into video game music production over the years.

From this research, I have determined Trackers are immensely powerful pieces of hardware that transcend the implications of their age, however, trackers are clearly much better suited for sample manipulation and sequencing than things like sound design and synthesis.

The creation of a 3-song EP using a Polyend hardware music tracker extends digital audio creative research and supports vital music industry practice, both of which further prepares me for work in the digital gaming and music-for-media industries.

Archer, Ava
Psychology | University of Oregon
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Co-Presenter(s): Ethan Scott
(Virtual) Oral Panel–Health and Social Science

ChangeDwell: The Interaction Between Change Blindness and Dwell Time Paradigms

People witnessing identical streams of information can experience that information very differently. This phenomenon was strikingly documented in a famous psychological experiment: one group of research participants watching a video of a crowded area failed to notice a man in a gorilla suit meander across the room, although another group described the man in the gorilla suit as the most salient aspect of the video. How do we account for such diversity in experience? My research investigates this general question via a new technique: the dwell-time paradigm, in which viewers advance at their own pace through slideshows depicting dynamic events while the time they spend looking (dwelling) at each image is measured. As dwell time is an emerging technique within the field of attentional work, there are many new insights that can be gained from collecting data in this manner. We hypothesize that patterns of dwelling across time will clarify which aspects of events viewers are prioritizing in their processing, and thus we will be able to predict–well in advance–

who will subsequently report salient features of interest (such as a man in a gorilla suit). If this is confirmed, these findings will hold considerable real-world significance. Specifically, it will be possible to utilize dwell-time patterns across a range of situations where monitoring the focus and adequacy of people's attention is crucial.

Arora, Nayantara
Neuroscience | University of Oregon
Research Mentor(s): Ulrich Mayr, Domink Graetz
(In-Person) Poster Presentation

Does the breathing cycle modulate the orientation of our attention?

At any point in time, individuals either orient themselves to the outside world, or rely on their internal representations (i.e., memories) to guide behavior and actions. We investigated to what degree the respiratory cycle modulates spontaneous exploration of the environment. Specifically, we tested the hypothesis that the tendency to direct attention to an external cue for information is increased during inhalation and decreased during exhalation. Our research utilized a novel task-switching paradigm that assesses how participants decide between internal and external representations to guide action. Employing eye-tracking, we tracked when people turn to the environment for information while registering respiration using a chest belt. Contrary to the hypothesis, we found that participants tend to orient their attention internally during inhalation and are more likely to check external cues during exhalation. These findings are discussed using evidence from neuroscience into account. To our knowledge, this experiment is the first to examine the relationship between breathing and attentional shifts between internal and external stimuli. Our results demonstrate the coupling of higher-level cognitive functions with lower-level physiological oscillatory signals that are often considered noise. They also pave the way for the examination of the kind of breathing/cognition interactions that are often assumed in the context of meditative practices.

Arquilevich, Max
Environmental Studies | University of Oregon
Research Mentor(s): Katie Lynch
Co-Presenter(s): Kira Domzalski, Naomi Meyer, Sydney Aston
(In-Person) Oral Panel–Learning from the Environment

Environmental Leadership Program: Youth Climate Science/Climate Justice Education and Discovery

Coauthors: Sydney Aston, Cian Whal, Hannah Weaver, Greta Stahle, Blake Engleman

Immersed among ancient trees deep in the Cascades lay the teachings of climate science and justice. The Climate Team in the Environmental Leadership Program introduced environmental education to middle school students by facilitating hands-on outdoor experiences in H.J Andrews, a world-renowned experimental old-growth forest. We discussed and showcased climate change evidence via four lessons: Phenology, Forest Plots, Microclimates, and Climate Justice. Through these lessons, students developed an understanding of the intersectional ways in which they can study climate change, and participate in solutions. As the seventh graders gained knowledge on plant identification, data collection/analysis, environmental inequity, and impacts on microclimates, we acquired experience in teaching, lesson planning, communication, and teamwork. By conducting hands-on research in the Forest, the middle schoolers gained applied science skills and basic climate change literacy, all while working as a team to analyze scientific data, graph, and draw conclusions about climate change's impact on the forest and the world around them. By empowering young students with these skills and knowledge, the Climate Team paved the way for future environmental stewardship, taking action against climate change one student at a time as they grow to become tomorrow's leaders.

Ashoubi, Armon
Environmental Studies | University of Oregon
Research Mentor(s): Meredith Jacobson, Katie Lynch
Co-Presenter(s): Riley Roefaro, Emily O'Brien, Kaylie Smith
(In-Person) Oral Panel–Covering Covid

Environmental Leadership Program: Restoring Connections

The COVID-19 lockdown has caused children to look at their iPads instead of their local environment, creating gaps in their outdoor education. Through a combination of field trips and in-class lessons, our leadership team brought environmental education to over 200 elementary students in Eugene.

Our lessons worked to dismantle barriers that prevented students from fostering stewardship and discovering the magic of nature. Field trips included games that introduced students to focal species and animal senses. Students were also given individual journaling time, which connected person to place and encouraged deep reflection on the surrounding environment. Our desire to create awareness and knowledge of the environment and its associated problems has been met. The outcomes of our lessons show that students built a relationship with the outdoors and established a sense of care toward nature. Students showed empathy for wildlife by constructing fairy houses and removing invasive species from the area. We also saw students identify motivating species and distinguish between various habitats within an ecosystem. Throughout lessons this term, we made a difference in our community while strengthening our own environmental education skills. In this technological era, it is important for youth to have access to the outdoors so that care and concern for the world can be established. With this, there is hope the advocation of nature will increase and create positive environmental action.

Aston, Sydney
Environmental Studies | University of Oregon
Research Mentor(s): Katie Lynch
Co-Presenter(s): Max Arquilevich, Naomi Meyer, Kira Domzalski
(In-Person) Oral Panel–Learning from the Environment

Environmental Leadership Program: Youth Climate Science/Climate Justice Education and Discovery

Immersed among ancient trees deep in the Cascades lay the teachings of climate science and justice. The Climate Team in the Environmental Leadership Program introduced environmental education to middle school students by facilitating hands-on outdoor experiences in H.J Andrews, a world-renowned experimental old-growth forest. We discussed and showcased climate change evidence via four lessons: Phenology, Forest Plots, Microclimates, and Climate Justice. Through these lessons, students developed an understanding of the intersectional ways in which they can study climate change, and participate in solutions. As the seventh graders gained knowledge on plant identification, data collection/analysis, environmental inequity, and impacts on microclimates, we acquired experience in teaching, lesson planning, communication, and teamwork. By conducting hands-on research in the Forest, the middle schoolers gained applied science skills and basic climate change literacy, all while working as a team to analyze scientific data, graph, and draw conclusions about climate change's impact on the forest and the world around them. By empowering young

students with these skills and knowledge, the Climate Team paved the way for future environmental stewardship, taking action against climate change one student at a time as they grow to become tomorrow's leaders.

Aviles, Jules
Psychology | University of Oregon
Research Mentor(s): Chantelle Russell
Co-Presenter(s): Taylor Chambers
(Virtual) Poster Presentation

How can the University of Oregon make PE & Rec more inclusive to minority students?

The goal of our research was to evaluate and synthesize actions the University of Oregon could take to make its Student Recreation Center more inclusive to minority students. In addition to online analysis, we acquired information related to this topic by interviewing highly respected faculty and staff across campus. This included a professor of Indigenous, Race and Ethnic Studies with special knowledge of the interactions between sporting culture and race as well as a member of the REC's own Inclusion Change Team. All aspects of our research suggest advocacy for BIPOC students at the employee level and advertising that depicts students of colors enjoying the space are the first steps the university can take to create an environment of equity and inclusion in the gym. More specifically this can include facilitating diversity/tolerance training for existing staff, hiring diversely qualified students with work study authorization, and using color in social media outreach.

Baeza, Simone
Pre-Business Administration | University of Oregon
Research Mentor(s): Melissa Baese-Berk
Co-Presenter(s): Sofia Martin, Ashling Mahony, Taylor Bollenbaugh
(Virtual) Poster Presentation

Code-Switching: Students in Formal vs. Informal Settings

The way we communicate is always changing. It even changes when we speak to different people or in different settings. We decided to look further into the details of how specifically college-aged students change their lexicon and grammar in formal and informal settings. This is known as code-switching–alternating between two or more languages or varieties of language in a single conversation. We have looked at responses from students from each scenario and have drawn

conclusions from both sets of responses. We want to see how college-aged students code-switch their language in different situations. The two different environments we are going to study are formal/classroom settings and informal/social media settings. We want to see how college-aged students react to online school versus in-person school. We sent out questionnaires for students to complete anonymously. UO academic residential communities and Instagram stories will be how we get the majority of our responses. Hybrid learning has created an academic environment that is formal, yet informal. When students code-switch in response to a change in setting, the type of language they speak reflects their attitudes and interests in those different situations. The COVID-19 pandemic has undoubtedly transformed many students' attitudes towards education in the United States. We can use our results to help predict what the future of education may look like post-pandemic.

Bagay, Cody
Business Administration | University of Oregon
Research Mentor(s): Miriam Clark
Co-Presenter(s): Gabe Goldstein, Alexis Thwaites
(In-Person) Poster Presentation

How do Healthy Relationships in Prison Correlate to Healthy Relationships Once Released?

Study purpose: Prison culture has shown an increased occurrence of withdrawal by inmates which is causing a lack of healthy prosocial interactions between prisoners. Opportunities to foster quality relationships are limited; therefore, positive personal relationships may not have the chance to flourish. That is important because relationships in prison may help prisoners build essential skills that will benefit their relationships once released. The current study seeks to examine the correlation between quality relationships in prison on the quality and quantity of relationships once released from prison.

Study design: Utilizing data from the Life Study, a dataset consisting of 411 individuals reentering their communities after incarceration, we used Pearson's correlation to determine the relationship between having a loved one or close relationship in prison with having close loving relationships after release.

Findings: Findings indicated no correlation between having quality relationships in prison with quality or quantity of relationships once released from prison

Conclusion: Understanding the effects and benefits of positive relationships in prison is

necessary to encourage the widespread implementation of prison policies that can facilitate these positive relationships. Current results from the Life-Study data show no correlation between having strong and close relationships with other inmates while in prison, with the quality or quantity of relationships maintained once released from prison.

Bailey, Zoey
Family and Human Services | University of Oregon
Research Mentor(s): Peg Boulay
Co-Presenter(s): Hans Bertelsen, Isabel Mosley, Alex Murphy
(In-Person) Oral Panel–Fuel, Fire, Grass and Compost

Monitoring Fuel Treatment Efficacy in Oak Habitat at Suzanne Arlie Park

Coauthors: Jack Beetley, Julia Odentha, Isaac Slye, Jaemie Bynum, Katie Stevermer

Upland oak prairies and oak savannas are scarce within Oregon's Willamette Valley. In order to restore these fire-dependent communities, we must integrate prescribed fire and land stewardship practices. Our team has been working closely with the City of Eugene Parks and Open Spaces Department to collect vegetation data to evaluate the effects of fuels management at Suzanne Arlie Park. Project goals are to conduct vegetation monitoring and evaluate fuel loads within plots that have been untreated or treated with herbicide, mastication, mowing, and prescribed burns. A paramount aspect of our team's protocol is to collect data on species composition and richness, which is key for management decisions such as prescribed fire. We have used a nested plot design: determining the plot center using randomized methods, measuring and describing trees and large woody fuels present within a 1/100th acre plot, measuring shrub cover along a 50 ft transect, and describing herbaceous cover and small woody fuels in three 1 m2 quadrats. Site awareness parameters consisted of photo monitoring points and qualitative assessment with comments. Our findings will be used to make management recommendations to the City of Eugene for Suzanne Arlie Park and the Ridgeline Trail System. These recommendations will be used to implement fuels reduction treatments; restore, enhance, and promote awareness of native habitats; and will increase collaboration across parks within Eugene's Wildland-Urban Interface.

Basak, Sanjana
Biochemistry | University of Oregon
Research Mentor(s): Hironori Uehara, Balamurali Ambati
(In-Person) Poster Presentation

OptiDicer reduces CUG RNA accumulation in corneal endothelial cells affected by Fuchs' dystrophy

Fuchs' endothelial corneal dystrophy (FECD) is a genetic disease which leads to eye pain, significant loss of vision and corneal lesions called guttae.

Late-onset FECD is characterized by the expanded repeat trinucleotide sequence (CTG)n (n>30-40) in the TCF4 gene. The accumulation of CUG RNA in the nucleus forms cytotoxic RNA foci. Recently, we developed a recombinant variant of DICER, OptiDicer, which can degrade double-strand RNA through RNaseIII activity. In this study, we examined whether OptiDicer can decrease CUG RNA accumulation in corneal endothelial cells from patients with Fuchs dystrophy.

F35T cells, Human corneal endothelial cells from an FECD patient with (CTG)n n>1000, were used in this study. The cells were transfected with OptiDicer and a control, and then subjected to in situ hybridization in order to detect CUG RNA accumulation. The images were obtained with an EVOS fluorescence microscope, and the number of CUG RNA accumulation was counted. The average number of CUG RNA accumulation was 1.9+/-1.4 in OptiDicer-F35T and 2.9+/-1.7 in D2A-OptiDicer control F35T (p<0.001), respectively.

We found that OptiDicer significantly decreased CUG-RNA accumulation in late-onset FECD patient derived corneal endothelial cells, although the low transfection efficiency may underestimate OptiDicer effect. Our result suggests OptiDicer can be a potential treatment for long CUG RNA repeat derived FECD. Future studies will explore OptiDicer in other cell lines from FECD.

Bauer, Temerity
Biology | University of Oregon
Research Mentor(s): Santiago Jaramillo
(In-Person) Oral Panel–Stimuli and Response, Poster Presentation

Pupillary Dilation Response to Changes in Sound Stimuli

To understand the world around us, the auditory system of our brains discriminates between different sounds to interpret our surroundings. Normally, simple sounds (like pure tones) are used to study the neural mechanisms for processing sounds by training animals. Training animals to discriminate between sounds is an arduous endeavor. Further, using simple sounds limits our understanding of

how the brain interprets sounds of the complexity that is experienced every day. To address these problems, we developed a methodology to study sound discrimination in naive mice without training the animals by using pupillometry.

Changes in pupil size is one of the many responses to stimuli an animal can have. A study performed by Montes-Lourido et al. found pupil diameter changes correlate with an increase in motivation, effort and arousal in the brain in subjects (Montes-Lourido et al., 2021). Previous studies found changes in pupil sizes to sounds like pure tones and animal calls (Montes-Lourido et al., 2021). We hypothesized pupil responses would occur when the animal is presented with complex sounds that are found in nature. To study natural complex sounds, we first had to establish if pupillary dilation responses occurred to changes in simpler sounds like chords. We found that the pupils exhibited a pupillary dilation response to changes in frequency. Through this project, we determined pupillary dilation responses can be used as a method to study frequency discrimination in mice.

Beaton, Brooke
Political Science | University of Oregon
Research Mentor(s): Corbett Upton
(In-Person) Oral Panel–Sex, Drugs, & Music

Social Media Use: Worsening Anxiety and Depression

Mobile devices, along with social media and the Internet, have become a dominant presence in today's world, especially among younger generations. Most of us rely on them to function in our daily lives. Alongside the frequent use of mobile devices, there has been an increase in mental health issues worldwide. The Internet opens many new doors and provides unlimited information, which has its benefits but can cause other negative issues. Behavioral changes from interacting with social media are noticeable, but research today has suggested that the use of social media may be rewiring our brain's neural networks and its regular functions, such as the dopamine reward system and our ability to focus. This study investigates the correlation between this rewiring of the brain and worsening mental health outcomes, especially anxiety and depression. To investigate this issue, I explore persuasive design, mobile device dependency, and digitally influenced mental health issues. The results of this study are important for predicting the future of mental health treatment. By studying the consequences of social media use and dependency, I hope to raise awareness of the issue and help users make better decisions about their engagement with these products and minimize or prevent their negative effects.

Beaudoin, Sarah
Chemistry | University of Oregon
Research Mentor(s): Shannon Boettcher, Grace Lindquist
(In-Person) Poster Presentation

Non-Platinum Group Metal Anodic Catalysts in Anion-Exchange-Membrane Electrolysis

Coauthors: Nathan Stovall

Electrolysis, also known as water splitting, consists of two half-reactions occurring within an electrolytic cell that make possible the extraction of storable and non-pollutive hydrogen gas. Anion-exchange-membrane water electrolyzers (AEMWEs) in principle operate without soluble electrolyte using earth-abundant catalysts and cell materials and thus lower the cost of green H2. However, the degradation methods of specific catalysts when used in the electrolyzer are still unclear. This study outlines the durability and activity of five commercially available non-PGM catalysts in an AEMWE system. In-situ and ex-situ characterization of each catalyst explores its electrochemical performance, conductivity, and interaction with the polymer membrane. Initial results indicate that electrical conductivity of the catalyst is a significant factor in its performance as a water oxidation catalyst in pure water. More specifically, Co3O4 catalyst nanoparticles show the greatest potential to compete with the current industry standard, IrOx, in both stability and activity. Further development of cobalt oxide catalysts, through synthesis and characterization, is required to achieve competitive durability in industrially relevant operating conditions for a pure water membrane-electrode assembly (MEA).

Bedell, Bradley
Multidisciplinary Science | University of Oregon
Research Mentor(s): Mackenzie Kehmeier MS, Ashley Walker PhD
(In-Person) Poster Presentation

In vivo arterial stiffness, but not endothelial function, varies with the mouse estrus cycle

Coauthors: Aleena Khurana, Mackenzie Kehmeie

Historically, females have been omitted from research due to their perceived variability. Hormones fluctuate throughout the estrus cycle in mice mimicking the human menstrual cycle. The endothelium plays a role in vascular function and arterial stiffness. Human endothelial function and arterial

stiffness vary throughout the menstrual cycle, however this has yet to be investigated in the mouse model.

C56Bl/6J mouse estrus cycle stage was identified via vaginal cytology prior to testing. Arterial stiffness was assessed via aortic pulse wave velocity. Endothelial function and nitric oxide mediated dilation were assessed by dose responses in pressurized mesenteric (MA) and posterior cerebral arteries (PCAs). Gene expression in PCAs and MAs was assessed as well as aortic protein analysis.

Aortic pulse wave velocity was lowered for mice in estrus as compared to diestrus. PCA and MCA dose responses did not differ between stages of the estrus cycle. PCA Esr2 gene coding for estrogen receptor β (ERβ) expression was lowered for mice in estrus as compared to diestrus and proestrus.

The estrus phase in mice is associated with lower in vivo large artery stiffness. There were no differences between the estrus cycle phase in ex vivo resistance artery endothelial function. ER gene expression changes during the estrus cycle are limited to ERβ in the cerebral arteries. These results suggest that estrus phase should be considered when measuring in vivo arterial stiffness in young female mice.

Berry, Miles
Anthropology, Medieval Studies | University of Oregon
Research Mentor(s): Gantt Gurley
(In-Person) Oral Panel–HURF

Gender Diversity and Deviation in Medieval Scandinavia

There is a trope in the medieval Scandinavian literary tradition that bends the gendered actions and presentations of its characters in a way that changes their social standing within their stories. Unfortunately, homophobia and transphobia within academia have been precedent for decades and have caused the overlook of queer characters in such medieval literature. In my research, I attempt to contradict the notions that queer people did not exist in medieval Scandinavia and posit that some queer medieval individuals even held high places in society because of their identities. This paper finds evidence of what moderns consider gender diversity and deviation within medieval Scandinavian life, using both literature and archaeology. I inspect the Poetic and Prose Eddas, selected Icelandic Family Sagas, and archaeological burials that were deemed exceptional or diversionary from gendered expectations. These findings are based on both modern queer theory and a scale created by Carol Clover to analyze societal standing in Icelandic Family Sagas.

Bertelsen, Hans
Environmental Studies | University of Oregon
Research Mentor(s): Peg Boulay
Co-Presenter(s): Isabel Mosley, Alex Murphy, Zoey Bailey
(In-Person) Oral Panel–Fuel, Fire, Grass and Compost

Monitoring Fuel Treatment Efficacy in Oak Habitat at Suzanne Arlie Park

Upland oak prairies and oak savannas are scarce within Oregon's Willamette Valley. In order to restore these fire-dependent communities, we must integrate prescribed fire and land stewardship practices. Our team has been working closely with the City of Eugene Parks and Open Spaces Department to collect vegetation data to evaluate the effects of fuels management at Suzanne Arlie Park. Project goals are to conduct vegetation monitoring and evaluate fuel loads within plots that have been untreated or treated with herbicide, mastication, mowing, and prescribed burns. A paramount aspect of our team's protocol is to collect data on species composition and richness, which is key for management decisions such as prescribed fire. We have used a nested plot design: determining the plot center using randomized methods, measuring and describing trees and large woody fuels present within a 1/100th acre plot, measuring shrub cover along a 50 ft transect, and describing herbaceous cover and small woody fuels in three 1 m2 quadrats. Site awareness parameters consisted of photo monitoring points and qualitative assessment with comments. Our findings will be used to make management recommendations to the City of Eugene for Suzanne Arlie Park and the Ridgeline Trail System. These recommendations will be used to implement fuels reduction treatments; restore, enhance, and promote awareness of native habitats; and will increase collaboration across parks within Eugene's Wildland-Urban Interface.

Beyer, Kelby
Anthropology, Spanish | University of Oregon
Research Mentor(s): Alison Carter
(In-Person) Poster Presentation

Contextualizing a Collection of Rare Cambodian Glass Ornaments Within Contemporaneous Trade Networks

Though archaeological glass ornament research in Iron Age Southeast Asia is a well-established field, the current body of work excludes morphologically and numerically rare objects (Carter 2016). This research uses compositional data to contextualize a looted collection of rare glass ornaments within a likely Phum Snay, Cambodia context situated within Iron Age Southeast Asian glass trade

networks and interaction spheres. Laser ablation-inductively coupled plasma-mass spectrometry (LA-ICP-MS) compositional analysis of six of the collection's 12 total glass earrings, bangles, and a spiral ornament forms the basis of this research. This work found that this collection's glass ornaments were likely circulated within a local South China Sea potash glass trade network operating in the early Iron Age as well as a long-distance high-alumina mineral soda glass exchange network with South Asia during the late Iron Age. This previously unstudied collection's novel compositional data of understudied rare prestige glass ornaments and contextualization of those artifacts within exchange networks contributes to previously sparse understandings of Iron Age Southeast Asian glass composition, exchange networks, and interaction spheres of several rare ornament types.

Bhaskar, Mayurika
Biochemistry, Biology | University of Oregon
Research Mentor(s): Hiro Uehara
(In-Person) Poster Presentation

Observation of Corneal Guttae by Plasma-FIB Microscope

Fuchs Endothelial Corneal Dystrophy (FECD) is an inherited disease that leads to blindness. FECD is characterized with the thickening of the Descement's membrane, corneal endothelial cell loss, and the formation of guttae (deposition of the extracellular matrix). Once corneal endothelial cells are lost, the cornea cannot maintain its transparency. Since these cells do not proliferate in vivo, the current treatment is through a cornea transplant, but this comes with risks such as infection and tissue rejection.

The purpose of my research is to observe the structure of guttae in FECD mice corneas to better understand its condition.

In this study, normal and FECD mouse corneas were compared. After euthanizing the mice, the eyeballs were harvested, and corneas were removed. Then they were stained with osmium tetroxide, fixed with epoxy resin, and microtomed. Finally, the sample was mounted on a 45-degree tilt and cut with a 45 nanoampere oxygen beam at a slice size of 50 nm by a Plasma-FIB microscope to obtain ~700 images. Some issues included the bending of the cornea once harvested and the time it took to image a sample.

We successfully 2D imaged the normal and FECD mouse corneas. The normal mouse corneal endothelium is smooth and thick, but FECD mouse cornea showed signs of bumps and thinness. I'm currently developing these images into 3D models to better analyze them. Overall, I hope that my work will provide information about guttae developed from FECD for future research.

Bissonnette, Cheyenne
Psychology | University of Oregon
Research Mentor(s): Chantelle Russell
Co-Presenter(s): Santino Gentile, Eleanor Yi, Alana Hilkey
(Virtual) Oral Panel–Strive to Thrive ARC

Impacts of Access to Nutritional Information on College Students

Our research entails the benefits of nutrition on the mind and body, as well as the effects of having access to nutritional information, specifically macronutrients and ingredients, for college students. Students having access to the nutritional information of dining halls would be greatly aided in their personal and/or medical diets. Firstly, we discuss the beneficial effects of nutritional decisions and how they can improve the mental stability and physical health of students and all adults in general, which was found through secondary, scholarly research. Making knowledgeable decisions about dietary intakes can improve mood, blood sugar levels, quality of life, movement, energy levels, sleep quality, cognitive function, and physical recovery. This leads to an improved general quality of life for college students. The next step in this research must be addressing whether students, in particular students attending the University of Oregon (UO), would similarly follow nutritionally beneficial diets to improve their mental and physical health in this way. This data was found via external research from previous studies nation/worldwide. It can be concluded that college students can and will make healthier dietary decisions upon learning about the nutritional information available to them via the dining halls. Multiple benefits, including mental and physical health as well as medical, would open up to students upon becoming knowledgeable in this subject matter.

Blankenship, Leah
Neuroscience | University of Oregon
Research Mentor(s): Dr. Emily Sylwestrak
(In-Person) Poster Presentation

Functional and Anatomical Properties of Cck Cells in the Medial Habenula (In Progress)

Previous research has shown that the medial habenula (MHb) is involved in many behaviors, such as stress, depression, addiction, and reward-guided behavior, but the organization of neurons driving these behaviors is unclear. MHb neurons have traditionally been divided into two groups based on expression of ChAT and Tac1 and studies have demonstrated that Tac1 cells are involved in reward-guided behavior. More recent work has suggested that the MHb contains additional cell types

and Cck has been identified as a potential marker for a subset of Tacl cells. In this project, I aim to confirm that Cck cells are a subset of Tacl cells, as well as examine functional and anatomical differences between these two cell types. To examine RNA expression overlap between Cck and Tacl, I am conducting RNA in situ hybridization experiments. To examine Cck cell function, I am recording neural activity of Cck cells in mice during reward-guided behavior. To examine Cck anatomical projections, I am imaging fluorescently-labeled Cck axon projections. Preliminary results from experiments thus far suggest that Cck cells respond to withheld reward (similar to Tacl cells) and appear to project through the interpeduncular nucleus, rather than stopping there like most Tacl projections. Results from these experiments will inform future work in the MHb as researchers continue to study the cell types of the habenula, especially as potential targets for treatment of conditions like addiction or depression.

Bollenbaugh, Taylor
Advertising | University of Oregon
Research Mentor(s): Melissa Baese-Berk
Co-Presenter(s): Simone Baeza, Ashling Mahony, Sofia Martin
(Virtual) Poster Presentation

Code-Switching: Students in Formal vs. Informal Settings

The way we communicate is always changing. It even changes when we speak to different people or in different settings. We decided to look further into the details of how specifically college-aged students change their lexicon and grammar in formal and informal settings. This is known as code-switching–alternating between two or more languages or varieties of language in a single conversation. We have looked at responses from students from each scenario and have drawn conclusions from both sets of responses. We want to see how college-aged students code-switch their language in different situations. The two different environments we are going to study are formal/classroom settings and informal/social media settings. We want to see how college-aged students react to online school versus in-person school. We sent out questionnaires for students to complete anonymously. UO academic residential communities and Instagram stories will be how we get the majority of our responses. Hybrid learning has created an academic environment that is formal, yet informal. When students code-switch in response to a change in setting, the type of language they speak reflects their attitudes and interests in those different situations. The COVID-19 pandemic has undoubtedly transformed many students' attitudes towards education in the United States. We can use our results to help predict what the future of education may look like post-pandemic.

Bourn, Courtney
Sociology | University of Oregon
Research Mentor(s): CJ Pascoe
(In-Person) Oral Panel–Rights of Humans

Examining Evangelicalism in Faith-Based and Secular Anti-Human Trafficking NGOs

This research focuses on the sociopolitical role of Evangelical ideology in anti-human trafficking organizations through stigmatizing and criminalizing sex work in the United States. How do anti-human trafficking organizations utilize Evangelical beliefs about sex to control the moral narrative of sex work and influence policy? In order to address this question, I researched the websites of 8 anti-human trafficking NGOs, ranging from secular to explicitly faith-based, as well as interviewed 3 sex workers. My findings concluded that negative attitudes about sex work were pertinent amongst all of these NGOs, sharing almost-identical ideas regardless of religious affiliation, in contrast to more positive viewpoints expressed by the sex workers I interviewed. Consequently, Evangelical-oriented beliefs about gender and sexuality permeated arguments against sex work, framing it as a gendered act in which deviant, heterosexual males are the perpetrators of exploiting innocent, heterosexual females and children. This led me to infer that anti-human trafficking organizations base their solutions on reinforcing sexual standards rather than empowering sex workers. As sexual culture is changing and people are discussing the importance of sex workers' rights, it is vital that NGOs are held accountable for the messages they convey and that organizations that empower sex workers are prioritized, not those who have an insidious mission to enforce their personal sexual standards and beliefs.

Brannon, Ernestine
Psychology | University of Oregon
Research Mentor(s): Paul Dassonville, Jeffrey Peterson
(In-Person) Oral Panel–Neuron & Cognition

Dissociating the Time Courses of Two Neural Mechanisms Underlying the Rod-and-Frame Illusion

Coauthors: Jeffrey Peterson, Paul Dassonv

Witkin and Asch (1948) developed the rod-and-frame illusion (RFI) to investigate how the visual system uses context to determine an object's orientation by providing a distorted visual field and examining its effects on orientation judgments. The RFI is thought to be driven by a combination of local and global mechanisms. The local mechanism is brought about by low-level visual properties

causing an orientation contrast effect between the rod and edges of the frame. The global mechanism is the product of a compromise between the visual and vestibular systems. In this study, we examine the time courses associated with the local and global mechanisms thought to underlie the RFI. We also examined the effect on illusion magnitude when we isolated the global mechanism.Participants performed a two-alternative forced choice task where they made orientation judgments (clockwise or counterclockwise of vertical) of the RFI stimulus and a new type of stimulus, the knob-and-frame illusion (KFI), designed to isolate the global effect. We varied stimulus onset asynchronies to determine when the frame begins to bias perception of vertical and when the illusion reaches its full magnitude for each stimulus type. As predicted, we found the RFI had a greater illusion magnitude than the KFI. We found that the KFI and RFI unfolded under similar time courses. The influence of the frame began with negative SOAs and built until reaching a plateau early in the positive SOAs.

Brazelton, Shaun
Human Physiology | University of Oregon
Research Mentor(s): Christopher Chapman
(In-Person) Poster Presentation

Prolonged mild hypohydration reduces handgrip strength in females

Coauthors: Sadie Holt, Cameron O'Conne, John Halliwill, Christopher Minson, Christopher Chapman

An overwhelming majority of studies pertaining to the effects of hypohydration, a state of low body water, on muscular strength has been performed in males. One study recently reported that passive heat-stress induced hypohydration reduces upper-body muscular strength in females. It remains unknown whether hypohydration independent of heat stress elicits similar effects in females. We tested the hypothesis that maximal voluntary isometric handgrip strength is reduced in females following prolonged mild hypohydration compared to a hydrated state (i.e., euhydrated). Six healthy, physically active females performed two randomized experimental trials following either 24 hours of fluid deprivation (HYPO) or when euhydrated (EUHY). Subjects performed three attempts of maximal voluntary isometric handgrip strength with one minute rest between sets. Handgrip strength was evaluated as the maximum force produced and as the mean value of the three attempts. There were greater reductions in body mass in HYPO vs. EUHY (EUHY: -0.6±0.6%; HYPO: -2.2±0.6%, P=0.013), indicating that the 24-hour protocol induced a mild hypohydration in HYPO. Maximal handgrip strength was reduced in HYPO compared to EUHY (EUHY: 31±3 kg; HYPO: 28±5 kg, P=0.067) and there was a trend toward reduced mean handgrip strength (EUHY: 29±4 kg; HYPO: 26±6 kg, P=0.172). These

preliminary findings suggest that prolonged hypohydration caused by inadequate fluid consumption reduces handgrip strength in females.

Brock, Hermya
Global Studies | University of Oregon
Research Mentor(s): Yoav Dubinsky
(In-Person) Oral Panel–Uniquely Their Own

Olympic Postponement and the Future of Japan: A Qualitative Study of Tokyo 2020

For the first time in Olympic history, the 2020 Tokyo Olympics were postponed for one year, taking place in July and August 2021 due to the COVID-19 emergency. This paper explores the effect hosting the Olympics during a pandemic has had on Japan's image using the frameworks of soft power and sports diplomacy. In this thesis, I code interview responses for themes to explore shifts in Japan's country image as a result of Tokyo 2020. The trends that emerge in the findings of this paper are Japan's handling of the pandemic and mental health advocacy. These findings indicate significant opportunities for Japan to improve its image using the 2020 Tokyo Olympics as a catalyst. As such, these historic Games establish Tokyo 2020 as the benchmark for future Olympics to take place in a pandemic-affected world.

Brown, Bennett
Philosophy; Planning, Public Policy and Management; Political Science | University of Oregon
Research Mentor(s): Scott Pratt
(In-Person) Poster Presentation

A Deweyan Approach to Virtual Education

20th-century American philosopher John Dewey contributed extensively to the fields of political theory and education, advocating for a 'Great Community' of individuals to grow from the Great Society of institutional power. My study into Dewey's thought seeks to explain the possibility of his envisioned Great Community in our age of virtual communication; a possibility that doesn't conflict with his experiential learn-by-doing philosophy of education. The study is informed by critical analysis of Dewey's published works alongside responses to secondary literature on the topic of his philosophy of education in virtual environments. Arguments in support of this thesis will include a foundational analysis of Dewey's philosophy of mind and the presentation of a virtual scholastic framework that aligns with his organic educational aims. The study seeks to follow a potential thread of interaction and continuity from Dewey's 20th century ideas to today, shedding light on different

ways of thinking and opportunities within remote learning that don't conform to the traditional institutional models of education. In other words, to show the virtues of virtual education.

Bruce, Madeline
Earth Sciences | University of Oregon
Research Mentor(s): Gui Aksit, Meredith Townsend
(In-Person) Poster Presentation

Thin section analysis to determine magma flow directions in a silicic dike at Summer Coon volcano

A significant number of people throughout the world live in areas with active volcanism, creating a geologic hazard to contend with. Stratovolcanoes pose a unique threat to nearby populations due to their generally more explosive nature. Because dikes are volcanic plumbing systems responsible for transporting magma, studying the extinct Oligocene age stratovolcano, Summer Coon, provided meaningful data in understanding how dike systems propagate and how magma migrated as it approached the surface to erupt. A part of the San Juan Volcanic Complex in Southern Colorado, erosion and uplift has exposed the radial dike system at the surface where it can be studied. Previous work has been done on magma flow directions of basaltic/andesitic dikes of Summer Coon, but further work was needed for longer silicic dikes to recreate magma flow directions at the time of dike emplacement. Samples were taken from twelve locations along "Dike A" both at the center and margins of the dike. These samples were then made into thin sections, scanned into Photoshop and edited for size requirements. Using ImageJ, the thin sections were edited further to identify and isolate the minerals that showed shear. Various parameters were documented for each thin section using ImageJ and compiled into an excel document. Finally, statistical analysis was done to produce the resultant vector angle that represents the dominant direction of flow specific to each sample taken and to find the R-value.

Bui, Alex
Neuroscience | University of Oregon
Research Mentor(s): Andrea Imhof, Philip Fisher
(Virtual) Poster Presentation

Promoting Early Child Development: Improving Language Outcomes Through Reciprocal Interaction

The quality of early parent-child interactions has a powerful influence on early brain development. In light of emerging literature associating responsive caregiving behaviors with children's cognitive and socio-emotional development, recent prevent initiatives have aimed to promote responsive parenting behaviors through caregiver interventions. Promising preliminary evidence from the Filming Interactions to Nurture Development (FIND) intervention reveals that promoting the quality of parent-child interaction may enhance both parent functioning and child development, but the mechanism(s) of change underlying these improvements has not been directly evaluated. A limited number of studies have employed micro-social coding measures to quantify responsive caregiving behaviors on a moment-to-moment scale, and even fewer have investigated the downstream effects of these caregiving behaviors on child language outcomes. The two primary goals of this study were to 1) evaluate whether FIND significantly increases the frequency of balanced, reciprocal interaction and 2) examine the relationship between pre-post changes in dyadic reciprocity and child language outcomes. The results of this study support promoting parental contingent responsiveness as a viable intervention target and presents an innovative framework to examine latent effects of pre-post change across an intervention period.

Bui, Alyssa
Psychology | University of Oregon
Research Mentor(s): Elliot Berkman
(In-Person) Oral Panel–Sex, Drugs, & Music

Cognitive Motivations for Women Faking Orgasm in Heterosexual and Queer Identities

Research on the psychosocial phenomenon of women faking orgasms has only focused on a heterosexual population. Our study sought to include responses from both queer and heterosexual women to understand if motivations to fake orgasm and partnered orgasm frequency differ by sexual orientation. Undergraduate participants (N=103) were given possible motivations to fake orgasm and rated them on a scale from 1(Never) to 5(Always) in relation to their personal motivations to fake

orgasm. The percentage of time participants faked orgasm and reached orgasm during partnered sex was also collected. A chi-square analysis was used to assess the relationship between sexual orientation and cognitive motivations to fake orgasm. There was a significant relationship between the motivation "Because your partner expects you to have an orgasm during sexual interactions?" and sexual orientation $X2(4,103)= 11.80$, $p= 0.019$. Descriptive statistics were used to examine counts of the highest motivations to fake orgasm and the average of reached and faked orgasms. Analyses revealed that the highest motivation for women to fake orgasm was "To make your partner happy", with 70% of women reporting (Almost Always) or (Always). Additionally, heterosexual women were almost 10% more likely to fake orgasm (M=46.75) than their queer counterparts (M=37.96). Results of this study add to the understanding of women's sexuality, but further research is needed on faking orgasms and the potential for group differences.

Burgin, Jasmine
Family and Human Services | University of Oregon
Research Mentor(s): Miriam Clark
Co-Presenter(s): Meg Stradley, Alberto Lepe-Romero
(In-Person) Poster Presentation

How Does Age of 1st Point of Contact Relate to Highest Level of Educational Attainment?

Coauthors: Alberto Lepe-Romero, Meg Stradle

Ample evidence suggests that policing in schools creates an environment in which children are prosecuted for non-dangerous delinquency, instead of normal school discipline practices, resulting in higher dropout rates and greater likelihood of future incarceration. Limited evidence suggests that the age of first contact with police may similarly impact this trajectory. The current study seeks to examine the relationship between age of first contact with police and highest education level attained to more fully understand how age of first contact may be associated with negative outcomes for kids.

Using data from the Life Study, a dataset consisting of 411 individuals reentering their communities after incarceration, we used Pearson's correlation to determine the correlation between the age of 1st point of contact by police, and the highest level of education completed.

The relationship between the first point of contact and the highest level of education is not statistically significant.

Children being policed in the school system creates a system in which they are set up to have

repeat offenses throughout their school career, impacting their educational attainment and quality of education. Though this study shows no statistically significant correlation, further research is needed beyond this data set to provide greater understanding of how to create a system in which children have a better chance at succeeding by providing other programs that help aid children.

Burns, Jenna
Environmental Studies | University of Oregon
Research Mentor(s): Lynch, Russel
Co-Presenter(s): Abby Andrews, Lucy Trapp, Sequoia Shand
(In-Person) Oral Panel–Learning from the Environment

Environmental Leadership Program–Aves Compartidas 2022

Coauthors: Christie Clark, Caroline DeBruin, Isabella Campbell, Madeline Zweber, Gabriel Gaeta

Eugene, Oregon, and Guanajuato, Mexico, have more things in common than you might think, including 25 shared migratory birds that we introduced to students during our time at El Camino del Rio/River Road Dual Immersion Elementary. In light of the COVID-19 pandemic, outdoor education has become evermore important. As participants in the Environmental Leadership Program, we strive to rekindle youth's bond with nature that was neglected during the pandemic. This year, the Aves Compartidas Program taught elementary students about migratory birds through an environmental education lens, and fostered students' connection to their environment and to Guanajuato, Mexico. Our pedagogical approach focuses on the importance of connecting students with the local environment through the use of auditory, visual, and artistic group learning. Within six weeks, our team taught 42 classes, educating 128 students on migratory birds and related environmental issues, focusing on creating safe migration conditions. We incorporated the observation of World Migratory Bird Day, and highlighted this year's theme, "dim the lights for birds at night," in reference to the effect of light pollution on bird flight patterns. The materials created from the program include lesson plans, a project management plan, and an informational website. This will allow continued collaboration between Oregon and Mexico, to nurture the next generation of environmental stewards.

Byrne, Casper
English | University of Oregon
Research Mentor(s): Dr. Yvette Saavedra
(In-Person) Oral Panel–Herstory Rediscovered

Exploring Manifestations of Consent in the 19th Century American South

Since the introduction of Affirmative Consent in the early 1990s, the conversation around consent has focused on empowering sexual agency. However, despite the advancements institutions have made in teaching affirmative consent, a culture of sexualised violence persists across most American institutions. This dissonance can be traced to the nineteenth century, when many contemporary notions about sexuality and gender originated. This paper explores the synthesis of modern sexuality to conceptualise the act of consent in an age where it was all but impossible. *Incidents in the Life of a Slave Girl* by Harriet Jacobs and *Awakening* by Kate Chopin both explore the experiences of women grappling for control of their lives. One, an enslaved woman, attempts to save herself and her family from slavery, while the other, a wealthy wife, struggles with the rigid expectations of white womanhood. Comparing these narratives reveals that 19th century consent was an act of rebellion and a negation of men's ownership over women's bodies. The contrasting narratives also highlight the relative inaccessibility of rebellion to Black women, who were marginalised at the intersection of race and gender. Understanding the subversive origins of contemporary sexual agency helps contextualise the contemporary cultural response to consent. Expressions of women's agency through the act of consent undermine men's unimpeded sexuality, which places consent in tension with hetero-normative sexual practices.

Campbell, Sally
Journalism | University of Oregon
Research Mentor(s): Emily Simnitt
Co-Presenter(s): Greg Martin
(In-Person) Data Stories–The Languages of Data

Counterstory: Researching and Analyzing Public Speaking Literacy Amongst College Students

Coauthors: Claire Putnam, Tristan Phillip

Public speaking is one form of literacy that is used frequently but does not always get the same level of attention as other forms, such as writing and reading. According to UCLA, 75% of people suffer from some sort of anxiety preceding speeches and public speaking. It is a goal of mine, and a few

others to get the resources on campus to aid those with public speaking anxiety. From a more narrow perspective, this study will work to uncover the difference between talent versus strength in terms of public speaking–with talent being a more natural capability, and a strength entailing more time and energy invested in the talent. By using already published statistics, other universities' experiences, and focus groups specific to the University of Oregon, this study is working to find the necessary qualitative and quantitative data to build a successful resource for the university. Success in this context entails a place where all feel welcome, and the needs of each individual can be met. The research will be important to make this unique resource thrive.

Capage, Mikala
Biology | University of Oregon
Research Mentor(s): David Garcia
(In-Person) Poster Presentation

Misfolded but not Malicious: Prion Proteins in Budding Yeast

Coauthor: Jacob Evarts

Prion proteins, although frequently associated with neurodegenerative diseases, are not universally harmful to cells. Instead, prions may serve as a beneficial epigenetic mechanism, allowing cells to alter their phenotype to adapt to adverse environmental conditions. Prions form when a protein adopts alternate folding conformation. The Garcia Lab aims to identify beneficial prions using the budding yeast, Saccharomyces cerevisiae. We are particularly interested in prion conformations of RNA modifying enzymes (RMEs), because these proteins can affect the expression of many genes simultaneously. After screening hundreds of yeast strains, the Garcia Lab has identified six strains of yeast–associated with the RMEs Abd1, Cet1, Ppm2, Pus4, Pus6 and Trm5–that exhibit resistance to harmful chemicals. Extensive tests are needed to confirm that the resistance to stress is caused by a prion conformation of an RNA modifying enzyme. Here, data describing the meiotic inheritance, protein dependance, and cytoplasmic inheritance are presented. Taken together, these results are key in attributing the previously identified growth states to a prion conformation of each of the six RNA modifying enzymes. The Garcia lab will continue to investigate these putative prions in future experiments to determine the mechanism for resistance. This research represents an important contribution to our understanding of prions as a protein-based epigenetic mechanism and their effects on key cell processes.

Carl, Peyton
Environmental Science | University of Oregon
Research Mentor(s): Joanna Merson, Alethea Steingisser
Co-Presenter(s): Lucy Roberts, Abby Whelan
(Virtual) Data Stories–The Languages of Data

Comparing and Contrasting Workflows and Data Management for Web-based vs Analog Cartography

Cartography is a field that allows geographers to visualize information that has a geospatial component, also known as spatial data. Programs like Mapbox and Carto are newer methods of cartography that utilize web design for map creation. In comparison, print mapping workflows use programs like ArcGIS, ArcMap, and Adobe Illustrator. These programs each have different assets that can be used to produce print-based products. Together, both web mapping and analog mapping have benefits and drawbacks which impact the design decisions a cartographer must make on topics ranging from user accessibility to different map projections. We will analyze these choices through the examination of student research at the Infographics Lab in partnership with Network Startup Research Center. The NSRC is known for their work to "develop national and regional Internet infrastructure for collaborative research, education, and international partnerships". The geographic nature of the NSRC's work facilitates their partnership with the IGL, through which the IGL has produced a wide variety of cartographic products. Analyzing these design choices provides a diverse portfolio for examining cartographic design choices. Understanding the best practices for web and print-based cartography can operate as a proxy to facilitate better scientific communication.

Chambers, Taylor
Political Science | University of Oregon
Research Mentor(s): Chantelle Russell
Co-Presenter(s): Jules Aviles
(Virtual) Poster Presentation

How can the University of Oregon make PE & Rec more inclusive to minority students?

Coauthor: Julianna Aviles

The goal of our research was to evaluate and synthesize actions the University of Oregon could take to make its Student Recreation Center more inclusive to minority students. In addition to online analysis, we acquired information related to this topic by interviewing highly respected faculty and

staff across campus. This included a professor of Indigenous, Race and Ethnic Studies with special knowledge of the interactions between sporting culture and race as well as a member of the REC's own Inclusion Change Team. All aspects of our research suggest advocacy for BIPOC students at the employee level and advertising that depicts students of colors enjoying the space are the first steps the university can take to create an environment of equity and inclusion in the gym. More specifically this can include facilitating diversity/tolerance training for existing staff, hiring diversely qualified students with work study authorization, and using color in social media outreach.

Chandler, Audrey
Human Physiology | University of Oregon
Research Mentor(s): Alicia DeLouize, Josh Snodgrass
(In-Person) Poster Presentation

Accessibility of Reproductive and Maternal Healthcare Among Female Identifying in Tunisia

Coauthors: Madison Acosta, Alicia DeLouiz

Due to the sensitivity of the topic, research on abortion rights is minimal. The Tunisian Health Examination Survey worked to incorporate questions regarding reproductive healthcare access, to determine the relationship between abortion access and socioeconomic status. This study looked to analyze potential inequalities within Tunisian reproductive healthcare for female identifying individuals, especially those seeking elective abortion. Participants completed the Tunisian Health Examination Survey (THES) which consisted of self-reported answers to yes or no, multiple choice, and short answer questions discussing socioeconomic status, marital status, and communication efficiency with health care providers. Our goal was to enable the discussion regarding the sensitive topic of abortions and reproductive healthcare to bring attention to the limitations of accessibility from socioeconomic status.

Chandler, Elizabeth
Global Studies, Japanese | University of Oregon
Research Mentor(s): Glynne Walley
(In-Person) Oral Panel–Comics, Classics and Analysis

An Analysis of English to Japanese Translation in the novel Pachinko

The research in this analysis focuses on the translation choices to both convey and introduce subtext surrounding the cultural and linguistic identity of the zainichi Koreans to the 2017 Japanese

translation of Pachinko by Korean American author Min Jin Lee. It follows the story of a multi-generational zainichi Korean family, who moved to Japan a decade or so before the beginning of World War 2 and ends in 1989, many years later. The story covers many decades of Japanese history, focusing on its treatment of and evolving cultural identity of zainichi Koreans. This is explored and conveyed in both original and translation, but it is the translations distinct differences attributed to a variety of factors that alters the novels subtexts surrounding this unique cultural identity. The of research will examine some of the more specific and broader choices made by the translator, Makiko Ikeda, throughout the duration of her translation in relation to this subject. This was accomplished by a close reading of certain passages within the text, and then comparing them to their English equivalent, accounting for cultural and historical implications of the translator's word choice. This analysis will be broken into two main focuses: that of the foreignization of the text and the domesticating aspects. Ultimately, it is their effects on the implied and overt subtexts that they either reinforce or create in comparison to the original that are the primary conclusions of this analysis.

Chang, Anabel
Biochemistry | University of Oregon
Research Mentor(s): Andrew Marcus, Jack Maurer
(In-Person) Poster Presentation

Single molecule polarization sweep spectroscopy

Local fluctuations of the sugar-phosphate backbones of DNA (a form of DNA 'breathing') play key roles in protein-DNA assembly and enzymatic function. By monitoring spectroscopic signals from single-molecules of DNA constructs labeled with optical probes rigidly inserted within the sugar-phosphate backbones at opposite positions within complementary single-strands, it is possible to study local conformational fluctuations within DNA at specific sites. Here we present an experimental single-molecule spectroscopic method, to monitor the local fluctuations of Cy3-labeled DNA constructs at varying positions near a single-stranded (ss)-double-stranded (ds)DNA junction. The method combines single-molecule total internal reflection fluorescence (TIRF) microscopy with polarized, phase-modulated optical excitation to detect linear optical signals. We use a linearly polarized continuous wave (cw) laser beam to excite the single-molecule sample, so that the emitted fluorescence contains information about the relative conformational changes of an exciton-coupled Cy3 dimer probe that labels the DNA sugar-phosphate backbones. Our results indicate that the local conformation of DNA at positions near ss-dsDNA junctions adopts four topologically-relevant macrostates. We apply a kinetic network model approach to interpret our observations of DNA breathing fluctuations at and near the ss-dsDNA junction.

Chu, Chang
Interior Architecture | University of Oregon
Research Mentor(s): Kyu-ho Ahn
(Virtual) Poster Presentation

Abstract Design suggestions for autistic-child-friendly architectural spaces

Clarke, Katherine
Sociology | University of Oregon
Research Mentor(s): Matthew Norton, Jessica Vasquez-Tokos
(In-Person) Oral Panel–Sex, Drugs, & Music

A is for Adderall: Moralizations of Illicit Prescription Stimulant use in College

With some brands receiving FDA approval starting in 2002, prescription stimulants, commonly referred to as Adderall, have been considered by the many they've been prescribed to as a life-changing drug that has supported individuals in better managing their everyday lives through addressing the chemical implications of ADHD. Soon after they became widely prescribed, stimulant prescriptions continued to not only gain popularity within the medical field but also recreationally. Colloquially known as "the study drug," throughout the 21st century illicit prescription stimulant use has become increasingly popular amongst university students. However, unlike other substances seen on college campuses, Adderall is one of the only drugs associated with productivity when taken recreationally. In examining how various social groups and processes determine the cultural boundaries of acceptable versus unacceptable illicit prescription stimulant use, I argue that Adderall's position on the moral spectrum of drug use is much more liminal than it is commonly understood to be. This paper then explores how social understandings of pleasure and productivity function to determine the acceptability of Adderall use, leading to new conceptualizations of how recreational use is culturally defined. To understand this I observe the influences to use, methods of obtaining and distributing, and contexts of taking stimulant prescriptions at the University of Oregon.

Coen, Jordan
Educational Foundations | Lane Community College
Research Mentor(s): Elizabeth Wallace
(Virtual) Creative Work–Connection, Escapism, Poetry and Exercise

Unrequited: Poems Devoted to One-Sided Love

For these three pieces, I explored one-sided love and how it feels. I believe one-sided love is something that needs more light shed on it, and I want to be a part of that effort. To convey how one-sided love looks and feels, I used different types of poetry–a sonnet titled Sour Love, a free verse titled It Didn't Click, and a rhyming poem titled Candy Consumed. For It Didn't Click, I wanted the poem to not only sound, but also look like how I felt during the time in which the poem is set. When I bolded any words in this poem, it was for emphasis just as when words or sentences went up or down like stairs. For Candy Consumed, I was challenged to work with a candy theme for a contest. The poem had to be angry, and it had to be rhyming, so I decided to write about my first, and only break-up. I'm very close to all three of these pieces, as they address my experiences.

Coen, Jordan
Educational Foundations | Lane Community College
Research Mentor(s): Elizabeth Wallace
(Virtual) Creative Work–Connection, Escapism, Poetry and Exercise

Overwhelmed: A Collection of Short Stories Illustrating Diverse Mental Health Struggles

For these four pieces, I decided to explore different mental health struggles through both nonfiction and fiction. In order to do this, I explored different styles in each one. In Panic Atta-, I told the story in chronological order of my earlier panic attacks by noting the dates that I experienced them. In Dr. Dooley, I wrote the story, which is the beginning of my memoir that I'm working on, in second person because by using second person, my readers will feel as if they're the main character and I think that's important for Dr. Dooley. For Finally Seeing Clearly, I drew from my experience of emotional abuse and put that into Adiana's character. Additionally, I wrote Finally Seeing Clearly in two different perspectives because I think when writing about abuse that it's important to see other people's perspectives, especially, from friends. I can personally relate to each of these stories, whether that be a nonfiction piece that happened to me or a fiction piece in which part of the story is true for me. Last summer, I was introduced to writing nonfiction and fell in love with the genre–I'm grateful to be able to share some of my writing.

Cole, Cassie
Public relations | University of Oregon
Research Mentor(s): Dr. Donnalyn Pompper
(In-Person) Oral Panel–Diversity and Analysis

Everyone's Business? How Eugene Downtown Businesses Responded to #BLM and #StopAsianHate

The 2020 Black Lives Matter movement made international headlines as a powerful push for racial equality in the United States. Media coverage on the movement helped BLM supporters gain support throughout the country, but the Stop Asian Hate movement in 2021 did not garner the same level of media coverage. The purpose of this research is to examine the causes and incentives that determined whether Eugene business owners chose to support these two social movements. This study asks the question: How did the recent social movements generate support from Eugene business owners and how was this reflected in the businesses themselves?

Surveys and interviews were used to analyze why and what incentivized Eugene businesses' response to the BLM and Stop Asian Hate movements. Business owners were asked to explain their response to these movements and the channels through which they received their information. Using Critical Race Theory, study responses were analyzed to find that the difference in media coverage between the two movements caused the BLM movement to be more heavily supported by Eugene business owners. BLM held a large physical and social media presence, allowing them to generate more attention for their cause. The findings of this research emphasizes the growing necessity of social media and social interactions for the growth of a movement. Rather than mainstream media coverage, it is often the opinion of one's friends and peers that ultimately influences social justice.

Colley, Colleen
Family and Human Services | University of Oregon
Research Mentor(s): Dr Liz Budd
(In-Person) Poster Presentation

Results of a narrative review: sample characteristics of studies on physical activity prescriptions

Cowen, Riley
Chemistry | University of Oregon
Research Mentor(s): Konnor Jones
(In-Person) Poster Presentation

Nanoemulsions at the oil water interface

Coauthors: Konnor Jones, Emma Tr, Ashley Mapile

Oil-water interfaces are present in many household products that you use daily, from cosmetics to detergents to drugs, these products change according to their interfacial properties, which can be manipulated be the choice of surfactants at the oil-water interface. A change of the interfacial properties is done in this experiment though mixing a cationic and an anionic surfactant, making the charge at the interface change depending on how much of each is added. The effective stability of these ratios will be measured using the zeta potential and the PDI taken over several weeks. This experiment is based off results found at the planar interface, where there is no charge, and the results are compared to better understand the difference between these interfaces. The solutions made for this experiment have a very small net charge, on the scale of milli molar. I will be using SDS and DTAB mixtures and varying the amount of DTAB to show the change on the charge at the interface, seeing that these surfactants are oppositely charged.

Craig, Samuel
Biology | University of Oregon
Research Mentor(s): Daniel Grimes, Zoe Irons
(In-Person) Oral Panel–Bio-Zebrafish and DNA

A Novel Zebrafish Mutant Reveals New Insight into Cilia Motility Regulation and Body Axis Formation

Coauthors: Zoe Irons, Elizabeth Bear, Daniel Grimes

Motile cilia are responsible for critical functions in development, including left-right patterning and cerebrospinal fluid flow. Their motility depends on the assembly of outer dynein arms: ATPases which power ciliary beating. Defects in dynein arm function occur in Primary Ciliary Dyskinesia, a disorder affecting 1:15,000–30,000 human births. Dawl is a cytoplasmic protein thought to be required for cilia beating by controlling import of dynein arms into cilia. Here, I use zebrafish as a model to understand Dawl function during development and growth. I characterize dawlb1403 mutants, a new dawl mutant line harboring a 2-amino acid deletion in a conserved region of the protein generated

by CRISPR mutagenesis. Defects associated with motile cilia dysfunction in dawlb1403 mutants, including otolith abnormalities, left-right patterning defects, and abnormal body axis curvature are observed. Surprisingly, dawlb1403 mutants exhibit recovery of body curve defects later in development. Consequently, we hypothesize that Dawl is not essential for cilia motility per se, but only for timely onset of beating over developmental timescales. Importantly, this Dawl model of delayed cilia motility and body straightening provides an opportunity to study how early embryos can sense, or correct, shape deformations, which is an exciting and relatively unknown aspect of developmental morphogenesis. Ultimately, understanding these processes may help inform our treatments of congenital disorders.

Cruz, Alonso
Human Physiology | University of Oregon
Research Mentor(s): Parisa Hosseinzadeh
(In-Person) Oral Panel–Healthy Considerations

Computational Design of Peptide Binders for Detection of MMP8, a Biomarker in Periodontal Disease

Periodontal Disease affects roughly 50% of Americans age 30 and older. As it turns out, there is a striking pattern in the incidence of this disease. Studies in recent years have found the protein MMP8 to be an inflammatory biomarker in Periodontal Disease. Consequently, its detection can be helpful as a preventative tool in dentistry. While the idea of an MMP8-detecting biosensor has great potential for medical applications, selective detection of MMP8 is difficult due to its similarity to other MMP proteins at its active site. To conquer this hurdle, we take a novel approach, targeting surfaces on MMP8 that are distal from the active site. Using insights from structural comparisons between MMP8 and other MMPs, we focused our efforts on the hemopexin domain, a region of MMP8 with minimal similarity to other MMPs. Modern advances in computational protein design allow us to design peptides in predefined structures that can bind to protein targets of interest, such as MMP8. We used these methods to produce a library of computationally-designed peptides. In the project's current stage, we analyze and experimentally validate the peptides to determine the highest-performing binders to MMP8. Overall, this project presents a tremendous opportunity to combat periodontal disease, a condition that is reaching epidemic proportions. Additionally, this project provides a framework for future studies to build upon and further establish computational science's role in the field of medicine.

Cui, Hannah(Qiaochu)
Mathematics | University of Oregon
Research Mentor(s): James Murray, Christian Schmid
(In-Person) Poster Presentation

Using Information Theory to Understand Neural Representation in the Auditory Cortex

Neurons in the brain face the challenge of representing sensory stimuli in a way that accurately encodes the features of these stimuli while minimizing the effects of noise. This thesis will use the concept of mutual information from information theory, which quantifies the amount of information one variable can tell us about another and vice versa, to better understand neural coding in the auditory cortex. Previous research has been done in maximizing mutual information to better understand neural behavior patterns in the visual cortex, with limited auditory findings. We will perform numerical optimization in Python to maximize information that a population of neurons contains about an auditory stimulus within the framework of information theory. This is done by first finding the optimal width and location of tuning curves that characterize neural response to one dimensional stimuli (sound frequency), then updating the optimization algorithm to fit two-dimensional stimuli (sound frequency and intensity). By testing the algorithm with a set of natural sound data, our computations show that in the latter case, optimal stimulus information is represented by multiple populations of neurons that respond in qualitatively different ways to auditory stimulus features, rather than by a homogeneous population with similar response properties. Our findings provide a method to better understand neural representation in the auditory cortex.

Cullen, Isabelle
Neuroscience | University of Oregon
Research Mentor(s): Dr. Matt Smear, Dr. Avinash Singh
(In-Person) Oral Panel–Stimuli and Response

Active Olfactomotor Movements in Head-Fixed Mice

Olfactomotor responses are respiratory, orofacial, and locomotive movements used during olfactory sampling and in response to odors (Rabell et al. 2017, Kurnikova, Deschênes, and Kleinfeld 2019, Findley et al. 2020, Johnson et al 2003, Wesson et al 2008, Jones and Urban 2018). Altered sensory sampling behaviors, such as eye movement, temperature insensitivity, and excessive sniffing, have been identified in individuals with Autism Spectrum Disorder (ASD). In addition, Rozenkrantz et al.

(2015) showed that olfactomotor behavior is affected in children with ASD. These children do not modulate sniffing behavior to aversive odors despite correctly identifying odors as unpleasant, suggesting an altered unconscious motor response. To investigate the neural mechanisms underlying olfactomotor sampling, we investigated respiratory and orofacial responses to odor using wildtype mice. Wildtype mice are exposed to 2-phenylethanol (attractive odor), 2-methylbutyric acid (aversive odor), alpha-pinene (neutral odor), or clear air in the course of a behavioral session. We record respiration with an intranasal thermistor, and track orofacial movements using DeepLabCut. Our preliminary results in wildtype mice (n=2) suggest that mice alter their sniffing speed and nose movement in response to odor stimuli. This work will shed light on active olfaction and help us understand more about naturalistic olfactomotor behaviors.

Dahl, Ian
Architecture | University of Oregon
Research Mentor(s): Carli Torti
Co-Presenter(s): Sidney Zabell, Natania Yeung
(Virtual) Poster Presentation

Holy Dish! How wet dishes affect CO2 and humidity in a built space

This study evaluated how placing dishes of different dryness levels in a cabinet contributed to increased levels of humidity and CO2. CO2 is a by-product of mold and mildew production, which can easily develop in an enclosed space with high humidity levels. This is a common issue in construction and built spaces with limited airflow, and CO2 levels can be considered dangerous if above 1000 ppm. To see whether moisture levels would increase humidity and CO2 to hazardous levels, wet dishes were dipped in water and stacked inside a kitchen cabinet with a GOVEE humidity monitor and HOBO CO2 monitor. The plastic dishes were kept inside an isolated kitchen cabinet and kept closed for three days to record measurements of humidity and CO2 levels. We compared this data against the original humidity and CO2 levels inside the cabinet before any wet plates were put inside. Group 1 of testing was the control group of 12 dry plates. Group 2 of testing consisted of 3 wet and 9 dry plates, group 3 of 6 wet and 6 dry plates, and group 4 of 9 wet and 3 dry plates. The results show increased humidity and CO2 levels in all phases of testing. The increase of CO2 levels was nearly 25% higher in group 4 compared to the 10% increase in group 2, and increases in humidity levels were nearly 5% higher compared to group 1 indicating the correlation between moisture build-up in a small space and increased humidity and CO2 levels.

Daley, Claire
Global Studies | University of Oregon
Research Mentor(s): Chantelle Russell
Co-Presenter(s): Yesenia Vargas, Mia Rivas, Ana Gastelu`
(Virtual) Oral Panel–Strive to Thrive ARC

Outdoor Inclusion for Hispanic Women

Outdoor recreation is an important part of our community at UO because of the many benefits, such as better mental/physical health, increased academic success, and social connections. However, while there have been attempts to attract minority groups, such as Hispanic women to outdoor recreation activities at the university, there is still a big disparity in participation. We hypothesize that with more inclusive promotion strategies within outdoor-oriented programs on campus and increasing Hispanic representation in leadership positions, people who identify as a part of this community will be more inclined to participate. Our research study explores factors contributing to the inclination to participate in outdoor activities, awareness of university outdoor events, and the interpersonal barriers that influence participation. We used data from interviews with UO outdoor recreation professionals and information from the Redefining Outdoorsy Summit. We looked at statistical and demographic data of Outdoor Program participation records provided by the Department of Assessment and Research. Lastly, we researched how other universities promote diversity in their Outdoor Recreational activities. We found factors that influence Hispanic women's participation in outdoor events are: lack of inclusion and awareness in the promotion of these events, history of childhood participation in outdoor adventures, and negative perspectives related to involvement in outdoor activities.

Dayton, Amelia
Biology | University of Oregon
Research Mentor(s): Cori Cahoon, Diana Libuda
(In-Person) Oral Panel–Daily Dose of Proteins

Meiotic recombination is regulated by dosage of synaptonemal complex proteins

Meiosis is a specialized cell division that produces haploid gametes, such as sperm and eggs. To ensure each parental genome is inherited properly, cells must pair homologous chromosomes, induce DNA double-strand breaks, repair these breaks as crossovers, and segregate the chromosomes. The synaptonemal complex (SC), a large protein structure, assembles between homologs and facilitates crossing over, which ensures accurate chromosome segregation. Using Caenorhabditis

elegans, previous work in the Libuda lab showed that two SC proteins, SYP-2 and SYP-3, have dosage-dependent functions in regulating crossing over. SYP-2 dosage is critical for regulating early crossover steps, while SYP-3 dosage influences the timing of crossover establishment. Crossovers are nonrandomly positioned on chromosomes, and whether SYP dosage influences crossover position remains unclear. To this end, I am using single nucleotide polymorphisms to characterize the positions and rates of crossovers in cells with altered SYP-2 and SYP-3 dosages. Preliminary data on Chromosome X shows that SYP-dosage is crucial for proper crossover positioning. Since the sex chromosomes often behave differently from autosomes, I am also determining the effect of SYP-dosage on crossovers across Chromosome II to establish whether autosomes show similar changes in crossover positioning. Overall, these experiments will define the dosage-dependent manner that SYP-2 and SYP-3 regulate recombination to promote fertility.

Deluc, Lisa
Cinema Studies | University of Oregon
Research Mentor(s):
(In-Person) Oral Panel–HURF

Affect and New French Extremity: Aesthetics of Traumatic Memory

This thesis hopes to highlight how a particular film phenomenon in early twenty-first century France demonstrates the concepts of traumatic affect eloquently through its aesthetic and formal tendencies. Commonly known as New French Extremity, this phenomenon touched on transgressive subjects in extreme and often viscerally challenging ways. This work into New French Extremity hopes to bring about a broader understanding of how art communicates traumatic memory through formal elements of storytelling. Ultimately this research seeks to better understand how bodily experience is affectively contagious and how cinema facilitates this communication through formal and aesthetic means.

Dominguez, Juanita
Global Studies | University of Oregon
Research Mentor(s): Lesley Jo Weaver
(Virtual) Oral Panel–Health and Social Science

Inequities faced by asylum seekers from Guatemala and Mexico under the Trump Administration

For my thesis, I will be looking at inequities faced by asylum seekers under the Trump Administration. I look at immigration policy since the beginning of his administration until the very end of it. The thesis touches on push factors that motivate individuals to leave their home country and immigrate to the United States. Additionally, I look in depth on the way these changes affected mental health on asylum seekers.

While there were lots of policy changes during his tenure, asylees were greatly affected by so many legislative and policy changes. Due to the Remain in Mexico Program and and the Zero Tolerance Police children, just as much as adults faced equal mental health challenges and disparities. I highlight inhumane treatment faced by these individuals as well.

My overall conclusion is that asylum seekers faced great mental health inequities under the Trump Administration. While the Obama Administration also had a narrow immigration policy, it didn't come as ill-mannered as the policy under Trump. This research is of great significance because of the nature and seriousness regarding seeking asylum.

Domzalski, Kira
Environmental Studies | University of Oregon
Research Mentor(s): Katie Lynch
Co-Presenter(s): Max Arquilevich, Naomi Meyer, Sydney Aston
(In-Person) Oral Panel–Learning from the Environment

Environmental Leadership Program: Youth Climate Science/Climate Justice Education and Discovery

Immersed among ancient trees deep in the Cascades lay the teachings of climate science and justice. The Climate Team in the Environmental Leadership Program introduced environmental education to middle school students by facilitating hands-on outdoor experiences in H.J Andrews, a world-renowned experimental old-growth forest. We discussed and showcased climate change evidence via four lessons: Phenology, Forest Plots, Microclimates, and Climate Justice. Through these lessons, students developed an understanding of the intersectional ways in which they can study

climate change, and participate in solutions. As the seventh graders gained knowledge on plant identification, data collection/analysis, environmental inequity, and impacts on microclimates, we acquired experience in teaching, lesson planning, communication, and teamwork. By conducting hands-on research in the Forest, the middle schoolers gained applied science skills and basic climate change literacy, all while working as a team to analyze scientific data, graph, and draw conclusions about climate change's impact on the forest and the world around them. By empowering young students with these skills and knowledge, the Climate Team paved the way for future environmental stewardship, taking action against climate change one student at a time as they grow to become tomorrow's leaders.

Dong, Katherine
Human Physiology | University of Oregon
Research Mentor(s): Dare Baldwin
(Virtual) Oral Panel–Health and Social Science

Monitoring Infant Neurodevelopment Via the Hammersmith Neurological Exams in Cambodian Infants

Thiamine deficiency affects millions of infants growing up in South and Southeast Asia due to heavy cultural reliance on thiamine-poor, polished white rice as a dietary staple. Recent evidence indicates that a thiamine-deficient diet not only endangers infants' health, but also hinders infants' neuro-cognitive development. As part of a larger, randomized controlled trial, my thesis investigated possible benefits of maternal thiamine supplementation for protecting breastfed Cambodian infants' neurological development. Lactating mothers were randomly assigned to four treatment groups (0, 1.2, 2.4, and 10mg daily thiamine supplement) when infants were between 2 and 24 weeks postnatal. Infants' neurological function was measured at 2, 12, 24, and 52 weeks via the Hammersmith Neurological Examination, a field-standard clinical assessment tool. As expected, infants' Hammersmith scores improved significantly with age. However, maternal thiamine supplementation dose did not affect infants' Hammersmith scores. Above all, this research indicates that the basic neurological functions assessed by the Hammersmith in early infancy were relatively unaffected by maternal thiamine supplementation.

Duncan, Noelia
Psychology | University of Oregon
Research Mentor(s): Elliot Berkman, Megan Lipsett
(Virtual) Oral Panel–Health and Social Science

Exploring individual differences in diabetes related illness perceptions

Duncan, Noelia
Psychology | University of Oregon
Research Mentor(s): Elliot Berkman, Megan Lipsett
(Virtual) Poster Presentation

Exploring individual differences in diabetes related illness perceptions

Durfee, Malcolm
Exploring | University of Oregon
Research Mentor(s): Chantelle Russel
Co-Presenter(s): Julia Hibbard, Cali Moore
(Virtual) Oral Panel–Strive to Thrive ARC

The Effects of the Use of Cannabis on College Students Wellbeing

Introduction: Whether it be for medicinal purposes or recreational use, the use of cannabis among college students has gone up. The hypothesis for our study is that cannabis use in college aged students affects mental health long term but short term it increases happiness.

Question of Study: What are the effects of the use of Cannabis on a College Student's Wellbeing?

General Statement of the significance of the research: That cannabis use is very prevalent at college and it also very regulated, and the question is it a the problem that people are using it heavily or regulating it heavily.

Primary Results: We found that there is no proof of causation towards cannabis helping your well being or hurting it. Rather it depends on the person and if they personally know that the drug is good for them.

Primary Conclusion: The conclusion there is no conclusive evidence that this drug directly affects rather it could possibly be a signifier of how your well being is good or bad. Therefore our hypothesis was wrong and we need more research to really get to the bottom of this.

General Methods, Procedures, Sources: We examined these sources. In addition Alexis Drakatos showed a study that spoke about cannabis usage of students but it used survey data so it was not the most reliable data considering I know many students that lied on it. The data from all the UO interviews were either unusable or biased due to them trying to prove a narrative.

Eckrosh, Kevin
Physics | University of Oregon
Research Mentor(s): Brian Smith, Markus Allgaier
(In-Person) Oral Panel–Uniquely Their Own

Progress Towards Single-Photon Time-of-Flight Imaging

Coauthors: Matthew Brown, Markus Allgaie, Brian Smith

An array of fibers with different lengths are fused into a single output fiber. A photon-counting detector is used to record the arrival time of photons incident on the array, allowing to reconstruct which fiber the photons entered. This scheme allows us to measure the spatial light distribution of single photons.

Elliot, Annaliese
Psychology | University of Oregon
Research Mentor(s): Jennifer Ablow, Jeffrey Measelle
(In-Person) Poster Presentation

Like mother, like child: Intergenerational transmission of maternal emotion regulation to infants

Emotion dysregulation is a demonstrated precursor to future psychopathology. Infancy is a critical time to develop self regulatory skills in the context of a relationship with primary caregivers. How well a caregiver can aid infant regulation development varies, often depending on the caregiver's own emotion regulation abilities. This study aims to build upon previous research by examining the predictive association between reported maternal emotional dysregulation, using the Difficulties in Emotion Regulation Scale (DERS), and observations of infant self regulation at six months. Temperament, measured with the Infant Behavioral Questionnaire (IBQ-R), will be controlled to capture the independent contributions of maternal dysregulation to infant's early indices of emotion regulation capacities. Infants' self regulation and negative affect will be measured with micro-analytic behavioral coding during the Still Face Paradigm (SFP), which examines patterns between a caregiver and their infant. It is hypothesized that greater emotion dysregulation in mothers

will predict negative affect and ineffective regulation in infants during the SFP, above the effect of temperament. Understanding how a pregnant woman's dysregulation relates to her infant's developing regulatory strategies may provide insight into specific mechanisms through which risk for emotion dysregulation is transmitted across generations.

Esquivel, Juliana
Human Physiology | University of Oregon
Research Mentor(s): Claire Guidinger, Nichole Kelly
Co-Presenter(s): Lauren Michels
(In-Person) Poster Presentation

How the COVID-19 Pandemic Affected Rural Children's Mental Health and Body Image.

The COVID-19 pandemic has had negative effect on children's mental health, especially as they lost social connections transitioning from in-person education to remote learning. This study sought to better understand the impact of the COVID-19 pandemic on mental health in a sample of rural Oregon children. We hypothesized that during height of the COVID-19 pandemic, children would report increased social dissatisfaction and loneliness (SDL), depression, and anxiety, and decreased body appreciation. This study included secondary analyses from a federally funded clinical trial on rural Oregon children's health (R21HD094661 NICHD). Children filled out surveys in-person pre-COVID-19 and remotely during COVID-19 (February-April 2021) as a follow-up assessment. Paired samples t-tests compared children's mental health pre-pandemic and during the pandemic. When comparing pre-pandemic and pandemic mental health, there were no statistically significant differences in children's SDL, anxiety, and body appreciation (p's>.05). There was a statistically significant difference in children's depressive symptoms pre- (M = 0.32, SD =.18) and during the pandemic (M = .92, SD = .11). Children endorsed feeling more depressed during the COVID-19 pandemic, t(33) = 15.08, p<.001, d = .23. Given the observed increase in depressive symptoms in our sample, mental health resources in elementary schools should become more available as children now face transitioning back into a post-pandemic world.

Falcon, Monique
Sociology | University of Oregon
Research Mentor(s): Julie Weise
(In-Person) Poster Presentation

The Bracero Program: Recordando A Estos Guerreros

In 1942, the Bracero Program, a bilateral agreement between Mexico and the United States to bring in Mexican male laborers was created. This program brought over 4 million braceros to the United States and provided contracts for these men to legally enter the US and provide manual farm labor. They worked in many different states like Texas, Washington, Oregon, and California. Within this agreement, the US promised to house, feed, and protect Mexican workers' rights. However, as the program went on, it was quickly noticed that this promise would be broken as these braceros faced harsh discrimination in the states and extremely poor working conditions, resulting in horrendous injuries. During the Summer of 2021, I had the amazing opportunity to conduct deeper research for my history professor, Julie Weise. In total, I worked 8 weeks, averaging around 35 to 40 hours a week combing through documents and listening to prerecorded interviews with former braceros via the Bracero History Archive. These braceros endured hip injuries, concussions, sore and cracked feet, dehydration from going hours without water breaks, sunburns, and in some cases, were diagnosed with cancer due to lack of protection from toxic pesticides. This is an extremely important piece of US history, yet it is hardly talked about as much as it deserves to be. It is extremely important to remember these braceros and give credit to all their hard work and sacrifices, and acknowledge our mistakes.

Fale-Olsen, Ashley
English | University of Oregon
Research Mentor(s): Corbett Upton
(In-Person) Oral Panel–Herstory Rediscovered

Examining the Effect of Fate within "The Secret History" by Donna Tartt

In the first novel by Donna Tartt, published in 1992, titled "The Secret History," the author uses fate as if it has agency over the characters. Although the novel is set in America during the 1980s, the fatalistic tone of the novel and the usage of the prologue, which divulges the crime and the guilty parties, serve to create a sense of fate that mirrors that of a Greek Tragedy rather than an American novel. This paper will serve to closely examine the book alongside traditional themes of Greek Tragedy, instead of the American view of fate, which places the individual in control of their own fate. This

subversion is important within the context of American novels, and to understand the writing style and concepts of Tartt's literary work.

Fan, Yichen
Biology | University of Oregon
Research Mentor(s): Denise Niell
(In-Person) Poster Presentation

The Role of the Primary Visual Cortex in Processing Complex Environments

To survive, animals have evolved visual systems fit for extracting relevant information from complex, natural environments. In mammals, visual information flows from the eyes to the brain via two dominant gateways. First, the primary visual cortex (V1) is a higher-order structure well-studied using simple, artificial stimuli. However, its role under more complex visual conditions remains unclear. Inactivation of the cortex have surprisingly little effect on many perceptual discrimination tasks, prompting the question: what is the fundamental role of the visual cortex? Second, the superior colliculus (SC) is highly conserved across vertebrates, including mammals and lower-order animals such as fish, which lack a cortex but can still use vision for important behaviors. To ultimately elucidate the integrated role of SC and V1, we must first understand the role of V1. We hypothesized that V1 is required for object identification in complex visual scenes, but not under simple environments. We investigated this in mice using prey capture, an ethological, visually guided behavior. We optogenetically inactivated bilateral binocular V1 neurons while mice captured cricket prey in 8 environments of varying visual complexity. We found that while V1 is not necessary for prey capture in a simple visual environment, it becomes increasingly necessary as the scene becomes more complex. We will next inactivate layer 5 cortico-collicular neurons to study the integrated role of SC and cortex.

Fear, Karly
Biology | University of Oregon
Research Mentor(s): Parisa Hosseinzadeh
(In-Person) Oral Panel–Daily Dose of Proteins

Design and Characterization of BMP-2 Protein Binders to Augment Non-Union Fracture Healing

Each year, over 630,000 people in the US suffer from non-union bone fractures, or fractures that do not heal completely without further medical intervention. To improve bone healing in non-union

fractures, researchers have shown that bone morphogenetic protein 2 (BMP-2) improves bone regeneration. However, it is critical to fine tune the physiological dose and spatiotemporal control of BMP-2 release from a delivery biomaterial to avoid adverse side effects such as abnormal bone growth. I leverage the structural and biophysical insight of molecular modeling and design to generate protein binders predicted to control the release of BMP-2 into a fracture site via affinity interactions. I characterize subsequent protein binder designs using yeast surface display and flow cytometry. Over 1,000 designs are tested using this high-throughput computational and experimental pipeline and I will further characterize the toxicity, stability, and structure of a subset of these designs for practical application.

Feldman-Dragich, Maya
Political Science | University of Oregon
Research Mentor(s): Judith Raiskin
Co-Presenter(s): Kye Martin, Emily Kavanagh
(In-Person) Poster Presentation

Lesbian Periodicals: Radical Politics and Community Building

Beginning in the 1970s second wave feminism, largely facilitated by lesbian activists, swept through the United States and world at large. A large part of their reach came from their printed media. This era broke away from the grip of mainstream publishers and a network of magazines, newspapers, and newsletters for lesbian feminists was created worldwide. Within these pages were passionate political writings and ideas. The periodicals continued through the AIDs crisis and into the 1990s and were a continuous place for lesbians to share a range of visual and written media, both creative writing and nonfiction. Without this crucial turning point of direct action, the community and visibility lesbians attained in that era would not be possible. Through the Feminist and Lesbian Periodical collection in the Special Collections and University Archives in Knight Library, we each researched a facet of the how the periodicals affected society. Many of the ideas expressed within those pages were still strikingly relevant, though few people are aware of their very existence. For the LGBTQ community and beyond, raising awareness about their impact is essential.

Ford, Riley
Human Physiology | University of Oregon
Research Mentor(s): Alicia DeLouize
(In-Person) Poster Presentation

Determination of Prediabetes Threshold Among Tunisian Adults

Forsman, Sofi
Environmental Studies,Marine Biology | University of Oregon
Research Mentor(s): Lauren Hallett, Gabriella Altmire
(In-Person) Poster Presentation

Exploring Grasshopper Feeding Preferences Due on C:N Ratios Across Varying Soil Nutrient Treatments

Montane grassland systems are a rare yet highly important ecotype in the Cascade Range. Anthropogenic disturbances are destabilizing the relationship between plant species and insect herbivores. The purpose of this study is to understand some of the factors that affect grasshopper feeding preferences. This study took place at Bunchgrass Meadow, part of the H.J. Andrews Experimental Forest. Three blocks containing 8 blocks each with different soil nutrient treatments were present. Leaf damage measurements were collected for grass species Bromus Carinatus and legume species Lupine Oreganus. Leaf damage via grasshopper chewing was observed from each plot and compared to soil treatments, carbon to nitrogen ratios within plant tissues, and plant species. I found that grasshopper feeding preferences were significantly impacted by all three independent variables. The variables tested explained roughly 70% of the variation in the experiment. The results of this study imply that changes in soil nutrient treatment can influence the trophic levels in montane ecosystems, highlighting the importance of management strategies that mitigate anthropogenic impacts.

Fretz, Piet
Philosophy | University of Oregon
Research Mentor(s): Lisa Munger
Co-Presenter(s): Lawren Paris, Kyle Hoekstra
(In-Person) Poster Presentation

Effect of Anthropogenic Noise on Eugene Duck Behaviors and Calls

This study investigated how duck species living in urban spaces have adapted their calls to account for human noise disturbances. By recording a cohort of ducks in local urban green spaces such as Alton Baker Park and the Willamette Waterfront in Eugene, Oregon, and contrasting that to recordings taken of a second cohort living in exurban natural habitats like Fern Ridge Lake, we isolated how these animals change their calls to account for anthropogenic sound masking. Using Cornell Labs Ravenlite software, we isolated the frequency, amplitude, and duration of duck calls. These field data were compared to existing published urban bioacoustic data to help develop a pattern of behavioral differences between these two cohorts of ducks. Results indicated that ducks of the same species altered their calls between the two locations. Additional research is needed to continue to develop the body of work relating to the effect human noise patterns have on existing wildlife.

Froehlich, Eleanor
Earth Sciences | University of Oregon
Research Mentor(s): Samantha Hopkins
(In-Person) Poster Presentation

A Review of the Camels From the Juntura Formation of Eastern Oregon

The Juntura Formation, collected by Dr. J. Arnold Shotwell in the 1950's and described in 1963, is found in a set of localities in Eastern Oregon near the unincorporated community of Juntura. These localities are Clarendonian in age and date to approximately 10-13 million years. As this is the only known Clarendonian site in Oregon, and one of the few Clarendonian age faunas in western North America, all information is vital to our understanding of this period. Shotwell described two camels from Juntura, Procamelus cf. grandis and Megatylopus cf. gigas. However, following the research of Brianna McHorse on the postcranial remains found at Juntura, this has been reexamined. This was done through the study of dental remains including nine lower jaws. These lower jaws have confirmed the presence of both Procamelus and Megatylopus, but in proportions dissimilar to those proposed by Shotwell.

Ganzer, Mya
Environmental Science | University of Oregon
Research Mentor(s): Peg Boulay, Hannah Gershone
Co-Presenter(s): Shane Kreger, Emma Peara, Olivia Holah
(In-Person) Oral Panel–Learning from the Environment

Assessment of the Oregon White Oak Woodland and Prairie Restoration Project at Dorris Ranch

Coauthor: Lindsay Green

The primary goal of the Birds & Blooms Environmental Leadership Program (ELP) team is to evaluate the effects of the 2016-2018 Oregon white oak and upland prairie restoration project at Dorris Ranch. The team will monitor showy wildflower species, invasive plant species, oak characteristics, and target bird species within the study site at Dorris Ranch. This will allow us to monitor and assess the health of the oaks and the response of the biotic communities dependent on oak woodland and prairie habitats at Dorris Ranch, which will indicate the success and impacts of the 2016-2018 restoration projects. Specifically, our group will conduct presence-absence surveys for target bird species, map wildflower and invasive species populations, create an evaluative census of the Oregon white oaks, and replicate photo points based on a set done in 2020. The data we collect will be compared to previous data that has been collected from Dorris Ranch. The relationships between the datasets, in addition to our new findings will further inform Willamalane Park and Recreations adaptive management decisions and strategies in order to continue the restoration of crucial Oregon white oak habitat and its associated species at Dorris Ranch.

Garrison, Anna
Biochemistry | University of Oregon
Research Mentor(s): Julia Fehr
(Virtual) Poster Presentation

Strained Alkyne-Cycloparaphenylenes: a New Class of Clickable Fluorophores

Looking inside the human body is a critical tool researchers and physicians need in order to explore the human species, navigate and discover new diseases, or even begin to look at cures or treatment plans for illnesses. What most don't know, is that the human body is dark and examining its intricate details is impossible without some sort of tagging method. Fluorophores are fluorescent chemical markers that can be used to illuminate and strategically fluoresce certain aspects of biological systems. [n]cycloparaphenylenes or "CPPs" are a unique class of macrocycles made of radially

oriented pi systems. CPPs can be synthesized with various techniques to manipulate molecules with different electronic properties that yield varying size-dependent fluorescence. CPPs foster the potential to be used for biological imaging due to their tunable optical properties and reactivity. In this study, the use of macrocyclic angle-strained alkyne-containing CPPs is explored as their unique moiety can serve as the means of attachment to biological molecules through copper-free click chemistry. This study reports the first account of a strained-alkyne CPP clicked to a biological molecule. Additionally, it is demonstrated that strained-alkyne CPPs are not only nontoxic to living cells, but can also be used to fluoresce the cell surface of living human Jurkat cells utilizing a metabolic labelling approach. This is a less invasive cell labelling procedure that can be used to image live cells.

Gastelu, Ana
Psychology | University of Oregon
Research Mentor(s): Chantelle Russell
Co-Presenter(s): Yesenia Vargas, Mia Rivas, Claire Daley
(Virtual) Oral Panel–Strive to Thrive ARC

Outdoor Inclusion for Hispanic Women

Outdoor recreation is an important part of our community at UO because of the many benefits, such as better mental/physical health, increased academic success, and social connections. However, while there have been attempts to attract minority groups, such as Hispanic women to outdoor recreation activities at the university, there is still a big disparity in participation. We hypothesize that with more inclusive promotion strategies within outdoor-oriented programs on campus and increasing Hispanic representation in leadership positions, people who identify as a part of this community will be more inclined to participate. Our research study explores factors contributing to the inclination to participate in outdoor activities, awareness of university outdoor events, and the interpersonal barriers that influence participation. We used data from interviews with UO outdoor recreation professionals and information from the Redefining Outdoorsy Summit. We looked at statistical and demographic data of Outdoor Program participation records provided by the Department of Assessment and Research. Lastly, we researched how other universities promote diversity in their Outdoor Recreational activities. We found factors that influence Hispanic women's participation in outdoor events are: lack of inclusion and awareness in the promotion of these events, history of childhood participation in outdoor adventures, and negative perspectives related to involvement in outdoor activities.

Gaudreault, Yukiko
Biology | University of Oregon
Research Mentor(s): Osamu Iwasaki
(In-Person) Oral Panel–Bio-Zebrafish and DNA

Mechanisms of 3D genome organization by condensin and its interactors

It is known that eukaryotic genomes are organized in differently sized chromatin domains, including topologically associating domains (TADs) which organize active and inactive chromatin domains and therefore coregulate transcription. This structure is of great interest because when defective, it can lead to developmental abnormalities and human disease. The in situ Hi-C method has been applied to fission yeast cells to show that the protein complex condensin forms ~500kbp chromosomal domains that are required for proper chromosome segregation during mitosis. However, it is still unclear how condensin domains are formed and regulated during the cell cycle. Here we show several potential condensin interactors involved in the regulation of condensin-mediated domains. To do so, we applied the auxin-inducible degron system to 9 condensin interactor genes that were previously found via yeast-two hybrid screening. Performing in situ Hi-C on these conditional knock-out strains showed that Clc1/ clathrin and Sds3/ histone deacetylase promote the formation of condensin domain and that Fyu1/ UTP-glucose-1-phosphate uridylyltransferase and Pfk1/ 6-phosphofructokinase negatively regulate condensin function. We anticipate these results to drive further investigation into the involvement of metabolic proteins in genome organization, as well as the further understanding of chromosome organization mediated by condensin and its interactors.

Gentile, Santino
Psychology | University of Oregon
Research Mentor(s): Chantelle Russell
Co-Presenter(s): Eleanor Yi, Cheyenne Bissonnette, Alana Hilkey
(Virtual) Oral Panel–Strive to Thrive ARC

Impacts of Access to Nutritional Information on College Students

Our research entails the benefits of nutrition on the mind and body, as well as the effects of having access to nutritional information, specifically macronutrients and ingredients, for college students. Students having access to the nutritional information of dining halls would be greatly aided in their personal and/or medical diets. Firstly, we discuss the beneficial effects of nutritional decisions and how they can improve the mental stability and physical health of students and all adults in general, which was found through secondary, scholarly research. Making knowledgeable decisions about

dietary intakes can improve mood, blood sugar levels, quality of life, movement, energy levels, sleep quality, cognitive function, and physical recovery. This leads to an improved general quality of life for college students. The next step in this research must be addressing whether students, in particular students attending the University of Oregon, would similarly follow nutritionally beneficial diets to improve their mental and physical health in this way. This data was found via external research from previous studies nation/worldwide. It can be concluded that college students can and will make healthier dietary decisions upon learning about the nutritional information available to them via the dining halls. Multiple benefits, including mental and physical health as well as medical, would open up to students upon becoming knowledgeable in this subject matter.

Getz, Madeleine
Anthropology | University of Oregon
Research Mentor(s): Josh Snodgrass, Alicia DeLouize
Co-Presenter(s): Micah Warner-Carey, Rosa Taylor
(In-Person) Poster Presentation

Global Biomarker Implementation in the WHO's World Health Survey Plus

Coauthors: Alicia DeLouize, Josh Snodgra, Micah Warner-Carey, Rosa Taylor

The Global Health Biomarker Laboratory (GHBL) is collaborating with the World Health Organization to plan and implement the World Health Survey Plus (WHS+). The WHS+ is an expansion on the original World Health Survey, a project conducted during 2002-2004 in 69 countries with over 3,000 participants. The WHS+ is a flexible and comprehensive data collection system that provides countries with the ability to monitor progress towards health goals and obtains high-quality, nationally representative data on health, social, economic, and policy topics. This project aims to fill data gaps globally and improve health equity within and between countries. By developing protocols, training videos, and technical expertise on point-of-care biomarker implementation, the GHBL is at the forefront of implementing new point-of-care technologies (POCT); the WHS+ biomarkers are hemoglobin as an indicator of anemia, HbA1C and glucose as indicators of diabetes risk, and lipids as indicators of hypolipidemia and cardiovascular risk. Additionally, the survey is collecting anthropometrics, blood pressure, pulse, hand grip strength, walking speed, and cognitive function as direct measures of health. We are currently in the early stages of methods development and implementation; the WHS+ has the potential not only to help countries provide more equitable and sustainable healthcare and promote country-specific care-seeking behaviors, but also to further our global knowledge of healthcare and disease.

Gill, Jaslena
Human Physiology | University of Oregon
Research Mentor(s): Hans Dreyer
Co-Presenter(s): Noah Lovgren
(In-Person) Poster Presentation

Impact of a Single Bout of Blood Flow Restriction Exercise on Muscle Stem Cells

Coauthors: Ryan Angeloni, Joanna Nielsen, Helia Megowan

Blood flow restriction exercise (BFR-Ex) is a form of low-load exercise that restricts extremity blood flow. BFR-Ex has been shown to cause an increase in muscle mass, strength, and muscle stem (satellite) cells. Satellite cells are critical for muscle homeostasis and regeneration. The loss of satellite cells precedes Type II muscle cell decline, a process called sarcopenia, affecting up to 50% of the elderly. The purpose of this study is to determine the effects of a single bout of BFR-Ex on muscle structure 24 hours and 7 days later in young and older adults. We expect satellite cell numbers will increase 24 hours post-exercise and return to normal by 7 days. We also expect signs of muscle cell denervation, cell membrane damage, and recent repair of muscle damage at 7 days post-exercise. Subjects (18-40 yo, 6 female, 6 male) will participate. Subjects will have a baseline biopsy on the left leg followed by a single bout of BFR-Ex on the right leg. Post-BFR-Ex biopsies will be obtained on the right leg after 24 hours and 7 days. Immunohistochemistry will be used to determine cross-sectional area, satellite cell number, fiber type, muscle nuclei, and centrally located nuclei. This will allow us to measure muscle cell denervation, cell membrane damage, and recent repair of muscle damage. To date, one subject has completed the protocol, one has consented, and another will be consented this week. Tissue samples are currently being processed.

Ginieczki, Taylor
Global Studies,Political Science | University of Oregon
Research Mentor(s): Jane Cramer
(Virtual) Poster Presentation

Year of the Paper Tiger: The US Military's Pursuit of Missile Defense and New Cold War with China

The last two decades have seen China become one of the biggest perceived threats to US national security. Fingers point to China's economic rise, regional power-seeking, human rights abuses, and evolving nuclear capabilities as grounds for increased threat–with the latter meriting an "aggressive" US nuclear response. Yet seldom is it asked, "What is the cause of the deteriorating nuclear

relationship between the United States and China?" Using defensive realist theory and process-tracing methodology, this thesis answers this question: American nuclear policy, specifically national missile defense (NMD). Part I begins by detailing the dire threat inflation present in American media, public opinion, and government rhetoric, where China is the unilaterally culpable "paper tiger." Part II analyzes both states' nuclear policies, revealing the astronomical discrepancy between rhetoric and reality. China's "No First Use" posture is contrasted with the US's rejection of nuclear deterrence, discarded in favor of nuclear war-fighting and NMD. This section then reviews the violated theory and nonsensical technology behind American NMD, ending with a US missile defense timeline that predates the current crisis with China–absolving China to instead implicate the US. Finally, Part III offers prescriptions from defensive realism: minimal nuclear deterrence, a no-first-use policy (ironically, like China's), eliminated NMD, and increased transparency in Sino-American relations.

Gladis, Jess
Environmental Studies | University of Oregon
Research Mentor(s): Mark Carey, Barbara Muraca
(In-Person) Poster Presentation

Value Pluralism & Environmental Justice in the Cascades: The Nisqually River Watershed

Examining resource conflicts shows the way land values influence stakeholder relationships to culturally significant ecosystems. The Nisqually Watershed exemplifies environmental justice disputes caused by the juxtaposition of high-density urban areas, rural farmland, and federally protected land– creating intersecting values that inform local land stewardship. My findings so far support that the analysis of values and environmental ethics–an often-underrepresented factor in formal decision-making–elucidates how material and metaphysical human-ecosystem relations form influential values that determine the outcome of resource conflicts and deliberative resolutions.

This analysis is conducted using rigorous frameworks that encompass a multiplicity of stakeholder values. This project aims to further develop a method based in environmental hermeneutics and phenomenology that engages with the IPBES conceptual framework and its defined value categories (Díaz et al. 2015). This approach is unique among similar pre-existing research because of its practical application of philosophical traditions and adoption of IPBES' pluralist framework. Further study of regional environmental conflicts using these approaches can enlighten relatively unexplored factors in ecological decision-making. Providing precise explanation for the way conflict is ignited or mediated is incumbent for the future development of climate change resilience and mitigation strategies.

Glass, Rowan
Anthropology | University of Oregon
Research Mentor(s): Reuben Zahler, Maria Fernanda Escallón
(In-Person) Oral Panel–HURF

Ethnohistory of Indigenous Transculturation and Resistance in the Sibundoy Valley of Colombia

This paper interprets Indigenous culture change and resistance in the ethnohistory of the Sibundoy Valley of southwest Colombia. Drawing on historical, ethnographic, and theoretical sources, I trace these processes as they have developed in the valley from colonial period to the present, focusing on the twentieth century. Previous histories of the Sibundoy Valley have emphasized the complementary roles of the Catholic Church and the Colombian state as history-makers in this frontier zone, where the colonial logics of these agents were forcibly imposed on the Indigenous communities they encountered there. While recognizing the importance of Church and state as historical actors in this region, this paper finds that Foucault's claim that "where there is power, there is resistance" aptly applies to the ethnohistory of the Sibundoy Valley. Although the effects of colonial power on the Indigenous communities of the valley are clear, in all cultural domains in which culture change has occurred it has been countered by practices of resistance which have operated to maintain Indigenous cultural integrity. The historical continuity of such practices demonstrates that the Indigenous communities in question have not been passive subjects of colonial power, but rather active agents in negotiating and resisting it. This paper interprets Sibundoy Valley ethnohistory to position the valley's Indigenous communities at center stage, as the protagonists and makers of their own history.

Goldstein, Gabe
Family and Human Services | University of Oregon
Research Mentor(s): miriam clark
Co-Presenter(s): Cody Bagay, Alexis Thwaites
(In-Person) Poster Presentation

How do Healthy Relationships in Prison Correlate to Healthy Relationships Once Released?

Study purpose: Prison culture has shown an increased occurrence of withdrawal by inmates which is causing a lack of healthy prosocial interactions between prisoners. Opportunities to foster quality relationships are limited; therefore, positive personal relationships may not have the chance to

flourish. That is important because relationships in prison may help prisoners build essential skills that will benefit their relationships once released. The current study seeks to examine the correlation between quality relationships in prison on the quality and quantity of relationships once released from prison.

Study design: Utilizing data from the Life Study, a dataset consisting of 411 individuals reentering their communities after incarceration, we used Pearson's correlation to determine the relationship between having a loved one or close relationship in prison with having close loving relationships after release.

Findings: Findings indicated no correlation between having quality relationships in prison with quality or quantity of relationships once released from prison

Conclusion: Understanding the effects and benefits of positive relationships in prison is necessary to encourage the widespread implementation of prison policies that can facilitate these positive relationships. Current results from the Life-Study data show no correlation between having strong and close relationships with other inmates while in prison, with the quality or quantity of relationships maintained once released from prison.

Gomez Cabrera, Jonah
Art | University of Oregon
Research Mentor(s): Julie Wiese
(In-Person) Oral Panel–HURF

A Literary Analysis of the History of Migration Through The Bracero Program

The Bracero Program was a guest worker program that was held under a bilateral agreement between the United States and Mexico to resolve labor shortages during World War II between 1942 and 1964. Mexico desired a program that would boost their modernization movement which involved industrialization and proving their morality and social values through an international lens. Mexico's goals to fortify a greater relationship with the United States held influence on modern migration habits that would be recorded as employed and documented through Bracero Contract, leaving amidst their contract, or arriving in the North undocumented altogether. My research explores these migration alternatives through literary analysis in the form of archival government documents from Mexican consuls, US government officials, and braceros to further understand their story and involvement that influenced the actions of Bracero workers to choose either to stay in the program or leave. Through the exploration of individual bracero workers' and migrants' experiences and stories through a humanistic aspect, it helps us analyze how these cases are still historically relevant to modern migration methods, vocabulary, ideas, as well as its current problems.

Goyal, Vithika
Marine Biology | University of Oregon
Research Mentor(s): Hope Healey, William Cresko
Co-Presenter(s): Micah Woods
(In-Person) Poster Presentation

Expression of FGF Signaling Genes during Threespine Stickleback Development

The fibroblast growth factor (fgf) signaling pathway is essential to vertebrate craniofacial development. Alterations in fgf receptors and ligands can lead to craniofacial disorders. While deleterious effects are observed in response to pathway mutations in many vertebrates, syngnathid fishes (pipefishes, seahorses, seadragons) have lost several of these genes (fgf3, fgf4, and others). Syngnathids have also evolved unique craniofacial features, such as an elongated snout, important to suction feeding, and absence of teeth. Since fgf3 and fgf4 are involved in craniofacial development, it is possible that their loss in syngnathids is related to the family's unique faces. Our lab is investigating the developmental impact of the loss of fgf3 and 4 in syngnathids. To establish the ancestral expression patterns of fgf genes, we studied stickleback fishes due to their recent divergence from syngnathids. Using in situ hybridization, we assessed the spatial localization of fgf expression in stickleback embryos through development. Embryos were imaged and fgf/fgfrs staining patterns were compared to zebrafish. We observed expression of fgfr1a and fgf3 in the pharyngeal arches of stickleback embryos, paralleling zebrafish. Understanding the ancestral expression patterns of genes in the fgf signaling pathway reveals the deep conservation of the fgf signaling pathway in stickleback and provides opportunities for better interpreting the impact of the losses of these genes in syngnathids.

Grant, Adriana
Political Science,Sociology | University of Oregon
Research Mentor(s): Claire Herbert, Jessica Vasquez-Tokos
(In-Person) Data Stories–The Languages of Data

Section 8 Housing Choice Voucher Program: Caseworker's Facilitation of Upward Socioeconomic Growth

Graumann, Frida
English | University of Oregon
Research Mentor(s): Emily Simnitt
Co-Presenter(s): Gabrielle Wille
(In-Person) Data Stories–Data and more Data

Volunteering at GrassRoots Garden: How to Grow Individual and Community Food Literacy

Most college students are often disconnected from their food sources and are unaware of the positive effects that gardening has on their physical, mental, and emotional health. This project reports our personal experiences of volunteering at Food For Lane County's GrassRoots Garden, a community-funded garden that primarily grows produce for donation and strives to educate its volunteers. We have detailed the evolution of our understanding of gardening's role in food insecurity and community food literacy. Inspired by Robin Wall Kimmerer's Braiding Sweetgrass, our research reveals the reciprocal relationship between individuals or communities and gardening. As much as we can do for a garden, a garden can do for us. Our intention for this project is to inspire more college students to get involved in a community garden to increase their food literacy, as well as raise awareness of the benefits that working in the soil has on all aspects of one's health.

Graville, Gabriel
Sociology | University of Oregon
Research Mentor(s): Michael Dreiling
(In-Person) Oral Panel–Covering Covid

The rise of labor activity in the wake of the COVID-19 recession

In the economic fallout of the COVID-19 pandemic and the resulting recession there emerged a period of heightened labor activity. Starting in the Summer of 2021 and continuing through the end of the year multiple industries saw an increase in organized strikes and work stoppages. While heightened collective action in the workplace is well theorized in the recovery periods of a recession there was also an unprecedented rate of resignations throughout the workforce. Through a case study of both the UAW John Deere Strike as well as this wave of resignations dubbed "The Great Resignation" it is evident that there are similarities between the actions of both workers despite collective bargaining institutions having little to no role in "The Great Resignation." As a result one can argue that "The Great Resignation" is analogous to a more organized collective labor movement despite the individualistic nature of the phenomenon.

Gray, Piper
Physics | US Air Force Academy
Research Mentor(s): Dr. Michael Shaffer
(Virtual) Oral Panel–Inner Space and Internet

Analysis of RadioXenon Using Trap and Trace Analysis

Coauthors: Jonathan Soferr, Michael Shaffer

This project examines the use of atom trap and trace analysis for measuring the proportion of radioactive Xenon isotopes to stable Xenon in an air sample. Radioactive Xenon is not naturally occurring, so the presence of radioactive Xenon indicates artificial nuclear fission activity. Xenon and its radioactive isotopes are typical by-products of all three major types of special nuclear material (SNM): plutonium, uranium-233, and uranium-235. It is also a by-product of nuclear reactors and medical applications. Each process produces radioactive Xenon at different concentrations, so it is essential to determine the exact proportion. The proposed method will trap individual atoms of Xenon using laser cooling and trapping technologies, and they will fluoresce as they relax from the excited state to the ground state. The frequency at which Xenon atoms are trapped and fluoresce is unique to specific isotopes and will be used to identify the atoms contained in an air sample. The laser frequencies which will trap the radioactive isotopes of Xenon are not yet identified. This project will determine these frequencies using atom trap and trace analysis (ATTA) assisted laser spectroscopy and scanning the laser across frequencies until the Xe radioisotope fluoresces. This process will augment the current methods and help determine the concentration of radioactive Xenon in the sample with greater precision.

Greenblatt, Noah
Human Physiology | University of Oregon
Research Mentor(s): Keat Ghee Ong, Salil Karipott
Co-Presenter(s): Walker Rosenthal
(In-Person) Oral Panel–Stimuli and Response, Poster Presentation

Femoral Fracture Fixation Device to Wirelessly Monitor Real Time, in Vivo Strain

Strain, a primary measure of the dynamic mechanical environment, is important with regard to patient aimed orthopedic treatment especially in minimizing complications that arise after certain bone fracture injuries. Currently, methods aimed at assessing the mechanical environment include external stimulating devices that fail to measure strain during normal gait patterns, and estimated parameters computed from different computational models which lack real-time data. With these

limitations in determining real time load condition in bone fracture healing, we aimed to fabricate a bone fixation device that provided adequate mechanical stability to a healing bone fracture and measured strain present on the device in a rodent femur. This device transmits measurements wirelessly to a nearby computer for quantification of strain. Our results showed the ability to successfully measure local axial strain during functional loading on a rodent with a femur fracture. This device facilitates the study of mechanical strain and its role in bone healing in preclinical rodent fracture models. Most importantly, this device allows for future rehabilitation protocols that are evidenced-based and patient specific.

Greenblum, Georgia
Anthropology | University of Oregon
Research Mentor(s): Josh Snodgrass, Alicia DeLouize
(In-Person) Oral Panel–Healthy Considerations

Anemia and Socioeconomic Status Among Older Adults in the Study on Global AGEing (SAGE)

Coauthors: Josh Snodgrass, Alicia DeLouiz, Paul Kowal

Research on anemia has primarily focused on young children and pregnant women, yet anemia also raises considerable health concerns for older adults. Anemia can often be easily identified and treated, yet it affects large populations in low- and middle-income countries (LMICs). The older adult population is rapidly growing in LMICs; therefore, not only is this population understudied but the impact of anemia within this population will become a larger global issue. Documenting anemia rates and identifying associated factors in different countries will help public health officials more effectively target this disorder.

Hemoglobin levels and survey data from 14,659 adults 50 years and older in South Africa, China, and Mexico were obtained from Wave 1 of the World Health Organization's (WHO) Study on global AGEing and adult health (SAGE). Data were analyzed to describe anemia rates and to test relationships between anemia, age, and socioeconomic status (SES).

For Mexico, China, and South Africa the rates of anemia in older adults were found to be 24%, 28%, and 91%, respectively. An association between lower wealth and higher prevalence of anemia was present only for two groups: men in Mexico and women in China. Each year of age after 50 was associated with a 2% higher prevalence of anemia among women in Mexico and China, a 3% higher prevalence for men in China, and a 6% higher prevalence for men in Mexico.

These results highlight the global burden of anemia in older adults.

Greenwalt, Makenna
Mathematics | University of Oregon
Research Mentor(s): Judith Raiskin
Co-Presenter(s): Amelia Hartman-Warr
(In-Person) Poster Presentation

Gender Representation in 1970s Science Fiction: Joanna Russ and Ursula Le Guin

Coauthor: Amelia Hartman-Warr

Science fiction has long been a medium through which harmful gender stereotypes have thrived. Despite being forward-thinking in terms of science and technology, sci-fi novels and short stories often portray societies that are patriarchal and male-centric. Enter Ursula K. Le Guin and Joanna Russ, two women whose writing became highly popular and influential in the science fiction scene of the 1970s. Despite the societal norms of the time, Le Guin and Russ were able to use their science fiction to explore then-unconventional ideas of gender. Yet, despite taking revolutionary steps that transformed the world of science fiction, both Le Guin and Russ struggled to fight the sexist culture they were immersed in and find an understanding of gender within it.

Grivette, Margaret
Neuroscience | University of Oregon
Research Mentor(s): Adam Miller, Jen Michel
(In-Person) Poster Presentation

The Role of Synaptic Adhesion Molecules in Electrical Synapse Formation in Zebrafish

Chemical and electrical synapses work together to shape brain function but little is known about the regulation of electrical synapse formation4. Chemical synapses are junctions that send neurotransmitters across the gap to the receiving neuron. Electrical synapses are physically connected by connexin proteins which are supported by scaffolding proteins that allow charged ions to diffuse between neural cells1. ZO1b is a MAGUK scaffolding protein required for the formation and function of electrical synapses. It contains three PDZ binding domains that bring other proteins together to organize multiple interactions 1,2. Kirrel proteins belong to the transmembrane immunoglobulin superfamily of cell adhesion proteins and have a cytoplasmic PDZ binding domain (PBD). Kirrel 3 is particularly important because alterations in the gene are associated with intellectual disability and the Kirrel 3 protein has recently been found to help build synapses in the mouse hippocampus 3. To determine whether Kirrels may play a role in electrical synapse formation

in zebrafish, we tested whether the predicted Kirrel 3 PDB binds to ZO1b PDZ domains using an in vitro binding assay. We found that the Kirrel 3 C-terminus binds to PDZ1 of ZO1b. This interaction is dependent upon the predicted PDB since removal of the last 6 amino acids of the Kirrel 3 tail abolished the interaction.

Grubb, Skye
Anthropology | University of Oregon
Research Mentor(s): Larry Ulibarri, Frances White
(In-Person) Poster Presentation

Intragroup Dominance Hierarchies of Domestic Female Llamas in a Long-Term Herd

This study examines the presence of a dominance hierarchy among females of an established domestic llama herd. To examine this, a group of thirteen female llamas and one male cria were fed high-quality food in clumped distributions. Their agonistic interactions were observed and recorded using a continuous recording method separated into one minute intervals, as well as a combination of focal animal sampling and scan sampling. A variety of factors including age, long-term health, established time within the herd, proximity, size, frequency of aggression, and reproductive success were examined regarding contribution to the linear dominance hierarchy. Centrality and physical positions within the herd social structure were also considered during analysis of rank. Upon the construction of the original dominance hierarchy, tests of linearity were performed to establish the potential of reversals and changes in the hierarchy over the period of roughly six months. A fairly linear dominance hierarchy has been constructed, showing three distinct groupings of females in terms of general proximity. The majority of reversals occurred in the higher positions of the hierarchy, with individuals lower in the hierarchy interacting aggressively only minimally.

Guo, Ethan
Sociology | University of Oregon
Research Mentor(s): Ellen Scott
(In-Person) Oral Panel–Connection and Community

Victims' Advocate Experiences and Perceptions on Engaging with Survivors of Crimes

The United States Criminal Justice System's response to crimes committed against other persons relies heavily upon people who are "Victims' Advocates". This advocate system is what guides

survivors through the process of criminal justice by working closely with survivors to ensure that they are comfortable and aware of their rights and the ways in which they are involved in a criminal case.

This study utilizes multiple interviews with Victims' Advocates, as well as supplementary interviews with survivors in order to examine Victims' Advocates' perception of their impact on survivor experiences with the criminal justice system. Both in general experiences as well as how specific circumstances create different environments for survivors.

Interviews from advocates revealed a pattern of how survivors' responses differ greatly across the specific type of survivor and the nature of the crime experienced. Perceived participation and engagement levels differed greatly between crimes such as: domestic violence, theft, burglary, stranger assaults, homicides, car theft. Experiences; and also varied by across the extent of impact a survivor felt their participation and engagement would have in the proceedings against the defendant.

Recognition of these patterns and differences when it comes to survivor involvement can better inform our societal approaches to how organizations and their frameworks' are better suited for the needs of survivors.

Gurley, Olivia
Human Physiology | University of Oregon
Research Mentor(s): Chantelle Russell
Co-Presenter(s): Jackson Hullinger, Karl Schenk
(Virtual) Oral Panel–Strive to Thrive ARC

Personal training and the students at UO

This paper analyzes how personal trainers affect and influence the wellness of college students at University of Oregon. If students work with personal trainers then their overall wellness will improve because working with a personal trainer offers a more structured workout plan for people who are inexperienced or uncomfortable at the gym, less risk of injury, and guidance on proper nutrition. To prove this, we read through multiple scientific research papers and spoke to various personal trainers and students about how personal training has benefitted them. Our primary results showed that among the people we interviewed, the overwhelming majority of participants showed improvements in their overall wellness. However, these results were based on prior experience in the gym and their individual relationship with their trainer. The implications of these results can help direct more students who are not comfortable with the gym and/or whose physical and mental health is not well to the Rec Center. Additional possible outcomes of this could be a raised GPA among

students at UO, better physical and mental health of students, and just an overall better campus. Overall physical and mental wellness are important aspects of wellness that UO is trying to help students with, and directing students to meet with a personal trainer would be the most beneficial way to improve wellness.

Gutierrez, Shawn
Sociology | University of Oregon
Research Mentor(s): Raoul Liévanos, Jessica Vasquez-Tokos
(In-Person) Oral Panel–Rights of Humans

What role does settler colonial violence play in environmental degradation in the Mariana Islands?

Hampton, Matthew
Planning, Public Policy and Management,Political Science | University of Oregon
Research Mentor(s): Emily Simnitt
Co-Presenter(s): Grace Trammell
(In-Person) Data Stories–The Languages of Data

Data "Counterstory:" Academic Text Accessibility and Open Educational Resources

Coauthors: Grace Trammell

Textbooks are an essential aspect of learning in higher education curriculum. In many cases professors will require students to purchase one or multiple textbooks, creating an additional financial burden for students. When this happens, students are left with few options: find a lower-cost alternative, or drop the class. Thus, textbooks are a means of creating a literacy and education gap within higher education, with low-income students most impacted by it. However, Open Educational Resources (OERs) are a means to reduce this gap by providing equitable literature to all students within higher education. In recent years, (OERs), free academic texts, have in-part filled the gap by providing public knowledge to students and other groups. With the use of OERs openly accessible on the internet or in libraries, community members not affiliated with universities also have the opportunities to learn about various subjects they may not have had before. While working on an in-house University of Oregon OER, the Talking Stories website, we discovered that putting

together a well-researched OER had as much to do with compiling credible academic information as presenting it in a way that anybody, regardless of education level, can understand. Based on this, we will share our experience and knowledge gained during this project to creating change and expanding community literacy. We will speak to how broadening academic text accessibility through OERs can increase community literacy.

Hampton, Matthew
Planning, Public Policy and Management,Political Science | University of Oregon
Research Mentor(s): Dyana Mason, Alison Gash
(In-Person) Oral Panel–The More You Know (in depth looks and prevention)

Queering the Way: Investigating the Relationship between U.S. LGBT+ Advocacy and Policy Advancement

The modern LGBT+ rights movement in the United States has pushed political and social advancement since the mid-twentieth century, continuing the fight for equal treatment even as hundreds of anti-LGBT+ bills are being proposed and passed in states across the country. This study analyzes the specific tactics used by LGBT activists and nonprofits from the mid-twentieth century to present day, framing them using Political Opportunity Theory to try to explain how they make campaigns or movements successful. The study will be conducted using interviews of LGBT+ activists and aligned policy makers, either archived or original. Ultimately the study seeks to answer the question: In the LGBT+ rights movement (specifically the fight for equal employment), what advocacy strategies have worked to create political and social change, and how can their success be replicated for current and future rights battles? Do political and social change require both grassroots and policymaker support? Using theories, previous scholarly literature, and activist interviews, many factors were found to contribute to the overall success of an advocacy campaign: access to resources, ability to mobilize populations, clear goals and strategy, and strong relationships between outsider activists and political insiders. The goal of this report is to increase knowledge for creating effective policy and social change both inside and outside of policy arenas to further promote LGBT+ equality and understanding.

Han, Alexis
Global Studies | University of Oregon
Research Mentor(s): Kristin Yarris
(In-Person) Oral Panel–HURF

Constructing Belonging: An In-Depth Analysis of the Oregon Sanctuary Movement

In the 1980s, churches in Oregon and across the nation declared themselves as sanctuaries for Central Americans fleeing civil conflict. This marked the start of the sanctuary movement, a religious and political campaign to assist migrants seeking safety in the United States. The movement made its way into the political sphere in 1987 when Oregon became the first state to pass a sanctuary policy, limiting the use of local law enforcement to apprehend undocumented immigrants. Decades later, the Oregon legislature solidified these protections in 2021 with the passage of the Sanctuary Promise Act. In researching the many dimensions of the Oregon sanctuary movement, my research project takes a multi-disciplinary approach to answer these research questions: How has the Oregon sanctuary movement evolved from its origins in faith-based activism? And how does Oregon's sanctuary policy and the work of sanctuary and immigrants' rights activists intersect to cultivate belonging for undocumented people? I engaged in a multi-method study by thematically analyzing interviews with Oregon sanctuary activists and analyzing the Sanctuary Promise Act through analysis of the bill's text and contextualizing its provisions with interviews from community advocates and submitted public testimonies. These analyses show the resiliency and adaptability of the Oregon sanctuary movement as a community-powered campaign that responds to the needs of undocumented Oregonians in order to cultivate belonging.

Hardin, Blake
Economics,Global Studies | University of Oregon
Research Mentor(s): Melissa Graboyes, Camille Cioffi
(In-Person) Oral Panel–Covering Covid

Identifying COVID-19 Vaccine Hesitancy Motivators for People Who Inject Drugs in Lane County

People who use intravenous drugs (PWID) are at greater risk of mortality from vaccine-preventable diseases yet also express higher levels of vaccine hesitancy than the general public. For the COVID-19 pandemic, identifying common vaccine hesitancy motivators among intravenous drug users is key to ongoing vaccination campaigns against the disease. However, very little research has used qualitative methods to examine why intravenous drug users are often more vaccine hesitant. This

thesis used a mixed-methods design, conducting 41 semi-structured interviews and 260 quantitative surveys with PWID in Lane County to understand better the most influential contributors to vaccine hesitancy among this demographic group. The interviews and surveys demonstrated a consistent connection between the poor social determinants of health and frequent dehumanization of intravenous drug users and their reduced willingness to receive a COVID-19 vaccine. This thesis proposes a new model for assessing vaccine hesitancy among PWID, directly informed by the actual experiences shared by collaborators for this project. Moreover, the results of this thesis elucidate the need to address systemic barriers in healthcare that inhibit accessibility, trust, and confidence in preventative services like vaccines among marginalized communities. Current and future vaccine outreach programs for PWID must first establish a foundation of trust to alleviate vaccine hesitancy and encourage vaccine uptake.

Hartman-Warr, Amelia
Chemistry | University of Oregon
Research Mentor(s): Judith Raiskin
Co-Presenter(s): Makenna Greenwalt
(In-Person) Poster Presentation

Gender Representation in 1970s Science Fiction: Joanna Russ and Ursula Le Guin

Science fiction has long been a medium through which harmful gender stereotypes have thrived. Despite being forward-thinking in terms of science and technology, sci-fi novels and short stories often portray societies that are patriarchal and male-centric. Enter Ursula K. Le Guin and Joanna Russ, two women whose writing became highly popular and influential in the science fiction scene of the 1970s. Despite the societal norms of the time, Le Guin and Russ were able to use their science fiction to explore then-unconventional ideas of gender. Yet, despite taking revolutionary steps that transformed the world of science fiction, both Le Guin and Russ struggled to fight the sexist culture they were immersed in and find an understanding of gender within it.

Haupt, Zoë
Communication Disorders and Sciences | University of Oregon
Research Mentor(s): Melissa Baese-Berk
(In-Person) Poster Presentation

Do we perceive when they deceive? Effect of pauses and dialect on the perception of deception

When attempting to detect a lie, numerous social and linguistic factors influence the perception of whether the speaker is telling the truth or lying. The current study investigates how pausing and dialect influence listeners' judgments of truthfulness. Pauses are often associated with deceptive behavior, but it is unclear how the specific acoustic qualities of pauses affect the listeners' perception of deception. An additional factor that has been shown to influence listener judgments is the dialect of the speaker. Speakers who use African American English (AAE) dialects, for example, are perceived as less credible than speakers who use a Standard American English (SAE) variety.
In this study, bidialectal speakers recorded several narratives using both AAE and SAE. Listeners were asked to rate how truthful each speaker is after listening to a recording of a narrative via an online survey. Pause duration and the dialect used by the talker were manipulated to investigate the contributions of each factor to the perception of deception. The findings of this study will contribute to a more nuanced understanding of the interaction between social biases and speech perception, linguistic markers associated with deception, and listeners' perceptions and judgments of pausing and dialects.

Hawes, Robert
Journalism | University of Oregon
Research Mentor(s): Alexander Dracobly
Co-Presenter(s): Julianne McElderry, Neha Pall, Emma Nolan
(In-Person) Poster Presentation

World War I as seen from below

Hearn, Ava
Neuroscience | University of Oregon
Research Mentor(s): Josh Snodgrass, Alicia DeLouize
(In-Person) Oral Panel–Healthy Considerations

The benefits of intergenerational family support on post-partum depression in the Tunisian Health Examination Survey

Coauthors: Alicia DeLouize, Josh Snodgrass

Postpartum depression (PPD) is considered the most common maternal morbidity in many parts of the world, yet while maternal health is increasingly prioritized in global health initiatives, the factors leading to the development of PPD are not fully understood. Lack of social support has been cited as one of the most important contributors to postpartum depression, but social support outside of partner relationships has not been widely investigated. Given trends in global aging and the increased presence of tri-generational families worldwide, it is important to examine whether the presence of co-residential grandparents influences the health and well-being of new mothers. Although this relationship has been the focus of recent interest in wealthy nations, research has yet to explore the impact of grandparent support in low- and middle-income countries. The present study uses sociodemographic and health data from the Tunisian Health Examination Survey to look at how family structures in this northern African setting affect postpartum depression. We hypothesized that postpartum depression would be lower with the presence of co-residential grandparents. It was found that new mothers living in a multigenerational household (M = 0.00) had less depression than those that did not live in a multigenerational household.

Heller, Olivia
Environmental Studies | University of Oregon
Research Mentor(s): Peg Boulay, Gabby Altmire
Co-Presenter(s): Julia Nauman, Lindsey Nguyen, Fischer Kirk
(In-Person) Oral Panel–Learning from the Environment

Promoting Pollinators at Whitewater Ranch

Coauthors: Benjamin Madrid, Caleigh Byr, Claire Warner, Kevin Chang

Native pollinators are beneficial in agroecosystems because they are more cost-efficient, resistant to disease, and more favorable to the larger ecosystem than imported honey bees. The Environmental Leadership Program (ELP) has been monitoring pollinators at Whitewater Ranch (WWR), an organic

blueberry and timber farm in Leaburg, Oregon, since 2014. Here, the ELP has assisted WWR in its restoration of Goose Creek, a riparian zone that runs through the ranch. The goal of the project is to increase native pollinator abundance and diversity for the benefit of the ranch and greater ecosystem. To do so, we explored the potential of native riparian and forb plantings to increase native pollinator populations. First, we continued to monitor the effects of previous riparian plantings on current pollinator populations in blueberry fields. Second, we explored the role of floral enhancements in logged areas after the 2020 Holiday Farm Fire. Working with insect ecologist Lauren Ponisio, we are monitoring which native forbs are most successful in the previously burned areas of Whitewater Ranch. We expect pollinator numbers to remain relatively consistent with previous years.

Henion, Catelynn
Educational Foundations | University of Oregon
Research Mentor(s): Leilani Sabzalian
(Virtual) Creative Work–Connection, Escapism, Poetry and Exercise

The Confederated Tribes of Grand Ronde' Relationship with and Reclamation of Tumwata

In 2019, The Confederated Tribes of Grand Ronde purchased land at Tumwata (Willamette Falls). The falls are of great cultural significance to the Confederated Tribes of Grande Ronde, and the purchase of this land is a reclamation of part of the Tribe's ancestral homelands.

This project began in my class EDST 456 Decolonization and Education, taught by Dr. Lelani Sabzalian. The goal of my project was to answer the following questions, "how would one teach about Confederated Tribes of Grand Ronde's relationship and reclamation of the Tumwata land" and "what foundational knowledge is necessary for students to contextualize this reclamation within a larger scope of the settler-colonial society in which we live?"

I created a website to answer these questions and prepare myself to contextualize and teach about this relationship and reclamation in the future; this website serves as a compilation of resources. With the mentorship of Dr. Sabzalian, I have grown the scope of my project. This website is a work in progress and is not an exhaustive list of information or resources but rather a starting point for me as a white settler, student, and future educator to engage in critical conversations, actions, and lessons about the falls respectfully and responsibly.

Hevelone, Orion
Anthropology | University of Oregon
Research Mentor(s): Judith Raiskin
(Virtual) Poster Presentation

Alice B. Sheldon: Sex, Life, Mental Health, and Moms

Hibbard, Julia
Environmental Science | University of Oregon
Research Mentor(s): Chantelle Russel
Co-Presenter(s): Malcolm Durfee, Cali Moore
(Virtual) Oral Panel–Strive to Thrive ARC

The Effects of the Use of Cannabis on College Students Wellbeing

Coauthors: Cali Moore, Malcolm Durf

Whether it be for medicinal purposes or recreational use, the use of cannabis among college students has gone up. The hypothesis for our study is that cannabis use in college aged students affects mental health long term but short term it increases happiness.

Question of Study: What are the effects of the use of Cannabis on a College Student's Wellbeing?

General Statement of the significance of the research: That cannabis use is very prevalent at college and it also very regulated, and the question is it a the problem that people are using it heavily or regulating it heavily.

Primary Results: We found that there is no proof of causation towards cannabis helping your well being or hurting it. Rather it depends on the person and if they personally know that the drug is good for them.

Primary Conclusion: The conclusion there is no conclusive evidence that this drug directly affects rather it could possibly be a signifier of how your well being is good or bad. Therefore our hypothesis was wrong and we need more research to really get to the bottom of this.

General Methods, Procedures, Sources: We examined these sources. In addition Alexis Drakatos showed a study that spoke about cannabis usage of students but it used survey data so it was not the most reliable data considering I know many students that lied on it. The data from all the UO interviews were either unusable or biased due to them trying to prove a narrative.

Hilkey, Alana
Psychology, Sociology | University of Oregon
Research Mentor(s): Chantelle Russell
Co-Presenter(s): Cheyenne Bissonnette, Santino Gentile, Eleanor Yi
(Virtual) Oral Panel–Strive to Thrive ARC

Impacts of Access to Nutritional Information on College Students

Our research entails the benefits of nutrition on the mind and body, as well as the effects of having access to nutritional information, specifically macronutrients and ingredients, for college students. Students having access to the nutritional information of dining halls would be greatly aided in their personal and/or medical diets. Firstly, we discuss the beneficial effects of nutritional decisions and how they can improve the mental stability and physical health of students and all adults in general, which was found through secondary, scholarly research. Making knowledgeable decisions about dietary intakes can improve mood, blood sugar levels, quality of life, movement, energy levels, sleep quality, cognitive function, and physical recovery. This leads to an improved general quality of life for college students. The next step in this research must be addressing whether students, in particular students attending the University of Oregon (UO), would similarly follow nutritionally beneficial diets to improve their mental and physical health in this way. This data was found via external research from previous studies nation/worldwide. It can be concluded that college students can and will make healthier dietary decisions upon learning about the nutritional information available to them via the dining halls. Multiple benefits, including mental and physical health as well as medical, would open up to students upon becoming knowledgeable in this subject matter.

Hochstatter, Henry
Human Physiology | University of Oregon
Research Mentor(s): Jonathan Dorogin
(In-Person) Poster Presentation

Discovery of Affinity Binding Partners for Controlled Protein Delivery

Coauthors: Jonathan Dorogin, John O'Hara

Wound healing is orchestrated by a complex sequence of proteins, including granulocyte-macrophage colony stimulating factor (GM-CSF), which facilitates myeloid stem cell differentiation into mature immune cells during the inflammatory response, and fibroblast growth factor-2 (FGF-2), which stimulates fibroblast proliferation. Delivery of these proteins to sites of injury may increase the efficacy of tissue repair, but current protein delivery methods fail to precisely control the temporal

presentation of GM-CSF and FGF-2 at relevant stages of wound healing. The aim of this research is to develop affinity-based biomaterials that can facilitate the controlled delivery of these regenerative proteins for improved tissue regeneration. To accomplish this, small protein-binding peptides called affibodies have been identified from a randomized pool of ~860 million unique sequences via sorting of a yeast surface display library. Five affibodies were selected that specifically bind to GM-CSF or FGF-2 with varying affinities; the affinities of these affibodies have been characterized on the surface of yeast cells, and were expressed as soluble proteins in E. coli for further analysis. The wide range of affibody affinities for their protein targets will enable extensive modulation of temporal protein presentation. Conjugating these affibodies to biomaterials will allow for the spatiotemporal control of protein release to a wound site for improved wound healing in the clinic.

Hoekstra, Kyle
Computer and Information Science | University of Oregon
Research Mentor(s): Lisa Munger
Co-Presenter(s): Piet Fretz, Lawren Paris
(In-Person) Poster Presentation

Effect of Anthropogenic Noise on Eugene Duck Behaviors and Calls

This study investigated how duck species living in urban spaces have adapted their calls to account for human noise disturbances. By recording a cohort of ducks in local urban green spaces such as Alton Baker Park and the Willamette Waterfront in Eugene, Oregon, and contrasting that to recordings taken of a second cohort living in exurban natural habitats like Fern Ridge Lake, we isolated how these animals change their calls to account for anthropogenic sound masking. Using Cornell Labs Ravenlite software, we isolated the frequency, amplitude, and duration of duck calls. These field data were compared to existing published urban bioacoustic data to help develop a pattern of behavioral differences between these two cohorts of ducks. Results indicated that ducks of the same species altered their calls between the two locations. Additional research is needed to continue to develop the body of work relating to the effect human noise patterns have on existing wildlife.

Holah, Olivia
Environmental Science | University of Oregon
Research Mentor(s): Peg Boulay, Hannah Gershone
Co-Presenter(s): Shane Kreger, Emma Peara, Mya Ganzer
(In-Person) Oral Panel–Learning from the Environment

Assessment of the Oregon White Oak Woodland and Prairie Restoration Project at Dorris Ranch

Coauthors: Emma Koelbl, Saoirse Kir, Lindsay Green, Ann Moorhead, Garret Simmer

The primary goal of the Birds & Blooms Environmental Leadership Program (ELP) team is to evaluate the effects of the 2016-2018 Oregon white oak and upland prairie restoration project at Dorris Ranch. The team will monitor showy wildflower species, invasive plant species, oak characteristics, and target bird species within the study site at Dorris Ranch. This will allow us to monitor and assess the health of the oaks and the response of the biotic communities dependent on oak woodland and prairie habitats at Dorris Ranch, which will indicate the success and impacts of the 2016-2018 restoration projects. Specifically, our group will conduct presence-absence surveys for target bird species, map wildflower and invasive species populations, create an evaluative census of the Oregon white oaks, and replicate photo points based on a set done in 2020. The data we collect will be compared to previous data that has been collected from Dorris Ranch. The relationships between the datasets, in addition to our new findings will further inform Willamalane Park and Recreations adaptive management decisions and strategies in order to continue the restoration of crucial Oregon white oak habitat and its associated species at Dorris Ranch.

Holden, Charlie
Product Design | University of Oregon
Research Mentor(s): Kiersten Muenchinger
(Virtual) Poster Presentation

Design for Migraine Management: Product Proposal to Mitigate Social-Emotional Burdens of Migraine

Migraine is a common and debilitating neurological illness. Effective migraine treatment often relies on pharmaceutical interventions, though this strategy alone is insufficient in allowing migraineurs, or people who experience migraine headaches, to manage their condition because it does not address social and emotional burdens.

My work aims to provide migraineurs with tools to build healthy habits and increase their understanding of individual triggers and treatments, thereby decreasing attack frequency and intensity. My motivation is to lessen the social and emotional burdens of migraine by reducing feelings of helplessness, isolation, frustration, and guilt among migraineurs.

I propose that I may increase migraineurs' actual and perceived control over their condition by providing them with tools to build positive migraine prevention habits. This solution is Pagno, a system by which to record attacks and personal metrics and synthesize these data to gain insights into appropriate treatment plans. By providing migraineurs with a system that optimizes the formation of migraine tracking as a habit, I propose that migraineurs will be empowered to adopt strategies that will improve short-term migraine incidence and long-term condition management.

Holeman, Sara
Astronomy & Planetary Science | Arizona State University
Research Mentor(s): Scott Fisher
(In-Person) Poster Presentation

Using Photometric Observations of Messier 52 to Derive Color Magnitude Diagrams With Python Scripts

Here we present results from optical observations of the open cluster M52 (NGC 7654) obtained at Pine Mountain Observatory (PMO) in July 2021. We obtained high signal-to-noise ratio images of M52 in the SLOAN g', r', and i' filters during a single observing run under substandard observing conditions due to surrounding wildfires. M52 was chosen for this project due to the stars being widely separated allowing for photometry to be performed near the cluster center. The cluster was observed in each filter for 25 minutes of on-source integration. The image data was later reduced and analyzed using custom Python scripts that then produced the color-magnitude diagrams (CMD) presented here. Being that the main motivation of this project was to allow advanced undergraduate students to write and perfect data analysis code and produce adequate results that could be compared against published data, we are pleased to present a high-quality CMD comparison to published data as well as offset comparisons roughly by five magnitudes due to the negative effects of the smoke. Our results give the chance for students to recognize the importance of observing conditions and the reality of optical observations for astronomical research. Additionally, we will use the obtained data to absolutely calibrate the PMO telescope system for the first time and use the customized Python code to return to M52 to obtain better quality data with excellent observing conditions to correct for the offset CMDs.

Holt, Sadie
Human Physiology | University of Oregon
Research Mentor(s): Dr. Christopher Chapman
(In-Person) Poster Presentation

Renal Hemodynamic Response to Oral Protein Loading during Prolonged Mild Hypohydration

Coauthors: Cameron O'Connell, Shaun Brazelt, John Halliwill, Christopher Minson, Christopher Chapman

Hypohydration, a state of low body water, can occur due to inadequate fluid consumption or with sweating during heat stress. The kidneys regulate body water through multiple mechanisms including modulation of renal blood flow. It is not known if prolonged hypohydration alters the control of renal blood flow. Renal blood flow control can be probed using an oral protein load, a stimulus that increases renal blood flow within 1-3 hours. We tested the hypothesis that prolonged mild hypohydration attenuates oral protein loading-induced increases in renal blood flow compared to a hydrated state (i.e., euhydrated). Eight healthy adults (5 females) arrived at the lab after 24 hours of fluid deprivation (HYPO) or when euhydrated (EUHY). Subjects ingested a whey protein beverage to stimulate increases in renal blood flow. Doppler ultrasonography was used to estimate renal blood flow from blood velocity in the renal and segmental arteries. Data were summarized as the peak increase in renal blood velocity. A mild hypohydration was confirmed by greater reductions in body mass in HYPO vs. EUHY (HYPO: -2.2±0.5%; EUHY: -0.3±0.7%, P=0.001). There were no differences between conditions in the peak increase in renal (HYPO: +5.6±3.8 cm/s; EUHY: +4.8±3.3 cm/s, P=0.54) and segmental (HYPO: +4.4±4.7 cm/s; EUHY: +3.4±4.0 cm/s, P=0.43) artery blood velocities. These findings indicate that prolonged mild hypohydration does not alter the kidneys' ability to increase renal blood flow.

Hopkins, Elle
Sociology | University of Oregon
Research Mentor(s): Judith Raiskin
Co-Presenter(s): Pippa Simmons
(In-Person) Poster Presentation

The Individual: On Lesbian Lands

Coauthors: Payton Jefferis

The creation of the lesbian homeland called the OWL farm, or Open Women's Land, happened during the second wave of feminism, a movement which lasted from the early 1960s to the late 1980s. This paper will examine why women, specifically lesbian separatists, chose to create a sanctuary for women that was completely separate from patriarchal influences, how they governed their lands, and why women wanted to visit the lands. This will be done by analyzing primary sources such as journals written by residents on the farm, newsletters published at the farm and other miscellaneous resources from the SO CLAP archival collection. This is an effort to understand why the popularity of lesbians lands peaked over two decades (1975-1995) and has decreased over time and why the views of lesbian separatism don't fit with the modern views of feminism.

Hullinger, Jackson
Human Physiology | University of Oregon
Research Mentor(s): Chantelle Russell
Co-Presenter(s): Karl Schenk, Olivia Gurley
(Virtual) Oral Panel–Strive to Thrive ARC

Personal Training and its Effects on University of Oregon Students

This paper analyzes how personal trainers affect and influence the wellness of college students at University of Oregon. If students work with personal trainers then their overall wellness will improve because working with a personal trainer offers a more structured workout plan for people who are inexperienced or uncomfortable at the gym, less risk of injury, and guidance on proper nutrition. To prove this, we read through multiple scientific research papers and spoke to various personal trainers and students about how personal training has benefitted them. Our primary results showed that among the people we interviewed, the overwhelming majority of participants showed improvements in their overall wellness. However, these results were based on prior experience in the gym and their individual relationship with their trainer. The implications of these results can help direct more students who are not comfortable with the gym and/or whose physical and mental

health is not well to the Rec Center. Additional possible outcomes of this could be a raised GPA among students at UO, better physical and mental health of students, and just an overall better campus. Overall physical and mental wellness are important aspects of well that UO is trying to help students with, and directing students to meet with a personal trainer would be the most beneficial way to improve wellness.

Jackson, Quinten
Biology | University of Oregon
Research Mentor(s): Judith Raiskin
(Virtual) Poster Presentation

Marie Equi; a lesbian anticapitalist icon

Jackson, William
Biochemistry | University of Oregon
Research Mentor(s): Ethan Shaw, David Garcia
(In-Person) Poster Presentation

Exploring the Conservation of Prion Formation Between Humans and Yeast

Jagielski, Alexandra
Multidisciplinary Science | University of Oregon
Research Mentor(s): Zachary DuBois, Alicia
(In-Person) Poster Presentation

Experiences and Health of Transgender & Gender Diverse People of Color During the BLM Protests

Coauthors: Alicia DeLouize, Tian Walk, Jae Puckett, Zachary DuBois

Transgender and gender diverse people of color (TGD POC) endure high levels of discrimination and violence related to anti-trans bias and racism. The Trans Resilience & Health in Sociopolitical Contexts Study (N = 158) is a longitudinal mixed-methods study that captured monthly data on experiences of certain sociopolitical events and measured aspects of mental and physical health from a diverse

sample of TGD people living in Oregon, Michigan, Tennessee, and Nebraska. This investigation centers on the experiences and health of TGD POC participants during the Black Lives Matter (BLM) protests in June 2020. These events involved a series of protests characterized by increased mobilization against systemic racism. Participants reflected on the increased focus on police brutality and racism. TGD POC participants reported significantly higher levels of post-event changes related to anti-trans hate speech and impacts on overall safety. TGD POC also had significantly higher perceived stress scores and lower resilience scores compared to TGD white participants. These findings show how sociopolitical events have negatively impacted the social treatment and well-being of TGD POC in our sample. It enables further understanding of the experiences of TGD POC which could help inform the development of supportive programs in the community. This study also highlights the importance of examining compounded effects of inequality related to intersecting marginalized identities.

James, Dante'
Multidisciplinary Science | University of Oregon
Research Mentor(s): Nadia Singh
(In-Person) Poster Presentation

Diet affects microbiome diversity in Drosophila melanogaster

Hot sauce adds spice to our life, orange juice gives us a refreshing break in the morning, and probiotics help us digest food. These components of our diets affect not only our mood, but our general health. We aimed to explore how components of our diet may affect the microbiome. Specifically, we wanted to test the relationship between diet and the bacteria strains found in microbiomes. To test this, we utilized the model organism Drosophila melanogaster. Our hypothesis was that different diets affect the microbiome of Drosophila melanogaster. We tested 4 separate treatments. These included a control, probiotics, hot sauce, and juice. We prepared fly food containing 20% (by volume) of each of these treatments. We exposed flies for one week and then homogenized them in water. We plated the homogenate on LB plates to culture bacteria for 3 days. We then counted the colonies that had formed and isolated them. We used PCR to amplify a segment of the 16S gene. Finally, we used the BLAST program to identify what bacteria we cultured. We found that the two most common genera across treatments were Staphylococcus and Acetobacter. We also found that the bacterial community changed in response to the different diets. This indicates that diet can affect the microbiome, which has implications and significance for human health.

Joel, Hannah
English,Sociology | Lane Community College
Research Mentor(s): Aryn Bartley, Ce Rosenow
(Virtual) Oral Panel–Read, Speak and Act

The Roles of Theatre and Drama in the Criminal Justice System

Prisons deter the public from engaging in criminal behavior and reform the incarcerated. Despite the goal of deterrence, however, statistics reveal flaws within current U.S. rehabilitation practices. According to a Bureau of Justice Statistics study that followed 404,638 incarcerated individuals upon their release from prison, 67.8% were rearrested within three years of release. 76.6% were rearrested within five years. The alarming recidivism rates suggest that the criminal justice system is failing to properly rehabilitate incarcerated individuals and that they are not given a chance to transform their lives. The criminal justice system is overlooking a critical aspect: the importance of prison education. Theatre and drama programs are examples of prison education that can be highly effective in transforming an incarcerated individual. To analyze the roles these programs play in the criminal justice system, I researched the benefits such programs bring to the lives of incarcerated individuals. Since this is a preliminary study, I relied on the testimonies from incarcerated individuals and articles on prison education programs. These sources demonstrate that theatre and drama programs helped change incarcerated individuals' lives by developing empathy and reflection on their deviant behavior. Recognizing the role that such programs play in the prison system is crucial in terms of understanding and considering what we can do to mitigate the chances of recidivism in the future.

Johansson, Laila
Biology | Lane Community College
Research Mentor(s): Richard Glover
Co-Presenter(s): Breanna Johnston
(In-Person) Poster Presentation

How Cooler Temperatures Affect Scavenger Visitation and Decomposition of Sows

Taphonomy is the study of what happens to an organism's remains after death, and it can provide information on many factors, including what facets affect decay, determining the post-mortem interval, organismal interactions with the remains, etc. Lane Community College has a "taphonomy lab" comprising of 7 hog carcasses placed at different times and locations. This study analyzed 3 out of the 7 hogs over 18 weeks, from October to February, to see how cooler temperatures and scavengers may affect the rate of decay. 2 of the 3 hogs were placed in July 2021, and 1 was placed

in November 2021. Trail cameras monitored the subjects and were used to examine animal visitation and the progression of decay. Average daily temperatures were recorded via the Eugene Weather Station. We hypothesized that as the temperature decreased, scavenger prevalence would increase, and the hogs' decomposition rates would fall. Data showed decreased average daily temperatures and increased animal visitation as the study progressed, with a correlation coefficient of -0.6 between them. This allowed us to acknowledge the hypothesis as fairly well supported. Comparison of the decay of the July 2021 hogs to the November 2021 hog showed that the November hog was less decomposed at the 2.5 post-mortem mark than the July hogs were at their 2.5 post-mortem mark. Because of this, we assume the lower temperatures influenced the decreased decomposition rate. Scavengers may have aided in aspects of the hogs' decay.

Johns, Bridget
Psychology | University of Oregon
Research Mentor(s): Dare Baldwin, Diana DeWald
(In-Person) Poster Presentation

Does Low-Dose Thiamine Supplementation Affect Mothers' Support For Infant Secondary Engagement?

Coauthors: Diana DeWald

Thiamine is a crucial nutrient for the body; considerable evidence indicates that its deficiency can negatively impact infants' health and neurocognitive development. Unfortunately, in Southeast Asia, thiamine deficiency is common due to cultural reliance on thiamine-poor polished white rice as a dietary staple. My research is part of a larger, randomized, controlled trial investigating possible benefits of maternal thiamine supplementation for breastfed babies' neurocognitive development. I focused on Cambodian mothers' ability to support infants in secondary engagement; specifically, their skill in facilitating joint attention regarding a novel object. To understand effects of thiamine on maternal joint engagement efforts, we developed a code using a five-point Likert scale to examine mother's behavioral efforts on four dimensions: presentation of object, joint engagement efforts, contingent responding, and affective tone. Mothers participated in a task where they attempted to initiate and sustain their infant's attention on a novel object for five 30-second increments (epochs) and were coded on how well they displayed each dimension per epoch. We expected the dimensions' ratings to display a systemic pattern across each epoch, and mothers who received higher doses of thiamine to have the highest joint engagement codes. Analyses indicate the presence of the predicted systemic patterns but no effect of thiamine dosage.

Johnson, Wesley
English | University of Oregon
Research Mentor(s): Emily Simnitt
(In-Person) Oral Panel–Communication: How and Why

Literacy Counterstory. It dictates the disparity in accessibility of literature.

Johnston, Breanna
Biology | Lane Community College
Research Mentor(s): Richard Glover
Co-Presenter(s): Laila Johansson
(In-Person) Poster Presentation

How Cooler Temperatures Affect Scavenger Visitation and Decomposition of Sows

Taphonomy is the study of what happens to an organism's remains after death, and it can provide information on many factors, including what facets affect decay, determining the post-mortem interval, organismal interactions with the remains, etc. Lane Community College has a "taphonomy lab" comprising of 7 hog carcasses placed at different times and locations. This study analyzed 3 out of the 7 hogs over 18 weeks, from October to February, to see how cooler temperatures and scavengers may affect the rate of decay. 2 of the 3 hogs were placed in July 2021, and 1 was placed in November 2021. Trail cameras monitored the subjects and were used to examine animal visitation and the progression of decay. Average daily temperatures were recorded via the Eugene Weather Station. We hypothesized that as the temperature decreased, scavenger prevalence would increase, and the hogs' decomposition rates would fall. Data showed decreased average daily temperatures and increased animal visitation as the study progressed, with a correlation coefficient of -0.6 between them. This allowed us to acknowledge the hypothesis as fairly well supported. Comparison of the decay of the July 2021 hogs to the November 2021 hog showed that the November hog was less decomposed at the 2.5 post-mortem mark than the July hogs were at their 2.5 post-mortem mark. Because of this, we assume the lower temperatures influenced the decreased decomposition rate. Scavengers may have aided in aspects of the hogs' decay.

Jones, Katherine
Anthropology | University of Oregon
Research Mentor(s): Frances White
(In-Person) Poster Presentation

Male Affiliation as an Alternative Mating Strategy in Japanese Macaques

Coauthors: Kylen Gartland

In non-human primates, dominance is often considered the primary strategy for securing mating opportunities. However, while dominance is certainly an influential factor in an individual's reproductive success, the ability to form and maintain strong social relationships serves a similar purpose, especially for those individuals who are unable to hold a high dominance rank. Social bonding is predictive of cooperation, higher rates of tolerance, lower rates of aggression, and reproductive success. Japanese macaques (Macaca fuscata) form complex inter-male social networks, with an individual's position in the network potentially impacting their reproductive success. In this study, we aimed to examine the inter-relatedness of dominance, positive male-male relationships, and reproductive success. Using behavioral data collected at the Oregon National Primate Research Center, we calculated simulated rank orders and constructed social networks based on grooming interactions between adult males. We then investigated correlations between the number of infants a male sired and the male's age, dominance rank, and social network positionality. Although the most dominant male was more reproductively successful than many lower-ranking individuals, the male with the most offspring was one who had a more central position within the social network. These findings offer a preliminary model for better understanding male social bonding as an alternative mating strategy.

Jones, Myrriah
Biology | University of Oregon
Research Mentor(s): Molly Jud, Edouard Hay
(In-Person) Poster Presentation

Development of new uroflowmetry techniques for pediatric patients

Uroflowmetry measures data points like the max and average flow rate, volume, and duration of urination. Pediatric urologists use uroflowmetry to aid in diagnosing disorders of the urinary system like pediatric voiding dysfunction, a disorder that affects the sphincter control of the urethra. Our purpose is to create a cost-effective tool for urologists to use to collect these data points more frequently and more accurately, in a more comfortable environment for patients. We used a

combination of machine learning techniques and audio recordings of simulated urinations to train an algorithm to accurately predict the data points in people who urinate in a standing position. The data from the simulated urinations had similar trends in the data as the machine learning predictions and could reasonably work as a tool for urologists. By having a tool like this app, we can work towards increasing accessibility for necessary medical testing and improve both the accuracy and precision of uroflowmetry testing which helps provide better differential diagnoses and proper treatment to pediatric patients with similar symptoms yet distinct disorders.

Karlson, Samuel
Physics | United States Air Force Academy
Research Mentor(s): Brian Patterson
(Virtual) Oral Panel–Inner Space and Internet

Radiation Trapping in Alkali Atoms

Coauthors: Ryan Dinndorf

We used a Monte Carlo computer algorithm to simulate the effects of radiation trapping in a potassium vapor cell with nitrogen and helium buffer gases. Understanding the effects of radiation trapping is important in applications such as the creation of gas lasers or the validation of atomic models. For example, the impacts of radiation trapping are significant when scaling diode-pumped alkali lasers (DPAL) to high powers. Simulations were made for buffer gas pressures as high as 1000 torr and cell temperatures as high as 200°C. A variety of cell geometries was studied. We used experimental data to validate our simulations. In the experiment, a femtosecond laser pulse excited potassium atoms along the D2 absorption line and the resulting fluorescence was observed as a function of time. An exponential fit of these points determined the excited state lifetime. A comparison of the statistical model and experimental results will be discussed.

Kataoka, Natalie
Environmental Science | University of Oregon
Research Mentor(s): Carmen Ebel, Ashley Shaw Adams
(In-Person) Oral Panel–Fuel, Fire, Grass and Compost

Nitrogen Fixing Symbionts: Legume Survival and Coexistence in Warming California Grasslands

For the past 200 years, non-native species have been anthropogenically introduced in California grasslands, reducing native species abundance and diversity. Trifolium hirtum is a non-native

legume commonly used for cattle fodder and cover cropping because of its ability to fix nitrogen via rhizobial symbionts. T. hirtum currently coexists with California native legume Trifolium willdenovii in established communities, however, T. hirtum has the potential to outcompete T. willdenovii under increased environmental stress, such as that caused by climate change. Considering how symbiotic rhizobia contribute to these Trifolium species' ability to coexist or compete with other species, as well as how climate change alters these interactions, is essential for understanding potential impacts on native biodiversity and how important forage species react to changing climate conditions.

I tested 1) how rhizobial symbionts contributed to the ability of a native and a non-native legume to coexist with each other and other species in the community. And 2) how drought influences competitive relationships between the two legumes. For both non-native T. hirtum and native T. willdenovii, I measured rhizobia nodule mass, seeded background count, weed species counts, and weighed the aboveground biomass on individuals grown under drought and ambient precipitation treatments. On average, there were no differences in the mass of rhizobia nodules by species, however there was an observed correlation between the biomass and nodule mass of uninoculated background T. willdenovii. Drought positively impacted the biomass of background T. hirtum individuals, however drought treatments negatively affected focal T. hirtum biomass compared to ambient precipitation. Drought had no significant effect on focal T. willdenovii biomass.

Kavanagh, Emily
Linguistics | University of Oregon
Research Mentor(s): Judith Raiskin
Co-Presenter(s): Kye Martin, Maya Feldman-Dragich
(In-Person) Poster Presentation

Lesbian Periodicals: Radical Politics and Community Building

Beginning in the 1970s second wave feminism, largely facilitated by lesbian activists, swept through the United States and world at large. A large part of their reach came from their printed media. This era broke away from the grip of mainstream publishers and a network of magazines, newspapers, and newsletters for lesbian feminists was created worldwide. Within these pages were passionate political writings and ideas. The periodicals continued through the AIDs crisis and into the 1990s and were a continuous place for lesbians to share a range of visual and written media, both creative writing and nonfiction. Without this crucial turning point of direct action, the community and visibility lesbians attained in that era would not be possible. Through the Feminist and Lesbian Periodical

collection in the Special Collections and University Archives in Knight Library, we each researched a facet of the how the periodicals affected society. Many of the ideas expressed within those pages were still strikingly relevant, though few people are aware of their very existence. For the LGBTQ community and beyond, raising awareness about their impact is essential.

Keith, Kelly
English | University of Oregon
Research Mentor(s): Dr. José Cortez, Dr. Faith Barter
(In-Person) Oral Panel–HURF

Legal Reasonability and The 'Gay Panic' Defense

On May 13th, 2021, Senate Bill 704 was passed in Oregon. The bill banned the use of the 'Gay Panic' defense, an affirmative defense that could reduce a murder charge to manslaughter if the defendant was found to commit murder under "extreme emotional disturbance" onset by the victim's perceived homosexuality. The Gay Panic defense reinforces anti-LGBTQ+ rhetoric that those who identify as LGBTQ+ deserve less legal and social protection than those who identify as heterosexual. The defense is still permitted in 33 states.

In criminal proceedings, a defendant's culpability is assessed by a legal fiction known as the Reasonable Person Standard (RPS) which establishes a supposedly objective standard of behavior based upon how a hypothetical person would exercise conduct in a given situation. Thus, if the RPS is founded on a fictive approach to reasonability, how does reasonability itself, as a discursive practice exemplified in the RPS, produce legal practices that affect LGBTQ+ in Oregon? I explore State v. Hayse through archival, ethnographic, and historiographic research methods in order to consider how the RPS functions within the case. I propose a full abolition of the 'Gay Panic' defense federally, a reassessment of the RPS through patterned jury instruction, and the necessity of revealing previously hidden narratives to provide the framework of how the law has historically understood the dignity, legal personhood, and liberty of People of Color, Women, and LGBTQ+ folk.

Kennedy, Katherine
Human Physiology | University of Oregon
Research Mentor(s): Jon Runyeon
(In-Person) Oral Panel–Neuron & Cognition

The Effectiveness of MRI in Diagnosing Osteoarthritis as Compared to Evaluative Cadaveric Dissection

Osteoarthritis (OA) is the leading cause for chronic disability in the U.S, affecting over 32 million adults nationwide. Although there is no cure for the age-related disease, early detection and diagnosis is crucial in providing individuals with treatment that will improve joint function, health, and overall quality of life. With what is often said to be the gold standard of OA diagnosis, Magnetic Resonance Imaging (MRI), researchers have studied the tool's methodological accuracy through comparing it to other widely used instruments, such as X-rays. However, all imaging methods offer indirect visualization of the pathological condition, whereas analysis of the joint cartilage itself would offer a direct way of evaluating the disease. The purpose of this study was to assess MRI effectiveness in the diagnosis of osteoarthritis through visualization of common pathological features in the knee both indirectly, using MRI, and directly through evaluative dissection of the cadaveric knee joint. It is hypothesized that the observations and measurements drawn from the direct dissection of the joints will convey clearer indications of OA and the true grade of its severity more so than MRI will through the minimal OA evidence picked up indirectly through magnetic signals. This will dismiss MRI as the gold standard for OA diagnosis and will pave the way for future research on discovering new, effective methods for early detection and accurate diagnosis of the common joint disease.

Khalife-Hamdan, Raimy
Global Studies | University of Oregon
Research Mentor(s): Stephen Wooten
(Virtual) Oral Panel–Health and Social Science

Shia-Catholic Coexistence and Cross-Religious Engagement Among Youth in Southern Lebanon

This ethnographic research project on Shia-Catholic coexistence in Southern Lebanon centers on young adults' voices and actions. Traveling between a militia-filled Muslim village and a Christian village to conduct over thirty-three qualitative interviews over three months, I examine the interreligious relationship in which young adults engage. I advance an understanding that ordinary

youth of different social identities have the ability to enact and bolster long-term peacekeeping. In the case of Ghazieh and Maghdouché, the vast majority of young adults re-conceptualize identity and religion to detach from sectarian master narratives, and they instead articulate a narrative underscoring shared fraternal connection with religious neighbors. In the process, many young adults treat temporalities and spaces as inclusive, surpassing the sectarian to become neutral or religiously sublime. I determine a general "common life" or "single life" ('aysh mushtarak or 'aysh wahid) marked by friendships, shared spaces, and mutual reliance. Lebanon's history of sectarian conflict does not impel the youth I interview to reproduce sectarian narratives. This postwar generation–which rejects divisive war-era master narratives that enemize the religious other–craves an alternative Lebanon, one that disintegrates the sectarian sociopolitical structures. Yet considering the crises plaguing Lebanon and the desperation of young adults to flee, I dare to theorize the country's demise.

Khurana, Aleena
Human Physiology | University of Oregon
Research Mentor(s): Ashley Walker, Mackenzie Kehmeier
(In-Person) Oral Panel–Stimuli and Response

The effects of ovariectomy and soy diet on vascular function in female C57BL6 mice

Coauthors: Mackenzie Kehmeier, Audrey Cann, Brad Bedell, Abby Cullen

As people begin to live longer, studying age-related disease becomes more important. Age is a major risk factor for Alzheimer's disease (AD), a prominent neurodegenerative disease, and other cardiovascular diseases; Females develop AD at much higher rates and all signs point to sex hormones. Estrogen drastically decreases post menopause, and it has been suggested that estrogen deficiency is a contributing factor to the sex differences seen in AD and other age-related diseases. The vascular system plays an important role in aging. A characteristic of aging in the vascular system is stiffening of larger arteries. Large artery stiffening is detrimental due to the increase in pulse pressure and stress associated with stiffening. Decreased estrogen activity results in increased production of reactive oxygen species (ROS), causing tissue damage and dysfunction. Elevated ROS and oxidative stress increase inflammation in the brain, further explaining the potential effects estrogen loss has in relation to such diseases. Soy also has been seen to be a protective factor against symptoms of age-related disease due to its role as a phytoestrogen, thus showing the potential importance of soy. This study aimed to explore the effects of estrogen depletion post menopause and the effects of a soy diet in relation with estrogen loss. We utilized a mouse model

including ovariectomies to mimic estrogen loss post menopause and studied cognitive function, motor coordination, and vascular function.

Kirk, Fischer
Environmental Science | University of Oregon
Research Mentor(s): Peg Boulay, Gabby Altmire
Co-Presenter(s): Julia Nauman, Lindsey Nguyen, Olivia Heller
(In-Person) Oral Panel–Learning from the Environment

Promoting Pollinators at Whitewater Ranch

Coauthors: Kevin Chang, Claire Warn, Ben Madrid, Caleigh Byrne

Native pollinators are beneficial in agroecosystems because they are more cost-efficient, resistant to disease, and more favorable to the larger ecosystem than imported honey bees. The Environmental Leadership Program (ELP) has been monitoring pollinators at Whitewater Ranch (WWR), an organic blueberry and timber farm in Leaburg, Oregon, since 2014. Here, the ELP has assisted WWR in its restoration of Goose Creek, a riparian zone that runs through the ranch. The goal of the project is to increase native pollinator abundance and diversity for the benefit of the ranch and greater ecosystem. To do so, we explored the potential of native riparian and forb plantings to increase native pollinator populations. First, we continued to monitor the effects of previous riparian plantings on current pollinator populations in blueberry fields. Second, we explored the role of floral enhancements in logged areas after the 2020 Holiday Farm Fire. Working with insect ecologist Lauren Ponisio, we are monitoring which native forbs are most successful in the previously burned areas of Whitewater Ranch. We expect pollinator numbers to remain relatively consistent with previous years.

Kirst, Nolan
Biochemistry | University of Oregon
Research Mentor(s): Corbett Upton
(In-Person) Oral Panel–Neuron & Cognition

Sleep and Homeostasis: Assessing the Impacts of Inadequate Sleep on Endocrinology

Klein, Charlotte
Environmental Science,Spatial Data Science and Technology | University of Oregon
Research Mentor(s): Matt Polizzotto
(In-Person) Poster Presentation

Evaluating Sources of Zinc Contamination within Eugene-Springfield Waterways

Stormwater runoff occurs when rainfall encounters impervious surfaces such as pavement and rooftops, instead of being absorbed into the ground. As runoff travels over these surfaces, pollutants are picked up and eventually make their way into natural waterways. In the Eugene-Springfield metro area, a specific stormwater pollutant of concern is zinc, which has been notably rising in local ambient water quality measurements taken by the city of Eugene over the past 20 years. As such, the causes and extent of elevated zinc levels within waterways in the Eugene-Springfield metro area are the focus of this study. Using 2019 as a case study year, data aggregation revealed similar zinc concentration patterns within the waterways of Springfield and Eugene. Literature review and spatial analysis identified zinc-based moss control products, tire and brake wear, and industrial discharges, as likely sources of zinc to the environment. This work adds to the understanding of municipal stormwater pollution in the Pacific Northwest and can lead to informed strategies for minimizing zinc loading to the environment.

Kleiner, Delaney
Biology,Environmental Science | University of Oregon
Research Mentor(s): Lucas Silva, Brooke Hunter
(In-Person) Poster Presentation

Does plant community diversity change with terrain steepness in southwestern Oregon?

Coauthors: Brooke Hunter (PhD Candidate), Hilary Rose Dawson, Joshua Roering (faculty), Lucas Silva (faculty)

Southwestern Oregon is characterized by complex patterns of plant communities across environmental gradients. Previous research has found the structure and composition of vegetation to be related to the complex geology of this region. In this study, we explore the relation between topography and plant communities by asking if and how vegetation changes across ridgelines of varying steepness. We selected six ridgelines with a gradient of slope steepness (steep to gentle) in Rabbit Mountain, Riddle, Oregon and used quadrat and line-point intercept techniques to quantify vegetation cover by species at each site. We assessed the differences and similarities between plant

communities with NMDS (non-metric multidimensional scaling) analysis. We found plant communities on steep ridgelines are significantly different than communities on gentle ridgelines. Studying how landscapes exist in relation to vegetation deepens our understanding of the connectedness of Earth's processes, emphasizes the interdisciplinary nature of environmental science, and further informs forestry management practices in a time of increasing climate change.

Koontz, Emma
Planning, Public Policy and Management | University of Oregon
Research Mentor(s): Ulrick Casimir
(Virtual) Oral Panel–Read, Speak and Act, Poster Presentation

Reopening wounds: Processing Korean Cultural Trauma in Park Chan-wook's Revenge Trilogy

The democratic reforms of the 1987 June 29 Declaration opened the floodgates for Korean New Wave films. The repeal of censorship regulations gave Korean filmmakers the autonomy to actualize their creative vision for the first time since Japanese colonialism. The result were films that grappled with the trauma of eighty years of colonialism, war, and authoritarian dictatorship through biting political commentary. This study explores Park Chan-wook's representation of 한 (han) Korean cultural trauma in his New Wave films Oldboy and Sympathy for Lady Vengeance. Literature on trauma, film, and Korean history was reviewed and combined with film analysis to explain Chan-wook's critique of revenge fantasies and conscious and unconscious ignorance. His films demonstrate that the only way to heal 한 is to acknowledge and accept all wrongdoing, even one's own, and mourn the consequences of the atrocities. While 한 is specific to Koreans, cultural trauma is not. From the effects of Apartheid in South Africa, the Rwandan Genocide, the legacy of slavery and ongoing atrocities committed against BIPOC Americans, the ubiquity of cultural trauma makes the lessons in Chan-wook's works of paramount importance. While resolution of trauma is never final, Chan-wook's films are both a guideline and a performance on how cultures can begin to heal in the face of moral atrocities.

Kordahl, Rose
Political Science | University of Oregon
Research Mentor(s): Daniel Tichenor
(In-Person) Poster Presentation

The Policy Implications of the Biology of Trauma

Modern research has revealed one of the greatest public health crises in the United States: the epidemic of toxic stress in childhood. Physicians have found that significant exposure to toxic stress through Adverse Childhood Experiences (ACEs) increases the risk of seven out of the ten leading causes of death in the US. As a public health crisis, policy is uniquely equipped to prevent toxic stress and ACEs before they occur and create support services for those affected. However, a disconnect remains between scientific research and policy. Through a survey of existing literature on toxic stress and U.S. policy, I aim to identify the implications of medical research on creating trauma-informed policy responses to the toxic stress epidemic in the U.S. By identifying specific areas of policy that should be utilizing research on toxic stress, this project intends to demonstrate how science can help inform modern policy.

Kraschel, Emily
Economics | University of Oregon
Research Mentor(s): Glen Waddell, Dennis Galvan
(In-Person) Poster Presentation

Investigating Variations in Unemployment Between North and South Spain and Associated Implications

Unemployment in Southern Spain has long been significantly higher than in Northern Spain, negatively affecting Spain's national unemployment rate. This has caused Spain to have one of the highest unemployment rates in the EU, making it a target for sanctions and corrective policies which further isolate it from the international community. The regional difference has previously been explored through purely quantitative methods and is widely attributed to a deficit in industrial output or a cultural aversion to work. The purpose of this research is to use a combination of quantitative decomposition through regression and various historical, policy, and geo-sensing sources to determine correctable factors which may contribute to unemployment and areas where further development may attract industry and workers. The regression model suggests that regional differences in industrial output and overall age have insignificant effects on unemployment, while education, working age, and population have significant effects. Sensing suggests the South may

lack not only employment opportunities but the necessary infrastructure to support the desired growth. To improve employment rates in Southern Spain, education and youth employment must be better supported, and infrastructure and resources must be improved to allow for growth in all sectors of industry.

Kreger, Shane
Environmental Science | University of Oregon
Research Mentor(s): Peg Boulay, Hannah Gershone
Co-Presenter(s): Emma Peara, Mya Ganzer, Olivia Holah
(In-Person) Oral Panel–Learning from the Environment

Assessment of the Oregon White Oak Woodland and Prairie Restoration Project at Dorris Ranch

Coauthors: Lindsay Green, Saoirse Kir, Ann Moorhead, Garret Simmer, Mya Ganzer

The primary goal of the Birds & Blooms Environmental Leadership Program (ELP) team is to evaluate the effects of the 2016-2018 Oregon white oak and upland prairie restoration project at Dorris Ranch. The team will monitor showy wildflower species, invasive plant species, oak characteristics, and target bird species within the study site at Dorris Ranch. This will allow us to monitor and assess the health of the oaks and the response of the biotic communities dependent on oak woodland and prairie habitats at Dorris Ranch, which will indicate the success and impacts of the 2016-2018 restoration projects. Specifically, our group will conduct presence-absence surveys for target bird species, map wildflower and invasive species populations, create an evaluative census of the Oregon white oaks, and replicate photo points based on a set done in 2020. The data we collect will be compared to previous data that has been collected from Dorris Ranch. The relationships between the datasets, in addition to our new findings will further inform Willamalane Park and Recreations adaptive management decisions and strategies in order to continue the restoration of crucial Oregon white oak habitat and its associated species at Dorris Ranch.

Kreppel, Amanda
Biology | University of Oregon
Research Mentor(s): Nora Kearns, Calin Plesa
(In-Person) Poster Presentation

DiversiPhi29–An Orthogonal System for the Continuous Directed Evolution of Genes In Vivo

Coauthors: Nora Kearns, Avery Bil

Directed evolution is a method for protein engineering which allows scientists to impose novel functions on proteins through the random and progressive introduction of mutations to their encoding gene. Traditional directed evolution approaches are inefficient, alternating cycles of manual in vitro mutation and in vivo expression and selection until a desirable advancement in protein function occurs. This limits the throughput and depth at which a protein's mutational landscape can be explored.

By eliminating in vitro mutagenesis and allowing an orthogonal error-prone polymerase to replicate a gene of interest over several generations in E. coli, we are able to push the boundaries of evolution and create large libraries of desirable mutants in vivo.

Here we propose DiversiPhi29, which repurposes the replication machinery of bacteriophage ϕ29 to continuously replicate a linear plasmid (pL) carrying a gene of interest in vivo independently of host replication. Once orthogonal replication of pL is established, we will implement a system capable of tuning the mutation rate of the linear construct's replication by altering the ratio of two ϕ29 DNA Polymerases, one of which contains error-prone mutations. This approach will enable high throughput molecular evolution in the best understood host organism.

Kuhns, Colin
Psychology | University of Oregon
Research Mentor(s): Elizabeth Bearce
(In-Person) Oral Panel–Bio-Zebrafish and DNA

Urotensin-II-related peptides, Urp1 and Urp2, control zebrafish spine morphology

Coauthors: Elizabeth Bearce, Zoe Iro, Daniel Grimes

The spine is the defining feature of vertebrate life. The morphology of the vertebral column emerges in animals during embryogenesis and continues to develop into adulthood. Motile cilia, beat back and forth on the surface of cells to generate microscopic fluid flows. The generated fluid flow is essential both for the initial generation of a linear body and for the maintenance of a linear spine. Urotensin-

II-related peptides (URP), Urp1 and Urp2, are 10-amino acid cyclized peptides and are expressed in flow-sensory neurons in the central canal. Previous findings have hypothesized a model in which Urp1 and Urp2 promote the axial straightening downstream of motile cilia function through inducing contraction of dorsal muscles. However, it has remained unknown whether Urp1 and/or Urp2 also function beyond embryogenesis in the maintenance of spine morphology during growth. Here we show that Urp1 and Urp2 are in fact dispensable for axial straightening during embryonic and early larval phases, contradicting the current model. Instead, we found that Urp1/Urp2 are essential for maintaining spinal linearity during later growth phases, with clear spinal dysmorphology in mutants during juvenile growth. Curves induced upon loss of Urp1/Urp2 model aspects of kyphosis and are distinct from curves exhibited by cilia motility mutants. Overall, this work links Urotensin peptide signaling to spine morphology and provides a new animal model for the common human spine dysmorphology of kyphosis.

Kundin, Semeredin
Planning, Public Policy and Management,Political Science | University of Oregon
Research Mentor(s):
(In-Person) Oral Panel–Rights of Humans, Poster Presentation

The Progression of Juvenile Justice Policy in Oregon

The criminal justice system is incredibly vast and carries an intricate process within it. The overall system itself is meant to uphold public safety within our collective society by providing judgment on individuals, and determining consequences. Over time, it has been gradually acknowledged that the structures of our criminal justice systems aren't meeting the needs or expectations of our evolving society. It's being recognized that there are existing social and racial disparities within incarceration, a rise in recidivism rates, and the differing priorities of most State governments are why the concept of criminal justice reform came to fruition. However, there is no discussion of criminal justice reform without the consideration of the Juvenile Justice system. It's been identified that youth interaction with the law, and the varying consequences they may receive can potentially alter the entire course of their life and growth. This research project reviews the impacts of public safety and criminal justice policy reform on the Juvenile Justice System in Oregon and compares it to national studies and priorities towards Juvenile Justice. By using both primary and secondary sources it was possible to identify the progression of policy reform in Oregon in comparison to the country as a whole. Due to the extensive research done, it's simpler to comprehend that contemporary Juvenile Justice policy reform will be producing positive results for the criminal justice system.

Kurtz, Amanda
Biochemistry | University of Oregon
Research Mentor(s): Paul Dalton
(In-Person) Poster Presentation

Characterization of Hydrogel Coatings on High Resolution 3D-Printed Scaffolds Based on Agitation

Kusaka, Sonny
Biochemistry | University of Oregon
Research Mentor(s): Professor Marina Guenza
(Virtual) Oral Panel–Health and Social Science

Identifying Areas of Enhanced Flexibility in the SARS-CoV-2 Spike Protein with Computational Methods

Coauthors: Ruben Sanchez

The SARS-CoV-2 virus responsible for the COVID-19 pandemic has become one of the most well-known and influential viruses of the 21st century. This research utilizes three different computational methods with varying predicted levels of detail both to compare the methods against one another as well as to analyze atomistic molecular dynamics simulations of the SARS-CoV-2 spike protein to look for regions of enhanced flexibility. Previously established theoretical models of protein binding indicate a correlation between local flexibility and increased binding capabilities, the likes of which are of interest because they may be of importance for the protein in performing its biological function. As the computational methods increase in predicted accuracy, so too do the level of detail in the dynamics of the spike protein that they model. These results show enhanced flexibility of the spike protein in the functional regions that have been previously described and published in literature, other flexible regions not previously documented in literature that may be of interest, and promising results for the future of coarse-grain analysis of large multi-subunit proteins.

Kyne, Sean
Biology | University of Oregon
Research Mentor(s): Santiago Jaramillo
(In-Person) Oral Panel–Stimuli and Response

Investigation of Training Methods Used for Mice to Perform Auditory Discrimination Tasks

The auditory system has a tremendous capacity to interpret all the surrounding sounds in the environment and help make sense of the world around us. To understand how our brains interpret and process complex sounds, we need a new method for studying auditory cognition. Researchers have created head-fixed rigs where mice run on a wheel while their head remains stationary and perform auditory discrimination tasks. This setting will allow us to study how the auditory system discriminates complex sounds using electrophysiological techniques that would be more challenging to apply in a freely-moving setting. Previous work in the lab suggests that it is more challenging to train mice in a head-fixed setting than in the more well-known freely moving setting. To improve our understanding of how to train head-fixed mice, they were trained to discriminate sounds of varying complexity. In each project, a new training protocol was implemented to increase our understanding of the best methods for training mice. The training protocols had varying success in teaching the task which provided helpful insights into teaching head-fixed mice auditory discrimination tasks. Taking what was learned will allow us to teach mice more efficiently on future tasks using more complex sounds. Studying the methodology of how to train mice will allow for future experiments to use electrophysiological techniques to increase our understanding of the neural circuits used in auditory cognition.

Lauersdorf, Kyra
English, Sociology | University of Oregon
Research Mentor(s): Katherine Kelp-Stebbins, Matthew Norton
(Virtual) Oral Panel–Read, Speak and Act

Reforming the Self and Re-Forming the Other: Revisiting the Political Potential of Baldwin's Fiction

The existing scholarship pertaining to James Baldwin tends to examine either his nonfiction essays or his fiction novels, but it rarely places the two alongside each other. This project aims to bridge the schism between the two bodies of work, using the political theory that Baldwin outlines in his nonfiction as a lens through which to analyze his literary fiction. Such an analysis reveals how, in

many ways, Baldwin utilized his fiction as a space in which to engage and examine his own political theory. As such, the fiction that Baldwin produced during his lifetime contains as much if not more political ideation than his nonfiction –– and warrants just as much consideration from scholars for its political potential. This project seeks to contribute to existing scholarship on James Baldwin through its interdisciplinary analysis of the author's works. Ultimately, it argues that Baldwin's literary fiction possesses significant potential to effect political belief changes among its readers and ought to be valued accordingly.

Laufer, Ellie
Chemistry | University of Oregon
Research Mentor(s): Zach Stevenson, Patrick Phillips
(In-Person) Poster Presentation

Selective Advantage of avr-14, avr-15 and glc-1 knockout in C. elegans in High Ivermectin Conditions

Lineage tracking experimentally enables highly precise measurements of fitness effects among different mutant backgrounds. The Phillips lab has pioneered the development of high-throughput lineage marking utilizing barcodes in animal systems. This has been implemented through "Transgenic Arrays Resulting in Diversity of Integrated Sequences" or T.A.D.R.I.S. The T.A.R.D.I.S. method utilizes a unique genetic feature in Caenorhabditis elegans, which is the formation of artificial chromosomes from experimentally injected dsDNA fragments. These fragments form into large megabase circular chromosomes which can be used as a 'library' in which to draw sequences from. The T.A.R.D.I.S. process allows us to experimentally input random nucleotides that are passed down through generations into precise, pre-defined, chromosome locations, allowing for the identification of lineages within a population. My research question focuses on measuring the individual contributions to fitness from three separate alleles associated with ivermectin resistance. Ivermectin is an anti-parasitic drug that is toxic to C. elegans and nematode parasites. Ivermectin enters through the cuticle and inhibits neuronal transmission, resulting in death in wildtype worms. Resistance to ivermectin has been associated with several genes, however, I will be focusing on three specific genes: avr-14, avr-15 and glc-1.

Laurie, Garret
Chemistry | University of Oregon
Research Mentor(s): Gabrielle Warren
(In-Person) Poster Presentation

Increasing the Antiaromaticity of s-Indacene by Fusion of Naphthofuran

Coauthors: Garret Laurie, Gabrielle Warr, Michael Haley

Scientific literature has seen a dramatic increase in interesting antiaromatic structures which function as a key component within organic electronics. These molecules are novel for their inherently smaller HOMO-LUMO gap but often require protection with bulky groups or aromatic ring fusion, thereby reducing the antiaromaticity. Through heterocycle fusion at the [2,3] position of s-indacene, the antiaromaticity of the structure is increased, thereby shortening the HOMO-LUMO gap further. Our group reports the naphthofuran-fused-s-indacene which shows computational promise to not only exceed the antiaromaticity of s-indacene itself, but also the previously synthesized Haley Lab indeno[1,2b]fluorene isomers. This result is examined computationally through nucleus-independent chemical shift XY calculations and experimentally via nuclear magnetic resonance spectroscopy. Synthesis of stable antiaromatic molecules are desirable targets for providing insight on the structure, bonding, and reactivity of other highly conjugated structures.

Lawrence, Eliza
Earth Sciences | University of Oregon
Research Mentor(s): Ellen Peters, Brittany Shoots-Reinhard
(In-Person) Poster Presentation

Excluding numeric side-effect information produces lower vaccine intentions

Coauthors: Ellen Peters, Brittany Shoots

Encouraging vaccine uptake is important to reducing the impact of infectious disease. However, negative attitudes and vaccine hesitancy, due in part to worry about side effects, are obstacles to achieving high vaccination rates. Provided vaccine information sheets typically include a list of side effects without numeric information about their likelihoods, but providing such numbers may yield benefits. We investigated the effect of providing numeric information about side-effect likelihood ("1%") and verbal labels ("uncommon") on intentions to get a hypothetical vaccine, reasons for the vaccination decision, and risk overestimation. In a diverse, online, convenience sample (N=595), providing numeric information increased vaccine intentions–70% of those who received numeric

information were predicted to be moderately or extremely likely to vaccinate compared to only 54% of those who did not receive numeric information (p<.001), controlling for age, gender, race, education, and political ideology. Participants receiving numeric information were less likely to overestimate side-effect likelihood. Among the vaccine-hesitant, 43% of those provided numeric information and verbal labels were predicted to be moderately or extremely likely to get vaccinated vs. only 24% of those given a list of side effects (p<.001). We conclude that the standard practice of not providing numeric information about side-effect likelihood leads to a less-informed public who is less likely to vacci

Lawson, Amelia
Environmental Science | University of Oregon
Research Mentor(s): Amanda Peng, Samantha Hopkins
(In-Person) Poster Presentation

Lagomorph Paleoecology of the Middle Cenozoic in Eastern Asia

Lagomorphs are small plant eating mammals that are split into two extant families: the Ochotonidae which is comprised of pikas, and Leporidae which is made of rabbits and hares. The earliest lagomorph occurrence is 55 million years ago in Asia, which is widely recognized as the origin of lagomorphs. Through the Cenozoic, lagomorphs diversified and migrated to every continent except Australia and Antarctica. During the Cenozoic, Asia transitioned from a humid and warm environment to an arid and cool climate. These changes as well as geographic alterations in Asia dramatically effected lagomorphs at the time which can be viewed by analyzing the fossil record. Along with changes in climate, inferences can be made about lagomorph niche and habitat by comparing extinct and extant species data. The purpose of this study was to gain a deeper understanding of the effects of geography, particularly the Mongolian Plateau, on lagomorphs in Asia. In this study, I analyzed fossils from 8 localities in East Asia from the Eocene to the Miocene using the Paleobiology Database and past publications to access the environmental effects on lagomorph diversity and size in East Asia through time. This study provided further incite into the formation of the Mongolian Plateau, which is relatively sparce in information on the time of its uprise. As a result, this study suggests that the rise of the Mongolian Plateau and Hangay Mountains had dramatic impacts on Lagomorphs throughout the Cenozoic.

Le, Kevin
Human Physiology | University of Oregon
Research Mentor(s): Claire Guidinger, Nichole Kelly
(In-Person) Poster Presentation

Ethnic Variations in Asian and Asian American Men's Disordered Eating Symptoms

Coauthors: Kevin Le, Claire Guiding, Nichole Kelly

Asian and Asian American men report high rates of disordered eating symptoms, such as body dissatisfaction. Some have hypothesized that these behaviors are a consequence of being stereotyped as petite, more feminine, and less attractive that their non-Asian peers. However, this theoretical and empirical research fails to recognize that there are substantial ethnic variations in both body sizes and cultural ideals among diverse Asian/Asian American populations. This study aimed to identify and clarify potential ethnic variations in Asian/Asian American men's disordered eating symptoms. 179 Asian/Asian American men (18-30y; Mage=24.03±3.6) completed an online study that included measures of ethnic identity; height and weight; LOC eating (0 = absent, 1 = present); dieting; excessive exercise; body image concerns; and drive for muscularity. Ethnic subgroups included men who self-identified as Chinese (n = 59), Filipino (n = 33), Korean (n = 21), Vietnamese (n = 25), and Indian (n = 41). One-way ANOVAS indicated Asian ethnic subgroups only significantly differed in concerns with muscularity [F(4, 174) = 2.65, p<.05]. Post Hoc findings indicated that Filipino men endorsed significantly higher muscularity concerns compared to Vietnamese men, p<.05. Future research should seek to identify cultural factors that function as both risk and protective factors for disordered eating cognitions and behaviors in Filipino men, as well as other groups of Asian/Asian American men.

Leibfried, Laura
Chemistry, Physics | University of Oregon
Research Mentor(s): Cathy Wong
(In-Person) Poster Presentation

Spectroscopic Study of Squaraine Molecule Aggregate Formation for use in Solar Cells

Coauthors: Zach Walbrun, Aine Hob

Using organic photovoltaic (OPV) devices to harvest solar energy is uniquely enticing as they allow for mass manufacture, greater accessibility, and extraordinary chemical tunability. This study aimed

to investigate a class of organic dyes called squaraines (SQs) which are potential donor molecules in OPVs and form molecular aggregates, affecting their electronic structure and energy transfer dynamics. Spatially encoded transient absorption was used to study restructuring SQ films during thermal annealing to reveal how the extent of aggregation affects exciton dynamics. Rapid and verging on total energy transfer from the targeted excitation of monomer molecules to aggregates is observed and dynamics are replicated by a kinetic model that evolves as a function of annealing temperature and the consequent extent of aggregation. Results indicate potential exciton trapping as a consequence of rapid energy transfer to optically darker states, which could imply less effective exciton diffusion in OPVs with only partially aggregated SQ donor domains.

Lengkong, Alvin
Psychology | University of Oregon
Research Mentor(s): Andrea Imhof
(In-Person) Poster Presentation

Cultural Considerations of the Filming Interactions to Nurture Development Intervention

The relationship between exposure to adverse childhood experiences and adult health risk has been well established (Felitti et al., 1998). Fortunately, research has shown that interventions can disrupt this cycle and even reverse these effects. A strong, established relationship between an infant and a caregiver can act as a "buffer" that regulates and dampens the infant's physiological response to stress (Flannery et al., 2017; Hostinar et al., 2014). The Filming Interactions to Nurture Development (FIND) intervention is a strengths-based video coaching program designed to disrupt the consequences of early exposure to toxic stress and promote naturally occurring, developmentally supportive interactions between infants and their caregivers (Fisher et al., 2016). While the FIND intervention has been shown to be effective in improving certain child and parent outcomes, the literature has often overlooked the importance of cultural factors when implementing parenting interventions. The focus of this paper will be to explore the cultural differences between English-speaking and Spanish-speaking families, and to identify if these differences influenced the intervention's effects on parent outcomes (e.g. parent sense of competence). Implications and limitations of the FIND intervention's cultural considerations will be discussed.

Lepe-Romero, Alberto
Family and Human Services | University of Oregon
Research Mentor(s): Miriam Clark
Co-Presenter(s): Meg Stradley, Jasmine Burgin
(In-Person) Poster Presentation

How Does Age of 1st Point of Contact Relate to Highest Level of Educational Attainment?

Coauthors: Alberto Lepe-Romero, Jasmine Burg, Megan Stradley

Ample evidence suggests that policing in schools creates an environment in which children are prosecuted for non-dangerous delinquency, instead of normal school discipline practices, resulting in higher dropout rates and greater likelihood of future incarceration. Limited evidence suggests that the age of first contact with police may similarly impact this trajectory. The current study seeks to examine the relationship between age of first contact with police and highest education level attained to more fully understand how age of first contact may be associated with negative outcomes for kids.

Using data from the Life Study, a dataset consisting of 411 individuals reentering their communities after incarceration, we used Pearson's correlation to determine the correlation between the age of 1st point of contact by police, and the highest level of education completed.

The relationship between the first point of contact and the highest level of education is not statistically significant.

Children being policed in the school system creates a system in which they are set up to have repeat offenses throughout their school career, impacting their educational attainment and quality of education. Though this study shows no statistically significant correlation, further research is needed beyond this data set to provide greater understanding of how to create a system in which children have a better chance at succeeding by providing other programs that help aid children.

Leutwyler, Elijah
English, Philosophy | University of Oregon
Research Mentor(s): Corbett Upton
(In-Person) Oral Panel–Comics, Classics and Analysis

A Rhetoric of Friendship in the Works of Aristotle and Quintilian

The philosophy of friendship has recently returned to academic conversations with scholars such as Paul W. Ludwig or Alexander Nehamas engaging the subject from any number of historical lenses. But

what does it mean to speak as a friend or persuade amicably? While it is a commonly held belief that one's friends have your best interests in mind, this paper argues that a traditionally classical view of rhetoric inherently incorporates the virtue of friendship in any communication between people by close-reading moments of Aristotle's On Rhetoric and Quintillian's Institutes of Oratory. Indeed, Aristotle grounds rhetorical exposition in a distinctly moral register and Quintillian enacts that idea in his pedagogical style as a Roman educator. In essence, this paper sees Aristotle and Quintilian as champions to the idea that rhetoric is grounded in an appreciation for intrapersonal intimacy, interpersonal connection, and a pedagogical structure that allows for such values to flourish. Empathizing with one's audience and entering speaking engagements with relationship development as a top priority not only guards a person's speech from becoming manipulative as the two classical rhetor-philophers explain, it also fosters an environment where rhetorical speech can operate in the way it was always meant to: for the good of the people.

Lew, Dylan
Psychology | University of Oregon
Research Mentor(s): Melissa Baese-Berk
Co-Presenter(s): Olivia Ward, Josh Weinrobe, Evan Wong
(In-Person) Oral Panel–Communication: How and Why

Usage of Taboo Words in Online Settings of Varying Anonymity

This is an observational study to see how the use of taboo language on social media platforms changes depending on the anonymity of its users. To accomplish this, we examined the contents of comments on posts from three different social media platforms: Instagram, Reddit, and Twitter. Each of these varies slightly in how much emphasis is put upon the user's image, with Instagram emphasizing personal content production (selfies, snapshots, etc.) while Twitter and Reddit content being more impersonal (e.g. discussions, news, etc.). We hypothesized that users on platforms that promote personal content less would correlate with less frequent usage of taboo words, as usage of these words could be considered harmful to a user's image. For several days, we collected 100 comments total across several posts and tallied the number of total swears present across all comments. We also categorized each swear into either definite swears, and non-definite swears whose taboo nature is debated in order to measure the intensity of swearing. Our preliminary results conform to our initial hypothesis, with Instagram comments having much lower amounts of swearing present than on Reddit or Twitter. This may indicate that anonymity plays a significant role in user behavior online regarding swearing, with more anonymity corresponding with more intense and/or frequent swearing.

Lew, Sera
Global Studies,Psychology | University of Oregon
Research Mentor(s): Dare Baldwin, Jeffrey Measelle
Co-Presenter(s): Audrey Saing
(In-Person) Poster Presentation

Possible Benefits of Maternal Thiamine Supplementation for Mother-Infant Joint Attention in Cambodia

Coauthors: Dare Baldwin

Thiamine deficiency is a common micronutrient deficiency in Southeast Asia, including Cambodia (Measelle, et al., 2020). Severe thiamine deficiency contributes to infant mortality, while subclinical levels undercut infants' neurocognitive development (Fattal-Valevski, et al. 2009). This study focuses on the possible implications of mother-infant thiamine status for neurocognitive development in terms of joint attention interactions where caregivers and babies simultaneously engage with the same object. This study is part of a larger randomized controlled trial in rural Cambodia investigating how low-dose thiamine supplementation of breastfeeding mothers might benefit infants' cognitive development. Cambodian mothers (N=335) were randomly assigned to receive daily supplements of either 0mg, 1.2mg, 2.4mg, or 10mg of thiamine hydrochloride from 2 to 24 weeks postnatal. We hypothesized that mothers and infants who received thiamine would display longer joint attention interactions than those in the control group. Preliminary findings from 70 mother-infant dyads (control: 18; supplementation: 52) provided possible confirmation of these predictions; joint attention interactions were marginally longer for dyads who received supplemental thiamine than those who did not, $F(1, 68) = 3.69$, $p = .059$. If these findings are reflected in the full sample, they would indicate that thiamine facilitates infants' joint attention interactions, a key catalyst for neurocognitive development.

Lewack, Hannah
Biology | University of Oregon
Research Mentor(s): Rose Al-Saadi
(In-Person) Poster Presentation

The Effects of daf-2/IGFR on Healthspan in C. elegans Males

Coauthors: Rose Al Saadi, Patrick Phillip

Neurodegenerative diseases affect 50 million Americans each year and Alzheimer's alone affects about 5 million. Alzheimer's places a substantial economic burden on our healthcare system, estimated to be 305 billion dollars in 2020. Despite this cost, knowledge of the molecular

mechanisms that contribute to healthy aging remains limited. We believe that a key to addressing this gap lies in Caenorhabditis elegans nematodes. Male C. elegans have 91 sex-specific neurons that are necessary for reproduction, allowing successful mating to be a good indicator of neuronal health. This system has been used to identify several pathways and genes that regulate aging, including the insulin-like growth factor 1 receptor daf-2. Our findings show that mutations in daf-2 result in extended lifespan, and slow the decline of male mating ability at old age. Due to the ubiquitous expression of daf-2, its role in male mating is difficult to associate with specific tissues. The auxin-induced degron (AID) system allows for targeted degradation of proteins in a spatially and temporally-controlled manner. Using this system, we will test the effects of DAF-2 degradation in the intestinal, neuronal, and hypodermal cells on male mating success. Due to DAF-2 mutant's extension on lifespan, we hypothesize that DAF-2 degradation in tissues will delay age-induced mating decline. This project will give additional insights to the importance of the metabolic pathway and its impact on neuronal functions.

Liao, Phyllis
Chemistry | University of Oregon
Research Mentor(s): Claire Otteson
(In-Person) Poster Presentation

Development of a Nanohoop Rotaxane for Sensing Reactive Oxygen Species

Observing biological processes such as disease progression and gene expression require elaborate probes and sensors. In biomedical research, there is interest in making a multifunctional and modular scaffold that can target specific analytes by having a system that is "triggered" by the analyte which then affords a turn-on fluorescent response. Carbon nanohoops, or [n]-cycloparaphenylenes ([n]-CPPs) are a new nanostructure that allows us to observe biological processes by incorporating it into a larger structure called a rotaxane. Inspired by this model, we developed a novel modular probe system using a benzil trigger to detect reactive oxygen species (ROS). We began by synthesizing the rotaxane via copper-catalyzed azide-alkyne cycloadditions (AT-CuAAC), an active template method familiar to us and has demonstrated efficiency in previous publications. Once the structure was made, we characterized and analyzed it by subjecting it to simple non-biological environments and introduced ROS to see if the turn-on fluorescence is due to dethreading of the rotaxane. Success of the system is indicated by a turn-on fluorescence when reacted with these ROS and this shows that nanohoop-based [2] rotaxanes are tailorable for use in biomedical research.

Linskens, Amanda
Biochemistry | University of Oregon
Research Mentor(s): Kristen Lee, Chris Doe
(In-Person) Poster Presentation

Decreasing Hunchback and Bicoid Levels in Pair1 Neurons Alters the Pair1 Circuit in Drosophila

Transcription factors (TFs) are essential for cell specification across multiple species, including humans. During Drosophila melanogaster development, neuroblasts produce neuronal progeny that acquires identity based on the temporal TF (tTF) present during birth. tTFs activate specific Homeodomain TFs (HDTFs), which are also important for determining neuronal identity. Thus, the cascade of tTFs in neuroblasts creates the diversity necessary for forming precise neural circuits. Although prior research shows that TFs generate variety, few studies have examined how these TFs influence circuit establishment. My study focuses on the Pair1 neurons, which initiate pausing in larvae through neural circuits. Prior research in our laboratory showed that the Pair1s derive from the tTF Hunchback (Hb), which activates the HDTF Bicoid (Bcd). Therefore, I hypothesized that manipulating Hb's and Bcd's expressions in Pair1 would alter the Pair1 circuit. To investigate this, I expressed the green fluorescent protein (GFP) in the Pair1s and knocked down Hb and Bcd levels individually to assay circuit morphology and behavior. I found that decreasing Hb resulted in more Pair1 axonal connections, affecting behavior. Interestingly, I saw similar results when Bcd was knocked down in Pair1, but the phenotypes are weaker than those experienced with decreased Hb levels. These results suggest that tTF activation of HDTFs is vital for circuit establishment in the central nervous system.

Lisle, Rachel
Earth Sciences | University of Oregon
Research Mentor(s): Edward Davis, Kellum Tate-Jones
(In-Person) Poster Presentation

Stable Isotope Analysis of Fossil Shark Teeth from the Late Cretaceous Western Interior Seaway

The Western Interior Seaway was a Late Cretaceous (100.5-66 mya) inland sea that, at it's largest, stretched north to south, from the modern-day Arctic Ocean to the Gulf of Mexico. Research concerning the seaway has revealed that there was likely a significant temperature gradient present, with cooler temperate waters to the north and warmer subtropical waters to the south. Using

fossilized teeth from two species of sharks collected from an Arkansas site associated with the Western Interior Seaway, I seek to use carbon and oxygen isotopes to interpret the paleoecological conditions present in the southern province of the seaway during the Late Cretaceous. I also seek to identify what conditions made it suitable for these sharks to live in this province. Using stable isotope analysis by way of laser ablation, as well as conducting a literature review on relevant sources, I have found that these sharks likely preferred the subtropical temperatures over cooler temperate waters. Mirroring this is a similar pattern in salinity, wherein these species likely preferred water with a higher salinity than the more brackish water up north. This research is essential in understanding what conditions made the seaway favorable for shark species and how extinct marine vertebrates interacted with and reacted to their environment.

Litty, Makenzie
Data Science,Psychology | University of Oregon
Research Mentor(s):
(In-Person) Poster Presentation

The effects of physical violence on mental health in Tunisian women

Coauthors: Alicia DeLouize, Josh Snodgrass

Physical violence is a public health problem because it not only affects the physical wellbeing of victims short-term, but also negatively affects their mental health long-term. Although much research has been done on the effects of intimate-partner violence, less has been done looking at overall risk of personal violence and its effects on mental health. In this study, we analyzed the World Health Organization's Tunisian Health Examination Survey (2016) responses to better understand the association between women experiencing physical violence and rates of depression. Results are forthcoming, but we hypothesize that experiencing physical violence will be associated with the presence of depression for women in Tunisia. With this research we hope to highlight how experiencing deliberate violence by another person [stabbings, being struck by an object] in your community lead to long-term effects on mental health.

Longnight, Faith
Chemistry, Sociology | University of Oregon
Research Mentor(s): Hannah Bates, Thaís de Faria
Co-Presenter(s): Scout Trom
(In-Person) Poster Presentation

Structure-Property Relationship of Halogen bonding Supramolecular Receptors

Anion receptors hold an important place within the field of supramolecular chemistry due to the vast biological impacts many anions have in biology. Our project focuses on the synthesis of various novel reversible halogen-bonding anion receptors. The investigation varies the withdrawing characteristics of substituents of charged and neutral receptors to enable a thorough structure-property relationship study. Preliminary results show that the neutral receptors have significantly lower binding strength when compared to their corresponding charged receptors. We also see that the more electron-withdrawing the substituent group, the stronger the binding for the charged receptors. We also see that the binding pocket of our receptors best fit to chloride, our target analyte, when compared to the other halide anions. Through this study, we hope to identify the key structural characteristics needed to bind smaller anions, like chloride, so that future work can include creating receptors that can bind chloride in cells. The results of this study will provide fundamental knowledge of the most efficient way to modify receptors for an optimal binding moving forward in the field of halogen-bonding supramolecular sensors.

Lopez-Aparicio, David
Political Science | University of Oregon
Research Mentor(s):
(In-Person) Oral Panel–Diversity and Analysis, Poster Presentation

Do waste management firms in Oregon disproportionately affect low-income minorities?

History has shown us that low-income minorities often bear the brunt end of the stick for health, income-mobility, and education. Though in recent times these disparities are narrowing, there is still much to be done. Past research in other states has demonstrated that low-income minorities are disproportionately affected by environmental racism through pollution cause by firms. These quiet literal dirty economies have directly resulted in lower-quality healthcare, lower education rates, and lack of socio-economic mobility for minorities. With the ongoing exacerbating effects of the pandemic, it is crucial to analyze how these marginalized people are being effected to implement

protective policy. Currently, there exists no data examining if there is a relationship between Oregon waste management firms and the communities they're surrounded by. We will be utilizing economic regression models to examine past data regarding income, health, and education rates around the communities waste management firms in Oregon reside. This will assist us in determining the potential adverse effects they face as a result–higher health defects, lower income and graduation rates. If previous investigations are any indicator, we should expect to find there is a negative relationship for communities geographically close to these firms. These findings will add to the national conversation surrounding environmental racism and reaffirm past exploration.

Lovgren, Noah
Human Physiology | University of Oregon
Research Mentor(s): Hans Dreyer
Co-Presenter(s): Lena Gill
(In-Person) Poster Presentation

Impact of a Single Bout of Blood Flow Restriction Exercise on Muscle Stem Cells

Coauthors: Ryan Angeloni, Joanna Nielsen, Helia Megowan

Blood flow restriction exercise (BFR-Ex) is a form of low-load exercise that restricts extremity blood flow. BFR-Ex has been shown to cause an increase in muscle mass, strength, and muscle stem (satellite) cells. Satellite cells are critical for muscle homeostasis and regeneration. The loss of satellite cells precedes Type II muscle cell decline, a process called sarcopenia, affecting up to 50% of the elderly. The purpose of this study is to determine the effects of a single bout of BFR-Ex on muscle structure 24 hours and 7 days later in young and older adults. We expect satellite cell numbers will increase 24 hours post-exercise and return to normal by 7 days. We also expect signs of muscle cell denervation, cell membrane damage, and recent repair of muscle damage at 7 days post-exercise. Subjects (18-40 yo, 6 female, 6 male) will participate. Subjects will have a baseline biopsy on the left leg followed by a single bout of BFR-Ex on the right leg. Post-BFR-Ex biopsies will be obtained on the right leg after 24 hours and 7 days. Immunohistochemistry will be used to determine cross-sectional area, satellite cell number, fiber type, muscle nuclei, and centrally located nuclei. This will allow us to measure muscle cell denervation, cell membrane damage, and recent repair of muscle damage. To date, one subject has completed the protocol, one has consented, and another will be consented this week. Tissue samples are currently being processed.

Maddox, Kira
Anthropology, General Social Science | University of Oregon
Research Mentor(s): Professor Lamia Karim
(In-Person) Creative Work

Skeletons in Our Closet: The Truth about Fast Fashion and the Garment Industry

This art piece represents the garment industry and the impacts consumerism has on textile workers. The garment industry employs millions of people and today is worth billions of dollars, playing a vital role in the economies of many developing countries. With the rise of globalization and free market, large corporations outsource cheap labor overseas from developing countries as a means to produce the most at the lowest cost and meet consumer demand. This is known as fast fashion where clothing is cheaply and mass-produced at a rapid pace in order to maintain the fast and changing fashion trends at an affordable price. While abundant choice and low-cost clothing may be appealing to their consumer base, it often comes at a cost. While being highly pollutive to the environment, garment industries regularly subject their laborers to unethical practices where they are overworked and underpaid in order to meet a given quota. Poor management and safety regulations are often overlooked, which results in high cases of worker accidents and death due to dangerous working conditions.

My project aims to shed light on the ethical issues surrounding the safety and well-being of garment workers and the detrimental consequences of fast fashion.

Mahoney, Sprout
Environmental Science | Lane Community College
Research Mentor(s): Colin Phifer
(In-Person) Poster Presentation

South Umpqua Watershed Study: Impacts to Salmon

Salmon are an anadromous, keystone species that have a massive impact on the regions they inhabit, from freshwater stream ecosystems to ocean habitats. These fish have unique lifecycle needs, including specific water quality factors and mobility access to their full habitat range. These factors are explored using spatial analysis and results show several ways salmon populations may be negatively impacted in the South Umpqua watershed.

Mahony, Ashling
Psychology | University of Oregon
Research Mentor(s): Melissa Baese-Berk
Co-Presenter(s): Sofia Martin, Taylor Bollenbaugh, Simone Baeza
(Virtual) Poster Presentation

Code-Switching: Students in Formal v.s Informal Settings

The way we communicate is always changing. It even changes when we speak to different people or in different settings. We decided to look further into the details of how specifically college-aged students change their lexicon and grammar in formal and informal settings. This is known as code-switching–alternating between two or more languages or varieties of language in a single conversation. We have looked at responses from students from each scenario and have drawn conclusions from both sets of responses. We want to see how college-aged students code-switch their language in different situations. The two different environments we are going to study are formal/classroom settings and informal/social media settings. We want to see how college-aged students react to online school versus in-person school. We sent out questionnaires for students to complete anonymously. UO academic residential communities and Instagram stories will be how we get the majority of our responses. Hybrid learning has created an academic environment that is formal, yet informal. When students code-switch in response to a change in setting, the type of language they speak reflects their attitudes and interests in those different situations. The COVID-19 pandemic has undoubtedly transformed many students' attitudes towards education in the United States. We can use our results to help predict what the future of education may look like post-pandemic.

Malamud, Nathan
Mathematics and Computer Science | University of Oregon
Research Mentor(s): Stilianos Louca
(In-Person) Poster Presentation

Simulating Dead-End State Distributions for Microbial Metabolism

In this project, I simulate the influence of microbial metabolism on ocean geochemistry using the Cariaco Basin, Venezuela as a model system. In my investigation, I used bifurcation diagrams to visualize the distribution of possible dead-end states: geochemical configurations at which all metabolic reactions become energetically unfavorable and microbial metabolism slows to a halt. In a radically novel approach, I used an Ornstein-Uhlenbeck process to stochastically model kinetic rates.

My rationale for doing this was to show how stoichiometry and energetics alone could potentially determine long-term biogeochemical states. By running N=9,336 simulations written in Python, I found that the dead-end state of an isolated system with aerobic sulfide-oxidizing microbes could be determined fairly consistently based on varying oxygen levels. At high oxygen concentrations (>100 micromolars), oxygen was utilized to the fullest metabolic extent (until the Gibbs free energy yield reached 0 kJ / mol) by the simulated microbes in order to convert all available sulfide to sulfate. At lower oxygen levels, nitrate was utilized instead due to its biochemical role as an alternative electron acceptor. At higher oxygen levels, final nitrate concentrations were far less predictable, and significant variation in nitrate consumption can be seen in the associated bifurcation plot. This theoretical exercise may aid in the development of biogeochemical models of climate-influenced ocean processes.

Mantel, Chester
Physics | University of Oregon
Research Mentor(s): Graham Kribs
(In-Person) Oral Panel–Uniquely Their Own

Dark Quarks Detection via Magnetic Dipole Interaction

Fermionic dark matter could arise from a strongly interacting dark sector. Dark quarks are bound into neutral composite dark baryons, which can be probed by direct detection experiments through a magnetic dipole interaction. We consider theories where the strong interaction consists of Nc colors, where Nc is odd and large, and place bounds on the parameter space of the theory using direct detection and cosmological constraints.

Mare, Anna
Human Physiology | University of Oregon
Research Mentor(s): Seth Donahue, Rachel Robinson
(In-Person) Poster Presentation

Comparison of External Load Estimation from Wearable Sensors during a Free Run

Cumulative training load has been defined as the product of external loading and internal physiological loading experienced by an individual during a training session and may be an important predictor for running related injury. Traditional methods of monitoring external load for runners has been the tracking of mileage, however, with the increased availability of wearable sensors, we can develop more sophisticated paradigms for the estimation of external load. Inertial Measurement

Units (IMUs) and GPS watches are wearable sensors that have been used for the quantification of external load during running in a laboratory setting. The purpose of this study was to compare GPS-derived metrics and IMU metrics for the quantification of ground reaction force (GRF) peaks as an estimation of external load from participants running in a real-world environment. Twelve participants were equipped with force sensing insoles to measure GRF. Three IMUs were mounted on each participant, one on the dorsal aspect of each foot, and one attached near the sacrum on the waistband. Participants also wore a Garmin GPS watch. Participants were instructed to run an approximately 5-mile course at their own pace. The IMU-based model was a significantly better fit than the GPS model, indicating an improvement of the estimation of external load using IMU data. These findings show that IMUs provide a more accurate estimation of cumulative peak GRF as a proxy for external load than GPS-derived estimates.

Martin, Greg
Journalism | University of Oregon
Research Mentor(s): Emily Simnitt
Co-Presenter(s): Sally Campbell
(In-Person) Data Stories–The Languages of Data

Counterstory: Researching and Analyzing Public Speaking Literacy Amongst College Students

Public speaking is one form of literacy that is used frequently but does not always get the same level of attention as other forms, such as writing and reading. According to UCLA, 75% of people suffer from some sort of anxiety preceding speeches and public speaking. It is a goal of mine, and a few others to get the resources on campus to aid those with public speaking anxiety. From a more narrow perspective, this study will work to uncover the difference between talent versus strength in terms of public speaking–with talent being a more natural capability, and a strength entailing more time and energy invested in the talent. By using already published statistics, other universities' experiences, and focus groups specific to the University of Oregon, this study is working to find the necessary qualitative and quantitative data to build a successful resource for the university. Success in this context entails a place where all feel welcome, and the needs of each individual can be met. The research will be important to make this unique resource thrive.

Martin, Kye
Marine Biology | University of Oregon
Research Mentor(s): Judith Raiskin
Co-Presenter(s): Emily Kavanagh, Maya Feldman-Dragich
(In-Person) Poster Presentation

Lesbian Periodicals: Radical Politics and Community Building

Beginning in the 1970s second wave feminism, largely facilitated by lesbian activists, swept through the United States and world at large. A large part of their reach came from their printed media. This era broke away from the grip of mainstream publishers and a network of magazines, newspapers, and newsletters for lesbian feminists was created worldwide. Within these pages were passionate political writings and ideas. The periodicals continued through the AIDs crisis and into the 1990s and were a continuous place for lesbians to share a range of visual and written media, both creative writing and nonfiction. Without this crucial turning point of direct action, the community and visibility lesbians attained in that era would not be possible. Through the Feminist and Lesbian Periodical collection in the Special Collections and University Archives in Knight Library, we each researched a facet of the how the periodicals affected society. Many of the ideas expressed within those pages were still strikingly relevant, though few people are aware of their very existence. For the LGBTQ community and beyond, raising awareness about their impact is essential.

Martin, Sofia
Sociology | University of Oregon
Research Mentor(s): Melissa Baese-Berk
Co-Presenter(s): Simone Baeza, Ashling Mahony, Taylor Bollenbaugh
(Virtual) Poster Presentation

Code-Switching: Students in Formal v.s Informal Settings

The way we communicate is always changing. It even changes when we speak to different people or in different settings. We decided to look further into the details of how specifically college-aged students change their lexicon and grammar in formal and informal settings. This is known as code-switching–alternating between two or more languages or varieties of language in a single conversation. We have looked at responses from students from each scenario and have drawn conclusions from both sets of responses. We want to see how college-aged students code-switch their language in different situations. The two different environments we are going to study are formal/classroom settings and informal/social media settings. We want to see how college-aged

students react to online school versus in-person school. We sent out questionnaires for students to complete anonymously. UO academic residential communities and Instagram stories will be how we get the majority of our responses. Hybrid learning has created an academic environment that is formal, yet informal. When students code-switch in response to a change in setting, the type of language they speak reflects their attitudes and interests in those different situations. The COVID-19 pandemic has undoubtedly transformed many students' attitudes towards education in the United States. We can use our results to help predict what the future of education may look like post-pandemic.

Mattson, Anna
Environmental Science | University of Oregon
Research Mentor(s): Mark Carey
(In-Person) Oral Panel–Communication: How and Why

The Importance of Journalism in Communicating Climate Change

Journalism is critical in communicating the climate crisis.

For this project, I traveled to Cordova, a small fishing town in Southeastern Alaska, for two weeks to talk with locals about how glacial melt is affecting their lifestyles and how they are adapting to environmental changes happening in Alaska.

I discovered that while millions of salmon still come up the Copper River annually, rising temperatures have led to increased glacial melt, and fish counts are declining. According to the Alaska Department of Fish and Game, in 2021, wild sockeye salmon numbers fell 37.4% below the recorded 10-year average.

The decline of salmon throughout Alaska concerns local communities, like the Native Village of Eyak, whose connection to the area grows out of generations of relationships with salmon.

Salmon are critical to Native Village of Eyak culture and subsistence practices. The Eyak are "dependent on the returning wild salmon to this day."

Journalism acts as a conduit between scientists, climate events and people – it allows anyone to have a voice and holds institutions and lawmakers accountable.

As more extreme climate events occur, communicating these crises has never been so important, especially as it relates to elevating marginalized communities.

My piece, titled *A State of Unease*, will be published in Science Insider this summer.

Mawhinney, Brinna
Psychology | University of Oregon
Research Mentor(s): Sara D. Hodges, Eliott Doyle
(In-Person) Poster Presentation

Social Connection and Fiction: The Possible Benefit of "Interacting" with Fictional Characters

Coauthors: Eliott Doyle, Zachary Schroed

This study addresses one role that fiction may play in people's lives–specifically, providing social "interaction." Participants (265 University of Oregon students) completed a writing task that involved writing about fictional characters and completed measures of loneliness and social fuel to see if that interaction may fulfill social needs and alleviate loneliness. We hypothesized that higher transportation scores–a participant's overall immersion in the story as judged by an outside reader's perspective–would predict lower participant loneliness scores who are writing either from the perspective of a fictional character, to a fictional character, or their own journal entry. Furthermore, we hypothesized that the media source of each fictional character will moderate this relationship, with written source media producing higher transportation scores and lower loneliness scores than visual source media. Finally, we hypothesized that participants who wrote more fiction or journaled outside of the context of the study would earn higher transportation scores and also report lower loneliness scores. Results indicated that coder-rated transportation does significantly predict a larger reduction in loneliness scores. Neither media type nor participants' own writing outside of the study moderated the relationship between transportation and change in loneliness. Results may have implications for developing a writing intervention to alleviate loneliness.

McCleary, Kenji
Marine Biology | University of Oregon
Research Mentor(s): Judith Raiskin
(In-Person) Poster Presentation

Suicide, Mental Health, Alice Sheldon, James Tiptree Jr, Psychology

McDonald, Emilee
Biology | University of Oregon
Research Mentor(s): Adrianne Huxtable, Robyn Naidoo
(In-Person) Poster Presentation

Maternal opioids decrease neonatal opioid receptor expression in brain regions controlling breathing

Coauthors: Robyn Naidoo, David Albarrá, Sarah Beyeler

An understudied population in the opioid crisis are infants exposed to maternal opioids experiencing breathing deficits. Our animal model of maternal opioids demonstrated neonatal breathing deficits after birth, which normalized with age despite continued maternal opioid exposure, suggesting neonatal compensation to this early life opioid stressor. To understand the mechanisms of these breathing deficits, we tested the hypothesis that maternal opioids decrease opioid receptor expression (since opioids activate opioid receptors to exert their effects) in a key brainstem site for breathing. Brainstem immunohistochemistry and confocal microscopy assessed typical developmental changes in neonatal opioid receptor expression after maternal no treatment (control). Opioid receptor expression was highest at postnatal day 0 (P0), when neonates begin breathing, and decreased through P11, a critical maturation period of the nervous system. In neonates after maternal opioids, opioid receptor expression was evaluated at P0 (birth), P4 when neonates still receive opioids through breast milk, and P11 after opioid exposure has ceased. Preliminary data support decreased opioid receptor expression in P0 and P4 neonates after maternal opioids, but a return to control levels at P11. Thus, maternal opioids acutely impair opioid receptor expression in a brainstem site critical for breathing, suggesting opioid receptors may be key to neonatal breathing impairments after maternal opioid exposure.

McDowall, Zag
Psychology | University of Oregon
Research Mentor(s): Alicia DeLouize, Josh Snodgrass
(In-Person) Poster Presentation

Caregiving and Depression: Moderating Effects of Social Cohesion among SAGE Individuals

Coauthors: Alicia DeLouize, Tian Walk, Josh Snodgrass

Caregiving for children, people with disabilities, and the elderly is essential for society as a whole. These responsibilities disproportionately fall upon women, especially low-income women. Support,

whether from other family members, the community, or the government is often minimal, and their labor is largely undervalued. The high demand on caregivers can impact mental health, and, for individuals where providing care is a larger time commitment, engaging in buffering activities related to social connection may be challenging. Analyzing the relationship between burden of care, social support, and income on depression in caregivers provides a better understanding of how these factors contribute to or mitigate the burden of care. With data collected from the World Health Organization's Study on Global AGEing and Adult Health (SAGE) in Mexico, India, Russia, China, Ghana, and South Africa, we performed a three-way ANOVA. For women in South Africa, the number of hours caregiving and social cohesion were not associated with depression. We hope that further research will elucidate the characteristics that link caregiving with depression in some communities.

McElderry, Julianne
Journalism | University of Oregon
Research Mentor(s): Alexander Dracobly
Co-Presenter(s): Robert Hawes, Neha Pall, Emma Nolan
(In-Person) Poster Presentation

World War I as seen from below

McKeehan, Zoë
History | University of Oregon
Research Mentor(s): Dr. Brendan O'Kelly
(In-Person) Poster Presentation

The Lack of Change Throughout Incan Religion Before and After Spanish Conquest

The impact of colonialism was felt across all of South America; an intriguing case study is the Spanish conquest of the Incan people. Since Incan religion heavily influenced their political structure, the Incas were always ruled by a monarchy with divine right (Sapa Inca/King of Spain). They were allowed, to a certain extent, to maintain their own religious beliefs and gods while being converted to a different religion. For these reasons, it can be argued that there were effectively no major changes made to the Incan religion before or after the Spanish conquest.

McLean, Jaidan
Linguistics | University of Oregon
Research Mentor(s): Tyler Kendall
(In-Person) Oral Panel–Diversity and Analysis

Exploring sibilants and gender: A le/s/on from transgender speakers

Sibilant consonant variation is a well-studied topic in linguistics research to examine multiple social axes. Regarding gender, Zimman (2017) raised questions about the social patterning of sibilants in transgender speaker's /s/ production since previous literature has only examined sibilant variation through a binarily cisgender lens. Focusing on transgender men and transmasculine people, Zimman found the social implications of gender identity and expression influence /s/ production in complex ways. As part of an undergraduate honors thesis, this study attempts to address the following two questions regarding /s/ production among a sample of transgender women and transfeminine people: How does speaker identity influence the patterns for /s/ variation found among the speakers? How do intraspeaker variations differ across speech, gender identities and expressions? Sociolinguistic interviews were used to elicit natural /s/ production, followed by a reading passage and word list task to elicit scripted speech. Focusing on center of gravity (COG) frequencies, this study finds its speaker productions to vary greatly with one's expression and in certain linguistic conditions, both across the group's and within individual speech. Such drastic variation complicates binarily established COG frequency ranges from previous literature and parallels Zimman's (2017) findings. These data demonstrate the importance of considering all aspects of social identities as everyone is complex.

McNamee, Audra
Mathematics and Computer Science | University of Oregon
Research Mentor(s): Kathleen Freeman
(In-Person) Oral Panel–Comics, Classics and Analysis

Welcome to Computer Science: Designing a Comic Tour of Computers and Computing

While the number of high-quality educational comics is growing, there are no modern long-form comics discussing computer science at an undergraduate level. The computer science comics that do exist, along with being for a younger audience, are generally focused on teaching the reader programming concepts without exploring other aspects of computer science. For this thesis I scripted and drew the 54-page comic Welcome to Computer Science, which introduces the reader to computer science concepts including computer architecture, programming languages, and the

internet. As a narrative comic written for an undergraduate audience, it can draw in readers who otherwise might not choose to engage with the material. As a breadth-first introduction, the comic provides the reader with a foundational understanding of computers and computer science; this work may provide even more experienced students with a better understanding of how their computer science classes relate to the rest of the field.

McNamee, Audra
Mathematics and Computer Science | University of Oregon
Research Mentor(s): Luca Mazzucato
(In-Person) Poster Presentation

Creating an Educational Graphic Novel about Psychedelics

Scientific communication through the use of comics is an emerging trend across scientific disciplines. Comics are a promising medium for outreach because they appeal to non-scientifically trained audiences, hold the reader's attention, and the storytelling approach lends itself to explaining complex scientific information. Psychedelics are a promising subject for a scientific comic: psychedelics have recently been designated by the FDA as breakthrough treatment for PTSD, depression, and addiction. While the press on psychedelics is unceasing, most publications about psychedelics are focused on venture capital, psychedelic retreats, and clinical trials. Missing is an explanation of the neuroscience of psychedelics, and reflection on how the history of psychedelics intersect with racial justice and cultural appropriation of indigenous traditions and practices. We are creating a comic addressing these gaps in the science and history of psychedelics by explaining scientific material accurately and accessibly.

The comic is structured around the conversation between two friends, one of whom is very pro-psychedelics, the other being staunchly anti-psychedelics. Having the comic take the form of a dialogue will offer space for argument and nuance: putting psychedelics into historical context, explaining and disproving common myths about psychedelics, explaining how social justice and psychedelics interact, and providing an introductory understanding of the science of psychedelics.

Mcvicker, Alena
Physics | University of Oregon
Research Mentor(s): Jayson Paulose, Saul Sun
(In-Person) Poster Presentation

The mechanics of pressurized thin shells with varying geometries.

Coauthors: Wenqian Sun, Garret Wel

The mechanics of thin elastic shells underpins the structural behavior of ping pong balls, bacterial cell walls, and the outer protein capsules of viruses. Thin shell mechanics is determined by two separate areas of math and physics: the geometry of two-dimensional surfaces and the elasticity of continuum materials. One way to probe these effects experimentally is using indentation: poking a shell with a known force and measuring the displacement. Using geometry and elasticity, we can predict the responses of different shells based on many factors. Indentation studies give us a better understanding of their mechanics and the ability to build off the knowledge to develop tools for diagnostics. With this broad understanding of the project, my contribution is based on the fabrication of thin shells with specific geometries and then the measurement of the indentation of these shells. The goal is to show whether experimental measurements will reproduce theoretical results from the Paulose group. This research is comprised of two integral parts. First, we will fabricate shells with defined ellipsoidal geometries (shaped like M&Ms or footballs). To do so I will design molds in the desired shapes and get them 3d-printed at the UO Technical Science Administration. We then use a steel plate and base to hold down the shell which allows us to pressurize the shells. Through these methods we can see that thin shells have counterintuitive reactions to pressurization seen in their geometry.

Meyer, Naomi
Environmental Studies | University of Oregon
Research Mentor(s): Katie Lynch
Co-Presenter(s): Sydney Aston, Kira Domzalski, Max Arquilevich
(In-Person) Oral Panel–Learning from the Environment

Environmental Leadership Program: Youth Climate Science/Climate Justice Education and Discovery

Coauthors: Greta Stahle, Hannah Weav, Cian Whalen, Sydeny Aston, Blake Engleman

Immersed among ancient trees deep in the Cascades lay the teachings of climate science and justice. The Climate Team in the Environmental Leadership Program introduced environmental

education to middle school students by facilitating hands-on outdoor experiences in H.J Andrews, a world-renowned experimental old-growth forest. We discussed and showcased climate change evidence via four lessons: Phenology, Forest Plots, Microclimates, and Climate Justice. Through these lessons, students developed an understanding of the intersectional ways in which they can study climate change, and participate in solutions. As the seventh graders gained knowledge on plant identification, data collection/analysis, environmental inequity, and impacts on microclimates, we acquired experience in teaching, lesson planning, communication, and teamwork. By conducting hands-on research in the Forest, the middle schoolers gained applied science skills and basic climate change literacy, all while working as a team to analyze scientific data, graph, and draw conclusions about climate change's impact on the forest and the world around them. By empowering young students with these skills and knowledge, the Climate Team paved the way for future environmental stewardship, taking action against climate change one student at a time as they grow to become tomorrow's leaders.

Michels, Lauren
Human Physiology | University of Oregon
Research Mentor(s): Claire Guidinger, Nichole Kelly
Co-Presenter(s): Juliana Esquivel
(In-Person) Poster Presentation

How the COVID-19 Pandemic Affected Rural Children's Mental Health and Body Image.

Coauthors: Claire Guidinger

The COVID-19 pandemic has had negative effect on children's mental health, especially as they lost social connections transitioning from in-person education to remote learning. This study sought to better understand the impact of the COVID-19 pandemic on mental health in a sample of rural Oregon children. We hypothesized that during height of the COVID-19 pandemic, children would report increased social dissatisfaction and loneliness (SDL), depression, and anxiety, and decreased body appreciation. This study included secondary analyses from a federally funded clinical trial on rural Oregon children's health (R21HD094661 NICHD). Children filled out surveys in-person pre-COVID-19 and remotely during COVID-19 (February-April 2021) as a follow-up assessment. Paired samples t-tests compared children's mental health pre-pandemic and during the pandemic. When comparing pre-pandemic and pandemic mental health, there were no statistically significant differences in children's SDL, anxiety, and body appreciation (p's>.05). There was a statistically significant difference in

children's depressive symptoms pre- (M = 0.32, SD =.18) and during the pandemic (M = .92, SD = .11). Children endorsed feeling more depressed during the COVID-19 pandemic, t(33) = 15.08, p<.001, d = .23. Given the observed increase in depressive symptoms in our sample, mental health resources in elementary schools should become more available as children now face transitioning back into a post-pandemic world.

Mills, Isaiah
Human Physiology | University of Oregon
Research Mentor(s): Ian Greenhouse, Mitchell Fisher
(In-Person) Poster Presentation

Electromyography Markers of Global Motor Inhibition While Stopping

Stopping individual parts of complex movement plans is a critical part of controlling our bodies. While humans can coordinate movements effectively, our brains have limitations in selective stopping ability. Cancelling one action can affect other simultaneous actions, especially when these actions are bimanual. In one stopping task where participants had to cancel one finger movement while continuing a movement with the other hand, the executed lift was delayed from the target reaction time. This is thought to be caused by a neural pathway which nonselectively inhibits all actions before restarting continuing actions. Here, we record the activation of little finger muscles using electromyography during tonic muscle contraction. Subjects hold contraction as they perform a similar task involving timing bimanual index finger movements to a target time. During stop trials where one or both movements are inhibited we hypothesize that the amplitude of tonic EMG will decrease representing nonselective motor inhibition. Preliminary data analysis supports this hypothesis. This data will help us understand how healthy control of movement is facilitated by the brain, and during what period following a stop signal this network is actively suppressing movement. Patients who suffer from movement disorders like Parkinson's struggle to control inhibitory processes, and we hope to learn more about the disease and how it affects these pathways by comparing healthy datasets to disease state.

Mimms, Ellis
Physics | University of Oregon
Research Mentor(s): Scott Fisher
(In-Person) Oral Panel–Uniquely Their Own, Poster Presentation

The Pine Mountain Observatory Deep Field

Coauthors: Sara Holeman

The Hubble Space Telescope is a telescope that was launched into low Earth orbit as part of international cooperation between the National Aeronautics and Space Administration (NASA) and the European Space Agency (ESA). Weighing over 10,886 kilograms and containing a 2.4 diameter meter mirror, it is one of the largest, most versatile space telescopes in the world and one of the most renowned. While Hubble has been used to observe many different celestial objects and phenomena, one of the most famous pieces of data to come from it is known as the Hubble Deep Field Image. For 10 straight days in 1995, Hubble stared at a tiny, nearly empty patch of sky near the Big Dipper. The telescope gathered all the light it could, slowly building the picture that would come to be known as the Hubble Deep Field Image. This image, showing a sliver of our early universe, contains over 3,000 galaxies, large and small, shapely and amorphous, burning in the depths of space. With the Pine Mountain Observatory Deep Field (PMODF), we have created our own deep field image, instead imaging the central region of the Coma Cluster to determine how many galaxies we can detect within it. With our data, we have been able to determine to what magnitude the telescopes at Pine Mountain can see into space. Collecting around 10 hours of data, The Pine Mountain Observatory Deep Field represents some of the deepest imagery taken at Pine Mountain Observatory to date.

Minu-Sepehr, Ava
Anthropology | University of Oregon
Research Mentor(s): Melissa Graboyes, Karl Reasoner
(In-Person) Oral Panel–HURF

Zanzibari Perceptions of Acquired Immunity and Rebound Malaria

Coauthors: Melissa Graboyes, Judith Me, David Lefevre

This work-in-progress talk presents initial findings from 38 Swahili-English interviews conducted with Zanzibaris about the history of malaria and their understandings of rebound malaria and the biomedical concept of acquired immunity.

Over the past century, periods of intense malarial interventions in Zanzibar reduced malaria

tremendously, while subsequent withdrawals led to dangerous rebound epidemics. This project weaves together contemporary interview data and historical context to present "vernacular knowledge" about malaria. "Vernacular knowledge" captures different and fluid forms of thinking, knowing, and meaning-making using local language, recognizing the impact of foreign.

I will report initial findings from this research, as we complete coding of the interview transcripts using a modified grounded theory approach. Salient themes across oral interviews include danger, education, and responsibility, as well as the role of the environment and foreign funding in discussions about malaria. Our research demonstrates that Zanzibari's don't share the same biomedical framings of "rebound malaria" and "acquired immunity," but that their understandings vary based on age, gender, and expertise with malaria.

This research challenges what types of knowledge are valued and disseminated, and allows us to ask how the work of decolonizing diverse knowledge can be performed. This project is part of a larger NSF grant led by Professor Graboyes on the history of malaria in Africa.

Moe, Erika
Human Physiology | University of Oregon
Research Mentor(s): Sarah DuBrow, Lindsay Rait
(In-Person) Poster Presentation

Content Overload And Its Effects On Learning

Coauthors: Sarah DuBrow, Lindsay Ra, Bjarne Aasum, David Han

The asynchronous nature of remote classes brought by COVID-19 provides students greater control over their daily studies and has proven to be a double-edged sword. To better understand the effect of a growing asynchronous workload, subjects completed two scenarios: one with a condensed, structured workload (2-topic condition) and another with a larger workload (8-topic condition). It was hypothesized that increasing workload (creating a "content overload") would be detrimental for all students. Furthermore, individuals who preferred remote learning would perform best with larger presented workloads. Individuals who preferred in-person learning would perform best with a structured, condensed presented workload. Subjects read passages on a variety of academic topics and were tested the next day in an SAT-like format. Additionally, pre- and post-test questionnaires were completed for correlations between learning preference and differences between conditions. Data analysis is ongoing. A paired t-test for within-subject analysis will compare the average test results of the 2-topic and 8-topic conditions. The results of this study will provide insight into how COVID online classes have affected the comprehension of the student population. With a better

understanding of the content overload effect, educational workers will have the opportunity to better tailor their remote lesson plans for a diverse body of students with different attentional, memory, and cognitive abilities.

Moghaddami, Maryam
Cinema Studies | University of Oregon
Research Mentor(s): Susanna Lim
(In-Person) Poster Presentation

From Pushkin to Pravda: Russia and the Caucasus Through Popular Media

On October 4, 2021, somewhere between Izmailovskaya station and Pervomayskaya station, a fight occurred and resulted in the severe beating and consequent hospitalization of a man by his three adversaries. This story might have been entirely overlooked had it not been for the ethnicity of the men involved which turned into a nationwide sensation. The three men, Dagestanis, severely injured an ethnic Russian male whose only provocation turned out to be his defense of a woman who the three men were harassing.

This paper seeks to examine the depiction of this incident in Russian mass media and discuss its relation to perceptions of identity and nation. In order to do so, this paper will begin by closely reading the depiction of the Circassian male, arguably the 19th century's de facto "Caucasian male" or "kavkazets" in Alexander Pushkin's "A Prisoner in the Caucasus." Pushkin's work is also notable in its formulation of the Russian identity through its designation of the "kavkazets" as being the "Other." This paper will look at the descriptions of this incident and contrast the characteristics assigned by Pushkin and those touched upon by the media covering the incident. Additionally, the paper will emphasize the idea of the "Russian" and the "other" and show how this distinction is emphasized through geography. With the current high in Russian nationalism, the impact of this incident will also be discussed in relation to Russian identity.

Mohd Razif, Dahlia
Business Administration,Human Physiology,Neuroscience,Psychology | University of Oregon
Research Mentor(s): Lea Frank, Dasa Zeithamova
(In-Person) Poster Presentation

Spatial Location and Memory Integration

Memory is flexible and can be influenced by other items or events that we have encountered. Memory integration refers to the concept that related memories are stored in the brain as overlapping

representations which form a memory link that allow us to make new inferences or extract related information. Studies have shown that memory integration is enhanced by time proximity when items or events occur within a close time frame but not much is known regarding how spatial positioning affects memory integration. 160 participants will be split into a spatial overlapping condition and a no spatial overlapping condition. This experiment consists of a study trial, an associative inference test and an associative memory test. During the study trial, participants will be presented with object images positioned relative to base object images. For the associative inference test and memory test, object images will be presented as cues to evaluate the extent that participants can integrate the associations that share the common element of the base object as well as remember presented pairs during the study trial. As the date of submission of this abstract is prior to data collection, conclusions have not been realized. We hypothesize that spatial overlapping of items will result in diminished memory integration due to interference. This research can help deepen our understanding of how the brain encodes separate items and creates an integrated representation of the shared information.

Monkewicz, Lauren
Sociology | University of Oregon
Research Mentor(s): Matthew Norton
(In-Person) Poster Presentation

Detaining Democracy: Totalitarian Implications of United States Immigrant Detention Centers

This study examines healthcare violations in ICE detention centers through the critical sociological lens of statemaking. It aims to answer: do the violations that occur within these centers have an effect on the United States' state making process? Are there any intersects between the way ICE treats detainees and the actions of a totalitarian government? To assess the nature of the state through this lens, this paper examines government reports, third party investigations, and various accounts of life as a detainee, relying on previous scholarship on typologies of the state to guide its definitions. Ultimately, this research suggests that there are totalitarian implications behind the egregious healthcare transgressions that occur in ICE detention centers. The nature of the abuse towards detainees has inherent connections to fundamental totalitarian traits, demonstrating that these actions leave a stain on the United States' democracy.

Keywords: Totalitarianism, democratic regime, detention centers, state, healthcare

Moore, Cali
Psychology | University of Oregon
Research Mentor(s): Chantelle Russel
Co-Presenter(s): Julia Hibbard, Malcolm Durfee
(Virtual) Oral Panel–Strive to Thrive ARC

The Effects of the Use of Cannabis on College Students Wellbeing

Introduction: Whether it be for medicinal purposes or recreational use, the use of cannabis among college students has gone up. The hypothesis for our study is that cannabis use in college aged students affects mental health long term but short term it increases happiness.

Question of Study: What are the effects of the use of Cannabis on a College Student's Wellbeing?

General Statement of the significance of the research: That cannabis use is very prevalent at college and it also very regulated, and the question is it a the problem that people are using it heavily or regulating it heavily. Primary Results We found that there is no proof of causation towards cannabis helping your well being or hurting it. Rather it depends on the person and if they personally know that the drug is good for them.

Primary Conclusion: The conclusion there is no conclusive evidence that this drug directly affects rather it could possibly be a signifier of how your well being is good or bad. Therefore our hypothesis was wrong and we need more research to really get to the bottom of this.

General Methods, Procedures, Sources: We examined these sources. In addition Alexis Drakatos showed a study that spoke about cannabis usage of students but it used survey data so it was not the most reliable data considering I know many students that lied on it .The data from all the UO interviews were either unusable or biased due to them trying to prove a narrative.

Morris, Shandi
Oregon Transfer Degree | Lane Community College
Research Mentor(s):
Co-Presenter(s): Andrea Vandermolen
(In-Person) Poster Presentation

Fatal Flight: A Survey of Bird Window Collisions at Lane Community College

Window collisions kill a high number of birds each year in the United States, but different architectural and landscape characteristics can make certain buildings deadlier than others. From October 20th to November 19th, we surveyed five campus buildings at Lane Community College in Eugene, Oregon to see which ones experienced the most bird window collisions. We walked the

perimeter of each building three times per week and recorded the number of birds, partial remains or feather piles found within a 1.5 meter border of each building. The highest count was on our first day of surveying, likely because it included birds that had died over the summer. Over the course of our survey we mostly found partial remains, but were able to identify two Hermit Thrushes and one of each of the following: Dark Eyed Junco, Anna's Hummingbird, American Robin, Lesser Goldfinch and European Starling. The two buildings with the most remains collected were Building 30 and the Center Building. This was the first fall survey of window collisions on campus and surveys were continued through the winter. The results from our survey will be used to locate collision hotspots and will inform the college's future mitigation efforts.

Morton, Emmi
Marine Biology | University of Oregon
Research Mentor(s): Corbett Upton
(In-Person) Oral Panel–The More You Know (in depth looks and prevention)

Stopping Gun Violence Starts With Analyzing the Link Between Victims and Perpetrators

In this paper, I analyze how different childhood traumas will affect children as they grow older, and how this can affect their relationship with guns and the community around them. After secondary exposure to the trauma that gun violence can have, I became curious as to how it will affect those who did experience it firsthand. Throughout this essay, I explore how traumatic events(specifically those relating to gun violence) in childhood during the formative years of one's psyche, affect the way that they interact with society as they age and gain independence. I decided to go even deeper, to explore how whether being a victim of violence firsthand or just exposed to it, impacted the chances for these people to become either a victim or a perpetrator when it comes to violent crimes such as gun violence. In a world with increasing gun violence and rapidly declining mental health, the risk for tragedies of this nature is higher than ever.

Research done by C.S. Widom in 1989 regarding the cycle of violence was absolutely crucial and remains a central root in the research that I've conducted. This cycle of violence reveals the keys to at least implementing some sort of intervention or crisis outreach programs to really make a difference. In this paper I argue that gun violence, which is usually done by mentally disturbed individuals with relations to childhood trauma, passes it on to the next generation of children which in turn creates a loop of violence that must be stopped.

Mosley, Autumn
Communication Disorders and Sciences | University of Oregon
Research Mentor(s): Dr. Samantha Shune
(Virtual) Oral Panel–Health and Social Science, Poster Presentation

Breathing based meditation to decrease stress and improve symptoms in persons with COPD

Individuals with Chronic Obstructive Pulmonary Disease (COPD), struggle with dyspnea and dysphagia which can increase their stress and anxiety levels having a quality-of-life impact. The aim of this study was to explore the impact that breathwork meditation has on anxiety and perceived stress levels in persons with COPD. It was hypothesized that participation in a Sudarshan Kriya Yoga (SKY) meditation program would lower stress and anxiety resulting in a decrease in the severity of symptoms associated with COPD. 9 participants diagnosed with COPD were recruited from across the United States. Participants engaged in a 3-day group SKY meditation program together through zoom. Data were collected from each participant through open-ended zoom interviews where they discussed their experiences during and after the SKY meditation program. Results indicated that participants had decreased severity in their symptoms and in overall stress and anxiety levels. Some participants reported a significant improvement in their quality of life and personal outlook. The SKY program improved stress and anxiety through several avenues. Improved sleep, emotional regulation, and feelings of social connectedness led to improved symptoms. Improved symptoms led to additional improved mental states. SKY intervention served to reverse the feedback loop exacerbating symptoms and negative emotions. Findings hold promise for future research into meditation as a holistic treatment option for this population.

Mosley, Isabel
Environmental Studies | University of Oregon
Research Mentor(s): Peg Boulay
Co-Presenter(s): Hans Bertelsen, Alex Murphy, Zoey Bailey
(In-Person) Oral Panel–Fuel, Fire, Grass and Compost

Monitoring Fuel Treatment Efficacy in Oak Habitat at Suzanne Arlie Park

Coauthors: Julia Odenthal, Isaac Sl, Kaity Hardwick, Katie Stevermer, Jack Beetley

Upland oak prairies and oak savannas are scarce within Oregon's Willamette Valley. In order to restore these fire-dependent communities, we must integrate prescribed fire and land stewardship practices. Our team has been working closely with the City of Eugene Parks and Open Spaces

Department to collect vegetation data to evaluate the effects of fuels management at Suzanne Arlie Park. Project goals are to conduct vegetation monitoring and evaluate fuel loads within plots that have been untreated or treated with herbicide, mastication, mowing, and prescribed burns. A paramount aspect of our team's protocol is to collect data on species composition and richness, which is key for management decisions such as prescribed fire. We have used a nested plot design: determining the plot center using randomized methods, measuring and describing trees and large woody fuels present within a 1/100th acre plot, measuring shrub cover along a 50 ft transect, and describing herbaceous cover and small woody fuels in three 1 m2 quadrats. Site awareness parameters consisted of photo monitoring points and qualitative assessment with comments. Our findings will be used to make management recommendations to the City of Eugene for Suzanne Arlie Park and the Ridgeline Trail System. These recommendations will be used to implement fuels reduction treatments; restore, enhance, and promote awareness of native habitats; and will increase collaboration across parks within Eugene's Wildland-Urban Interface.

Mozipo, Esther Aurelie
Biochemistry | University of Oregon
Research Mentor(s): Veronica Spaulding, Marian Hettiaratchi
(In-Person) Poster Presentation

The Impact of Hyaluronic Acid Molecular Weight on Hydrogel Properties for Bone Regeneration

Coauthors: Riley Ford

Large bone defects have difficulty healing without intervention, leading to nonunion fractures.1 Hydrogels are a promising solution to this problem due to their biocompatibility and potential as a drug delivery vehicle.

Hyaluronic acid (HA) is a naturally-occurring polymer that can be functionalized to create a hydrogel. HA exists in our bodies in different molecular weights, which are involved in different biological processes.2 I investigated whether varying the molecular weight of the HA could have an effect on the properties of the HA hydrogel and cellular responses.

HA hydrogels were synthesized via a hydrazone click reaction of aldehyde-modified HA(HA-Ox) and carbohydrazide-modified HA (CH-HA). The degree of modification (DOM) of the HA was determined using 1H NMR spectroscopy. The effect of HA on osteogenesis was determined by measuring alkaline phosphatase (ALP) activity of C1C12 skeletal myoblasts in HA solutions.

The DOM of CH-HA at 40 kDa, 100 kDa, 700 kDa, and 1500 kDa was 25.4, 20.4, 7.8, and 0%, respectively while the DOM of HA-Ox at the same molecular weights was 13.7%, 12.6%, 7.0%, and 3.6%, respectively. C2C12 cells grown in unmodified 40 kDa, 100kDa, 700kDa, and 1500 kDa HA exhibited ALP activity comparable to C2C12 cells cultured in media only. However, in the presence of bone morphogenetic protein 2 (BMP-2), an osteoinductive protein, the 700 and 1500kDa HA inhibited BMP-2 induced ALP activity when compared to the 40 and 100kDa HA.

Mueller, Kevin
Biology | University of Oregon
Research Mentor(s): Anne Zemper, Janelle Stevenson
(In-Person) Oral Panel–Daily Dose of Proteins

Lrig3 is Required for Colonic Regeneration Following Acute Inflammatory Injury

The mouse colon is a tightly regulated organ responsible for secreting mucus and absorbing water, which is carried out by colonic crypts; small U-shaped invaginations in the colon's epithelial tissue. The excision of the protein Lrig3 has been characterized in homeostasis and is defined by more nuclei per crypt, increased mucosal area, and an expanded stem cell compartment consisting of more Lrig1+ cells per crypt. While we now understand that Lrig3 plays an important role in homeostasis, it is currently unknown what role Lrig3 might play in colon-based diseases. The disease we chose to test first was the mouse model of ulcerative colitis. Our lab treated two cohorts of mice, one Wild Type (WT) and one Lrig3-/-, with a 3% Dextran Sodium Sulfate (DSS) solution over 6 days to induce inflammation. Both cohorts were allowed to recover for 24 hours before analysis. We found Lrig3-/- mice are more susceptible to DSS treatment and lack the colonic regenerative capability seen in WT mice. We then performed immunohistochemistry, dye, and enzymatic-based analyses to examine the expression profiles of proteins associated with regeneration of the colonic epithelium. We observed a decrease in cells expressing the stem and progenitor marker Lrig1 in Lrig3-/- mice compared to WT (p<0.01) and a decrease in the total cell number per crypt (p<0.001), however there was no change in proliferation. These data suggest Lrig3 is required for epithelial regeneration in DSS-modeled ulcerative colitis.

Mugeki, Mary
Psychology | University of Oregon
Research Mentor(s): Rachel Weissler
(Virtual) Oral Panel–Read, Speak and Act

What Makes A Voice Sound Black?

This research explores the nature of linguistic perception upon hearing African American English versus Standard American English. By having speakers from each category and low pass filtering their speech, we can explore how people perceive both vernaculars given the emotional prosody (the emotion reflected in the melody of their voices). Low pass filtering the audio is beneficial since it removes the acoustic characteristics of speech and leaves only the melody. The importance in exploring the relationship between emotion and race is due to the cultural stereotyping that is prevalent in the U.S. which has an influence on perceptions of these two factors. The hypothesized results are that the Happy guises will be perceived as more white, the Angry guises will be perceived as more black, evidencing the power of emotional prosody on the perception of the speech signal. This research impacts the broader fields of speech perception and sociolinguistics, focusing on specifically the parts of the speech signal which influence socio-cultural perceptions in day to day life.

Mullen, Nicole
Neuroscience | University of Oregon
Research Mentor(s): Karen Guillemin, Steph VanBeuge
(Virtual) Poster Presentation

The Role of Microbiota in the Development of Insulin-Producing Cells in Drosophila melanogaster

Resident gut bacteria have the capacity to influence aspects of animal metabolism. Previous research in the Guillemin lab showed that in zebrafish, gut bacteria promote the expansion of insulin-producing cells (IPC) in the pancreas through a secreted bacterial protein, Beta-cell expansion factor A (BefA). This research investigates the role of gut bacteria and BefA to promote IPC development in the fruit fly, Drosophila melanogaster. In Drosophila, there are ~7 IPCs located in each lobe of the brain. Our first aim was to test the effect of germ-free (GF) rearing on IPC numbers in Drosophila. Our second aim tested whether feeding flies BefA could restore IPC numbers in GF flies. We compared the number of IPCs present in GF, conventionally-reared (CV), and GF flies fed BefA. Tissue-specific GAL4UAS/GFP in all groups made IPCs visible after dissection. Our results showed that GF flies have fewer IPCs per lobe than CV flies, indicating that microbiota is required for normal IPC numbers.

Further, feeding BefA caused a statistically significant increase in IPC numbers in GF larvae compared to CV. However, transgenic expression of BefA, using the UAS/GAL4 system, yielded a trending but not a significant expansion of IPCs in GF flies. This could be due to the low levels of BefA produced through transgenic expression. These results indicate that the microbiota has a powerful effect on metabolic pathways, and cell development, and can influence the normal development of the fly brain.

Murphy, Alex
Business Administration | University of Oregon
Research Mentor(s): Peg Boulay
Co-Presenter(s): Hans Bertelsen, Isabel Mosley, Zoey Bailey
(In-Person) Oral Panel–Fuel, Fire, Grass and Compost

Monitoring Fuel Treatment Efficacy in Oak Habitat at Suzanne Arlie Park

Upland oak prairies and oak savannas are scarce within Oregon's Willamette Valley. In order to restore these fire-dependent communities, we must integrate prescribed fire and land stewardship practices. Our team has been working closely with the City of Eugene Parks and Open Spaces Department to collect vegetation data to evaluate the effects of fuels management at Suzanne Arlie Park. Project goals are to conduct vegetation monitoring and evaluate fuel loads within plots that have been untreated or treated with herbicide, mastication, mowing, and prescribed burns. A paramount aspect of our team's protocol is to collect data on species composition and richness, which is key for management decisions such as prescribed fire. We have used a nested plot design: determining the plot center using randomized methods, measuring and describing trees and large woody fuels present within a 1/100th acre plot, measuring shrub cover along a 50 ft transect, and describing herbaceous cover and small woody fuels in three 1 m2 quadrats. Site awareness parameters consisted of photo monitoring points and qualitative assessment with comments. Our findings will be used to make management recommendations to the City of Eugene for Suzanne Arlie Park and the Ridgeline Trail System. These recommendations will be used to implement fuels reduction treatments; restore, enhance, and promote awareness of native habitats; and will increase collaboration across parks within Eugene's Wildland-Urban Interface.

Nauman, Julia
Environmental Studies, Anthropology | University of Oregon
Research Mentor(s): Peg Boulay, Gabby Altmire
Co-Presenter(s): Lindsey Nguyen, Fischer Kirk, Olivia Heller
(In-Person) Oral Panel–Learning from the Environment

Promoting Pollinators at Whitewater Ranch

Native pollinators are beneficial in agroecosystems because they are more cost-efficient, resistant to disease, and more favorable to the larger ecosystem than imported honey bees. The Environmental Leadership Program (ELP) has been monitoring pollinators at Whitewater Ranch (WWR), an organic blueberry and timber farm in Leaburg, Oregon, since 2014. Here, the ELP has assisted WWR in its restoration of Goose Creek, a riparian zone that runs through the ranch. The goal of the project is to increase native pollinator abundance and diversity for the benefit of the ranch and greater ecosystem. To do so, we explored the potential of native riparian and forb plantings to increase native pollinator populations. First, we continued to monitor the effects of previous riparian plantings on current pollinator populations in blueberry fields. Second, we explored the role of floral enhancements in logged areas after the 2020 Holiday Farm Fire. Working with insect ecologist Lauren Ponisio, we are monitoring which native forbs are most successful in the previously burned areas of Whitewater Ranch. We expect pollinator numbers to remain relatively consistent with previous years.

Neher, Alayna
Ethnic Studies, Psychology | University of Oregon
Research Mentor(s): Sharon Luk
(In-Person) Poster Presentation

Adoptee Formations of Kinship: Queer Diasporic Traditions in Chinese America

Chinese American adoptees are part of a tradition of non-normative kinship and exist in relationships that transcend racial, gendered, and physical borders. It is hypothesized, given the history of transnational adoption, that Chinese American adoptees seek to navigate identity in predominantly white families and communities, negotiate kinship, and participate in the queering of relationships in biological, adoptive, and/or chosen families. In-depth interviews were conducted with 19 adult adoptees (18 women, 1 man; ages 18-26), all of whom were born in China and adopted to the United States. Results show generally strong connections between adoptees and their immediate family members and other adoptees, although adoptees experience varying quality and strength of relationships with all people in their lives. Relationships with other adoptees and non-adopted

Asian Americans are less frequent when adoptees are raised in predominantly white communities. Relationships between adoptees are particularly important for humanizing adoptee experiences, providing space for nuance and fluidity in identity, and coalition-building. Adoptee relationships and identity form a constellation of kinships and offer a new understanding Asian American identity.

Nguyen, Anna
Economics,Political Science | University of Oregon
Research Mentor(s): Alison Gash
(In-Person) Oral Panel–Connection and Community

From the Ground Up: Connections and Contradictions Within the United States Housing Movement

The repercussions of the housing crisis today are immense, to say the least. Accelerating trends of deregulation, financialization, and globalization produce conditions that are ripe for real estate investment. Neoliberal policies make affordable housing inaccessible by design. The idea of housing–as a lived and social space, a necessary form of shelter, and a universal basic need–has been stripped away for purposes of profit generation. With these deteriorating conditions in mind, this much is clear: the housing crisis is a colossal problem and will not be resolved overnight. Tenant and unhoused organizers who understand this reality are motivated by it and have acted accordingly to respond to the crisis at its worst.

Evaluating the scope of eviction and its root causes necessitates a deeper understanding of housing insecurity and the traumatic displacement of tenants on a political, economic, and spatial level. Because working class tenants and their unhoused neighbors are subject to experiences of housing precarity in their daily lives, they have a lot to gain from establishing solidarity with each other. The goal of this thesis is to investigate how tenant and unhoused groups navigate these collaborative relationships tensions as they respond to the housing crisis on a local and national scale.

Nguyen, Lindsey
Environmental Studies,Ethnic Studies | University of Oregon
Research Mentor(s): Peg Boulay, Gabby Altmire
Co-Presenter(s): Julia Nauman, Fischer Kirk, Olivia Heller
(In-Person) Oral Panel–Learning from the Environment

Promoting Pollinators at Whitewater Ranch

Coauthors: Olivia Heller, Claire Warn, Caleigh Byrne, Kevin Chang, Benjamin Madrid

Native pollinators are beneficial in agroecosystems because they are more cost-efficient, resistant to disease, and more favorable to the larger ecosystem than imported honey bees. The Environmental Leadership Program (ELP) has been monitoring pollinators at Whitewater Ranch (WWR), an organic blueberry and timber farm in Leaburg, Oregon, since 2014. Here, the ELP has assisted WWR in its restoration of Goose Creek, a riparian zone that runs through the ranch. The goal of the project is to increase native pollinator abundance and diversity for the benefit of the ranch and greater ecosystem. To do so, we explored the potential of native riparian and forb plantings to increase native pollinator populations. First, we continued to monitor the effects of previous riparian plantings on current pollinator populations in blueberry fields. Second, we explored the role of floral enhancements in logged areas after the 2020 Holiday Farm Fire. Working with insect ecologist Lauren Ponisio, we are monitoring which native forbs are most successful in the previously burned areas of Whitewater Ranch. We expect pollinator numbers to remain relatively consistent with previous years.

Nolan, Emma
Journalism | University of Oregon
Research Mentor(s): Alexander Dracobly
Co-Presenter(s): Julianne McElderry, Robert Hawes, Neha Pall
(In-Person) Poster Presentation

World War I as seen from below

Nosler, Philip
Biology | University of Oregon
Research Mentor(s): Nicole Kurhanewicz, Diana Libuda
(In-Person) Oral Panel–Bio-Zebrafish and DNA

Investigating the role of H3K9 methyl transferases in heat-induced DNA damage

Coauthors: Nicole Kurhanewicz, Diana Libu

Exposure to elevated temperature is a major cause of male infertility observed across both animals and plants. A primary consequence of heat stress is the accumulation of unusually high levels of DNA damage in developing sperm. Previous work from the Libuda Lab demonstrated that, similarly to humans, a single acute heat exposure is sufficient to produce high levels of DNA damage in developing sperm, but not in developing eggs in the model organism Caenorhabditis elegans. Further, mobilization of transposons, segments of DNA that can move autonomously throughout the genome, was associated with heat-induced DNA damage specifically in sperm. Normally, transposon movement is strictly repressed in the germline via chromatin modifications, which affect chromosome structure and regulate gene expression. Specifically, transposon genes are silenced in the germline via a particular chromatin modification: methylation of histone H3 lysine 9 by the methyltransferases SET-25, SET-32, and MET-2. Using an existing mutant strain for set-25 and a double mutant for met-2;set-25, I found that DNA damage is elevated following heat stress, suggesting set-25 and met-2 repress heat-induced DNA damage. Currently, I am further assessing the roles of set-25, set-32, and met-2 in heat-induced DNA damage using single and double mutant strains. Overall, this work will further our understanding of the mechanisms underlying heat-induced male infertility.

O'Brien, Elise
Planning, Public Policy and Management | University of Oregon
Research Mentor(s): Lisa Abia-Smith
(Virtual) Creative Work–Connection, Escapism, Poetry and Exercise

95% of people want to take a vacation: Creating a world we don't wish to escape from

The title of my piece refers to a statistic produced by a cruise ship company. Lisa Abia-Smith gave my class an assignment to visually represent a statistic. I chose "95% of people want to take a vacation." To me this seemingly frivolous and meaningless statistic belies a deeper truth about our society: people are seeking escape. How can we build a society we don't seek to escape from? How can we

escape INTO our lives instead of away from them? How do we aim for utopia?

It is my personal belief that this shift starts within and that it starts with empathy. To combat the empathy deficit that is a root factor in the growing housing crisis, I have developed a meditation for the unhoused. Please join me in a guided meditation where we explore the feeling of being lost: without papers and without home. We will meet a guide who will take us to a transitional village where we can explore feelings of relief and safety. What is safety? What is home? This meditation was designed with planners and landscape architects in mind and has space for design ideas to surface. Bring a paper and pen to jot down insights.

O'Brien, Emily
Environmental Studies | University of Oregon
Research Mentor(s): Meredith Jacobson, Katie Lynch
Co-Presenter(s): Riley Roefaro, Armon Ashoubi, Kaylie Smith
(In-Person) Oral Panel–Covering Covid

Environmental Leadership Program: Restoring Connections

The COVID-19 lockdown has caused children to look at their iPads instead of their local environment, creating gaps in their outdoor education. Through a combination of field trips and in-class lessons, our leadership team brought environmental education to over 200 elementary students in Eugene. Our lessons worked to dismantle barriers that prevented students from fostering stewardship and discovering the magic of nature. Field trips included games that introduced students to focal species and animal senses. Students were also given individual journaling time, which connected person to place and encouraged deep reflection on the surrounding environment. Our desire to create awareness and knowledge of the environment and its associated problems has been met. The outcomes of our lessons show that students built a relationship with the outdoors and established a sense of care toward nature. Students showed empathy for wildlife by constructing fairy houses and removing invasive species from the area. We also saw students identify motivating species and distinguish between various habitats within an ecosystem. Throughout lessons this term, we made a difference in our community while strengthening our own environmental education skills. In this technological era, it is important for youth to have access to the outdoors so that care and concern for the world can be established. With this, there is hope the advocation of nature will increase and create positive environmental action.

O'Connell, Cameron
Human Physiology | University of Oregon
Research Mentor(s): Chris Chapman
(In-Person) Poster Presentation

Effect of Mild Hypohydration on Renal Hemodynamics during Exercise Pressor Reflex Activation

Coauthors: Sadie Holt, Shaun Brazelt, Christopher Chapman, John Halliwill, Christopher Minson

Sweating during passive heat stress can induce a state of low body water known as hypohydration. Mild hypohydration combined with elevated core body temperature attenuates increases in renal vasoconstriction during a sympathetic stimulus. It is unknown whether hypohydration, independent of heat stress, elicits a similar altered renal hemodynamic response. We tested the hypothesis that prolonged mild hypohydration attenuates reductions in renal artery blood velocity (RBV) during exercise pressor reflex activation compared to a hydrated state (i.e., euhydrated). Eight healthy adults (5 females) performed two trials following 24 hours of fluid deprivation (HYPO) or when euhydrated (EUHY). RBV was assessed using Doppler ultrasonography during two minutes of static handgrip exercise (Handgrip) that was immediately followed by two minutes of post-exercise arterial occlusion (Occlusion). The 24-hour protocol induced a mild hypohydration in HYPO, as noted by greater reductions in body mass (HYPO: -2.2±0.5%; EUHY: -0.3±0.7%, P=0.001). At the end of Handgrip, there was a trend toward attenuated reductions in RBV in HYPO compared to EUHY (HYPO: -1.6±4.8 cm·s-1; EUHY: -6.2±6.0 cm·s-1, P=0.16). At the end of Occlusion, RBV, was not different between conditions (P=0.52). These preliminary findings suggest that prolonged mild hypohydration may attenuate the renal hemodynamic response to the static handgrip phase of exercise pressor reflex activation.

Odell, Marlee
Biology | University of Oregon
Research Mentor(s): Melissa Graboyes
(In-Person) Oral Panel–Covering Covid

Defining and Characterizing COVID-19 Quarantine Hesitancy in Lane County

Contact tracing and subsequent quarantine of individuals exposed to COVID-19 has been a useful tool throughout the pandemic. While trying to implement such measures, however, it has become clear that some people are hesitant to agree to quarantine, for a variety of reasons. The term "hesitancy" appears in similar areas of public health such as with vaccine hesitancy, however, it has not been defined for COVID-19 quarantine hesitancy. Arising from personal experience as a contact monitor

(CM) for the UO Corona Corps, this thesis intended to define COVID-19 quarantine hesitancy and to identify the determinants behind a contact's hesitancy. Semi-structured, open-ended interviews were conducted with UO Corona Corps CMs about their experience with hesitant contacts. The interviews were thematically analyzed to reveal themes rooted in the firsthand experiences of CMs. This work suggests that COVID-19 quarantine hesitancy is when there is a discrepancy between public health officials' recommendations and the actions of COVID-19 contacts. In addition, it suggests that there are multiple types of hesitancy and stages in the quarantine process in which they can arise. The thematic analysis also revealed three categories of COVID-19 quarantine hesitancy determinants: situational determinants, personal determinants, and quarantine comprehension. The results from this thesis can help inform future public health work that involves quarantine, whether for COVID-19 or other health issues.

Odenthal, Julia
Environmental Studies | University of Oregon
Research Mentor(s): Lucas Silva
(In-Person) Poster Presentation

Quantifying soil respiration response to planted conifer saplings and associated mycorrhizae

Forest soils present a crucial opportunity for carbon sequestration to combat rising atmospheric greenhouse gas concentrations. To better understand the impact of tree planting on soil carbon storage within a previously unforested grass field in Oregon's Willamette Valley, we will measure soil microbial respiration at the base of two conifer seedlings with different mycorrhizal associations: Calocedrus decurrens (arbuscular mycorrhizae; AM) and Pinus ponderosa (ectomycorrhizae; EcM). We will compare these measurements with soil respiration in plowed furrow replicates at a five foot distance from the sample trees and in unplowed pasture. We hypothesize that soil respiration will be higher next to seedlings compared to pasture and disturbed ground, and that AM seedlings will have higher soil respiration rates than EcM seedlings. In addition, we will measure pH, soil carbon, macronutrient, and micronutrient levels at the same locations to compare soil conditions that may alter microbial communities. Microbial function at the roots of planted trees has been shown to have some control on carbon sequestration through enhanced weathering, suggesting that current models may underestimate the carbon storage potential of forested soils. Understanding the potential of carbon sinks is key to properly allocating resources for climate change mitigation. Our data will guide future local tree planting efforts to maximize soil carbon storage.

Osman, Idil
Planning, Public Policy and Management | University of Oregon
Research Mentor(s): Melissa Graboyes
(In-Person) Data Stories–Data and more Data

Underreporting of Epidemic Rebound and Resurgent Malaria In Nine African Countries

This project focuses on the underreporting of epidemic rebound and resurgent malaria in nine African countries– The Gambia, Ghana, Kenya, Malawi, Nigeria, Sierra Leone, Uganda, Zanzibar and Zimbabwe– over the span of a century. Currently, malaria resurgence and rebound, occurring when malaria returns to a region after having been successfully controlled, have a history of being under-counted and under-reported, especially in the African continent. My research attempts to fill in these gaps by providing an overview and analysis of malaria prevalence from 1920-2020, and documenting unreported cases of malaria resurgence. I collected, organized, and analyzed historical epidemiological data of malaria prevalence and control measures and compiled it into a longer frame- essentially creating an entirely new panel dataset- so I could see longer trends in time and identify instances of rebound. My primary results have shown there to be multiple unreported cases of malaria rebound in my researched countries. This finding not only fills a wide gap in the field of malaria research, but also implicates the nature of data collection methodology and presentation on a global scale. The results will provide a framework in determining cases of resurgent malaria and in shifting the way the WHO and other public health organizations present their epidemiological data.

Pall, Neha
Journalism | University of Oregon
Research Mentor(s): Alexander Dracobly
Co-Presenter(s): Julianne McElderry, Robert Hawes, Emma Nolan
(In-Person) Poster Presentation

World War I as seen from below

Coauthors: Tanner Ringo, Emma Herm, Elijah Regosin-Cafferty, Charlie McIntyre, Robert Turner

Paris, Lawren
Chemistry | University of Oregon
Research Mentor(s): Lisa Munger
Co-Presenter(s): Piet Fretz, Kyle Hoekstra
(In-Person) Poster Presentation

Effect of Anthropogenic Noise on Eugene Duck Behaviors and Calls

This study investigated how duck species living in urban spaces have adapted their calls to account for human noise disturbances. By recording a cohort of ducks in local urban green spaces such as Alton Baker Park and the Willamette Waterfront in Eugene, Oregon, and contrasting that to recordings taken of a second cohort living in exurban natural habitats like Fern Ridge Lake, we isolated how these animals change their calls to account for anthropogenic sound masking. Using Cornell Labs Ravenlite software, we isolated the frequency, amplitude, and duration of duck calls. These field data were compared to existing published urban bioacoustic data to help develop a pattern of behavioral differences between these two cohorts of ducks. Results indicated that ducks of the same species altered their calls between the two locations. Additional research is needed to continue to develop the body of work relating to the effect human noise patterns have on existing wildlife.

Peara, Emma
Biology | University of Oregon
Research Mentor(s): Peg Boulay, Hannah Gershone
Co-Presenter(s): Shane Kreger, Mya Ganzer, Olivia Holah
(In-Person) Oral Panel–Learning from the Environment

Assessment of the Oregon White Oak Woodland and Prairie Restoration Project at Dorris Ranch

Coauthors: Lindsay Green, Garret Simm, Saiorse Kirby, Shane Kreger, Mya Ganzer

The primary goal of the Birds & Blooms Environmental Leadership Program (ELP) team is to evaluate the effects of the 2016-2018 Oregon white oak and upland prairie restoration project at Dorris Ranch. The team will monitor showy wildflower species, invasive plant species, oak characteristics, and target bird species within the study site at Dorris Ranch. This will allow us to monitor and assess the health of the oaks and the response of the biotic communities dependent on oak woodland and prairie habitats at Dorris Ranch, which will indicate the success and impacts of the 2016-2018 restoration projects. Specifically, our group will conduct presence-absence surveys for target bird species, map wildflower and invasive species populations, create an evaluative census of the Oregon

white oaks, and replicate photo points based on a set done in 2020. The data we collect will be compared to previous data that has been collected from Dorris Ranch. The relationships between the datasets, in addition to our new findings will further inform Willamalane Park and Recreations adaptive management decisions and strategies in order to continue the restoration of crucial Oregon white oak habitat and its associated species at Dorris Ranch.

Pettinari, Noah
Physics | University of Oregon
Research Mentor(s): Raghuveer Parthasarathy
(In-Person) Oral Panel–Uniquely Their Own

Using machine learning to classify bacterial species from fluorescent image data

The study of host-microbe interactions has been of growing interest in recent years, with new research highlighting their importance in ecology, human health, developmental biology, and immunology. Fluorescent imaging of larger multispecies bacterial communities within the host microbiome is generally limited to one species per fluorescent channel, greatly limiting the ability to image several species simultaneously. Additionally, the creation and integration of new fluorophores is a slow and labor intensive process, further limiting the use of fluorescent imaging. We assess an algorithm for classifying two bacterial species in vitro within one fluorescent channel using machine learning techniques on morphology data. We then applied this machine learning model to bacterial communities in the rotifer gut, testing new algorithms for removing unwanted autofluorescence along the way.

Phillips, Tristan
Business Administration | University of Oregon
Research Mentor(s): Emily Simnitt
Co-Presenter(s): Claire Putnam
(In-Person) Oral Panel–Communication: How and Why

Public Speaking Literacy as a Counterstory

Coauthors: Claire Putnam

When asked about what skills are most important for communication, often reading and writing come to mind. It's not often in our education that we find public speaking to be a skill that is emphasized as important. As a result, people don't often put time and energy into becoming better public speakers and are afraid of it when they are required to give presentations. In this study, we examine

how students feel about public speaking. How do students who have received practice or training feel compared to those who don't have that training? The purpose of this study is to see how we can best tailor our public speaking workshops to the students. We want to get an idea of the perception people have of public speaking. More importantly, what qualities do people see as "good public speaking skills" and what does this tell us about public speaking literacy? We hope this data can be used by the university to allocate more resources toward public speaking education.

Pineiro, Victoria
Environmental Studies | University of Oregon
Research Mentor(s): Melissa Baese-Berk, Myrihe Rohbock
Co-Presenter(s): Andi Van Laanen
(Virtual) Oral Panel–Read, Speak and Act

Professionalism: Swearing in the Workplace

In recent years, swearing has moved from somewhat of a taboo topic to a more common and acceptable practice in day to day life. This particular research examines how swearing impacts perceptions of professionalism in the workplace, with gender stereotypes as a sub focus. To investigate this, two surveys were distributed to primarily college aged individuals, and each survey had two sets of audios with the same scripts, one with a woman swearing and man not swearing, and the other with a man swearing and a woman not swearing. Participants were then asked about their perceptions of the speaker in each audio and to reflect on their feelings towards each as a whole. Overall, we found that swearing and professionalism have a negative relationship, regardless of gender. In conclusion, by conducting this research we are able to investigate the various ways professionalism is portrayed through different linguistic choices.

Popoola, Ayooluwa
Human Physiology | University of Oregon
Research Mentor(s): Austin Ricci, Damien Callahan
(In-Person) Poster Presentation

Skeletal Muscle Compliance and Composition in Young Men and Women

Coauthors: Allen Donovan

Skeletal muscle is a complex tissue, comprised at the whole tissue level of contractile structures, adipose and connective tissue. The relationships between composition and biological sex are important because composition likely affects muscle contractile performance. However, the

mechanisms through which composition and stiffness interdependently influence function between men and women remain largely unclear.

Purpose: to investigate the differences in active and passive stiffness of the vastus lateralis muscle (VL) and patellar tendon (PT) in young men and women.

Methods: We recruited 14 young healthy participants, 9 men and 5 women. Participants performed 3 maximum voluntary isometric contractions (MVIC) of the knee extensor muscles (KE) to determine peak torque. Passive stiffness was measured at the VL and PT using digital palpation (DP) prior to MVIC measurements. Active stiffness was measured at 25%, 50%, and 100% MVIC during ramped contractions using DP and ultrasound.

Results: Passive stiffness was not different between sexes at the PT or VL. Active stiffness was less in women at the VL [0.19] and PT [0.03]. Women had higher subcutaneous adipose thickness (SAT) [<0.001] and echogenicity [<0.001] with similar muscle thickness.

Conclusion: Data suggests muscle activation comparatively alters stiffness in women. Despite similar muscle thickness, women have higher SAT and echogenicity, two characteristics known to reduce stiffness.

Price, Margery
Earth Sciences | University of Oregon
Research Mentor(s): Thomas Giachetti
(In-Person) Poster Presentation

Investigating Greywater Filtration Capabilities of Pumice and Scoria from the Pacific Northwest

Coauthors: Thomas Giachetti

Graywater (wastewater produced by bathing, washing, and other domestic water uses) contains particles that can be removed by filtration. With treatment, it can be reused for tasks such as irrigation or street cleaning. Pumice and scoria, highly porous volcanic rocks, are optimal filtration media; they have both high external and internal surface area due to their tortuous networks of connected pores. This project investigates the physical characteristics of pumices and scoriae that most impact their efficacy as filter materials by testing interactions between the rocks and graywater.

Samples of pumice and scoria from Oregon volcanoes are measured using a Particle Analyzer, a high precision scale, and a helium pycnometer to find mass, volume, packing fraction, and total and connected porosity. Graywater is created using conventional household cleaning and personal

care products, then characterized for pH, turbidity, TDS, and conductivity. Lastly, static absorption experiments examine the interactions between pumice and scoria with both tap water and graywater when submerged. Preliminary results show that pumice and scoria systems of the same sizes absorb similar volumes of water, despite having different porosities. Scoria offers more area of interaction with water on its external surfaces, but pumice contains more available surface area within the particles. More work needs to be done investigating which of these parameters results in better filtration of graywater.

Putnam, Claire
Political Science | University of Oregon
Research Mentor(s): Emily Simnitt
Co-Presenter(s): Tristan Phillips
(In-Person) Oral Panel–Communication: How and Why

Public Speaking Literacy as a Counterstory

Coauthors: Claire Putnam, Tristian Phillip

When asked about what skills are most important for communication, often reading and writing come to mind. It's not often in our education that we find public speaking to be a skill that is emphasized as important. As a result, people don't often put time and energy into becoming better public speakers and are afraid of it when they are required to give presentations. In this study, we examine how students feel about public speaking. How do students who have received practice or training feel compared to those who don't have that training? The purpose of this study is to see how we can best tailor our public speaking workshops to the students. We want to get an idea of the perception people have of public speaking. More importantly, what qualities do people see as "good public speaking skills" and what does this tell us about public speaking literacy? We hope this data can be used by the university to allocate more resources toward public speaking education.

Queisser, Isabel
Planning, Public Policy and Management | University of Oregon
Research Mentor(s): Nicole Ngo
(In-Person) Oral Panel–Diversity and Analysis

The Efficacy of Diversity Training in Nonprofit Organizations

This study explores the outcomes of Diversity, Equity and Inclusion (DEI) training in nonprofit organizations. This study aims to determine which aspects of diversity training lead to increased

awareness about DEI or tangible improvements, and which factors are more detrimental to the goals of DEI. Open ended interviews were conducted with 18 nonprofits in the Pacific Northwest, where participants were asked about their experiences with DEI trainings and workshops. The data were then coded for the themes addressed above. This research suggests that diversity training can be a successful tool to increase DEI engagement if intentionally designed with longevity and opportunities for dialogue, actionable steps, and organization-specific focus in mind and are facilitated by an expert.

Ralph, Heather
Biology,Psychology | University of Oregon
Research Mentor(s): Andrea Imhof, Phil Fisher
(In-Person) Oral Panel–Connection and Community

Evaluating Responsive Caregiving Behaviors within the FIND Intervention

Interventions that emphasize responsive caregiving can reverse the negative effects of early life stress exposure on development in early childhood. Despite this knowledge, there is a lack of consensus in the field about which behaviors define "responsive caregiving". The Filming Interactions to Nurture Development (FIND) Intervention is a responsive caregiving intervention that guides caregivers towards serve and return interactions that follows the child's lead. Preliminary evidence from pilot trials suggest that the FIND intervention may significantly impact both caregiver and child outcomes, but it is not yet known how FIND changes the way caregivers and children interact. The purpose of this study is to evaluate whether FIND increases the frequency of caregiver "following" behaviors during a dyadic freeplay tasks. Results from a pilot trial using 18 mother-infant dyads (9 FIND families and 9 control families) will be presented, highlighting ways that the FIND intervention changes the nature of dyadic interaction. Implications for analyzing responsive caregiving behaviors, limitations, and next steps for evaluating the FIND intervention will be discussed.

Ramos, Mia
Biochemistry | University of Oregon
Research Mentor(s): Annie Gilbert, Mike Pluth
(In-Person) Poster Presentation

Alkaline phosphatase-activated hydrogen sulfide donors for bone regeneration

Coauthors: Annie Gilbert, Michael Plu

Hydrogen sulfide (H2S) is a small gaseous signaling molecule that can provide a variety of important physiological effects. For example, H2S can promote angiogenesis, osteogenesis, and regulate

inflammation. These regenerative effects of H2S make it an ideal therapeutic candidate for healing bone defects. The challenge with studying therapeutic effects of H2S in bone applications is that the direct delivery of H2S as a gas or inorganic sulfide salt lack spatial and temporal control. To address this challenge, small molecule H2S donors have been developed. Previously, the Pluth lab has developed caged thiocarbamates as a highly tunable class of COS-based H2S donors. Upon activation, caged thiocarbamates undergo a self-immolative cascade in the presence of specific environments or analytes to produce COS, which is rapidly converted to H2S by carbonic anhydrase. This strategy could be useful for localizing H2S delivery in bone healing sites. Alkaline phosphatase (ALP) is an enzyme that is present in large concentrations in bone fractures and could serve as an activator of H2S production from a phosphate protected caged thiocarbamate. Here, we developed an alkaline phosphatase-activated caged thiocarbamate COS/H2S donor to study H2S in bone healing applications. We anticipate the development of these ALP-activated H2S donors will serve as useful tools for investigating therapeutic effects of H2S in bone healing.

Ramos, Tyler
Human Physiology | University of Oregon
Research Mentor(s): Chundi Xu
(In-Person) Oral Panel–Daily Dose of Proteins

A Homeodomain Protein Generates Neuronal Diversity and Connectivity in the Drosophila Lamina

How we perceive and integrate our experiences is the result of an intricate network of diverse neuron types, each with specific connectivity. To generate different neurons, signals in precursors give each neuron its unique neuronal fate. Subsequently, a combination of proteins called homeodomain transcription factors (TFs) grant neurons proper synaptic connectivity. The processes of fate selection and synapse assembly are sequential actions that have been characterized separately but are deeply connected. It is unknown if a common regulator exists between these two developmental steps. Our purpose is to test if a homeodomain TF can function as a regulator of both neuronal fate and synaptic connectivity. To pursue this, we use the lamina neurons (L1-L5) of the fruit fly, Drosophila melanogaster. We show that homeodomain TF Brain-specific homeobox (Bsh) is expressed in lamina precursor cells, which suggests it may play a role in establishing lamina neuron fate. Using cell-specific knockdown and tracing methods, we found removing Bsh generates L1 and L3 neurons at the expense of L5 and L4 neurons, respectively. In L4 neurons, Bsh activates another protein, Apterous (Ap). Knockdown of Bsh and Ap in L4 neurons resulted in the loss of a synapse recognition molecule

and altered synaptic connectivity. We propose that the homeodomain TF Bsh functions as a regulator of both neuronal fate and synaptic connectivity, which may be a conserved developmental mechanism across organisms.

Rehmann, Julia
Family and Human Services,Psychology | University of Oregon
Research Mentor(s): Abbie Sanders, Jean Kjellstrand
(Virtual) Poster Presentation

Gender differences in externalizing and internalizing behaviors for children of incarcerated parents

Children with an incarcerated parent are three to four times as likely to engage in delinquent behavior and two and a half times as likely to have mental health problems when compared to children without an incarcerated parent. As soon as fourth grade, gender differences emerge between externalizing and internalizing symptoms, with girls showing higher rates of internalizing behaviors and boys showing higher rates of externalizing behaviors. Using data drawn from the Linking Interests of Families and Teachers (LIFT) project, the current study examined the impact of gender on the externalizing and internalizing behavior ratings of fifth-grade students with incarcerated parents (n = 67). Results from an independent samples t-test revealed that scores between male and female students did not significantly differ in externalizing or internalizing behavior ratings. Prior literature had established distinct differences in a general population between externalizing and internalizing behaviors based on sex. In contrast, the findings in this study highlight the need for further examination of how behavior is impacted by parental incarceration.

Reis, Sabrina
Mathematics and Computer Science | University of Oregon
Research Mentor(s): Weng-Keen Wong
(In-Person) Oral Panel–Fuel, Fire, Grass and Compost

Burn Notice: Using Changepoint Detection Algorithms to Improve Wildfire Tracking

The ability to detect anomalous data is a critical component of any useful statistical analysis, but the process for identifying anomalies can prove time-consuming and arduous. To address these challenges, researchers often delegate data processing to an algorithm, which analyzes data with more speed, efficiency, and accuracy than manual calculations, enabling earlier detection of anomalies.

The property of early detection is especially critical when monitoring spatio-temporal events such as wildfires. The critical impact of these events necessitate data sources that provide current and complete information. This need is often met by networks of sensors–for instance, air quality sensors–that collect real-time, localized data. When processed with an anomaly detection algorithm, the comprehensive data collected by sensor networks can reveal aberrations indicative of a spatio-temporal event.

To explore how anomaly detection algorithms can facilitate early detection of events of interest using sensor data, we gathered historical data from open-source Purple Air sensors to build case studies of past wildfires. We then applied various types of changepoint detection algorithms to the data in hopes of identifying changes in the distribution of data that indicated a wildfire had broken out. The toolkit of detection methods produced by the project offer a cost-effective and portable way of enhancing our ability to monitor the formation and spread of wildfires.

Resnick, Carmen
Biochemistry | University of Oregon
Research Mentor(s): Calin Plesa
(In-Person) Poster Presentation

Mapping Sequence-Function Landscapes in the Dihydrofolate Reductase Family

Coauthors: Calin Plesa, Samuel Hint

Dihydrofolate reductase (DHFR) is an essential enzyme in the folic acid synthesis pathway and has been the subject of intense study in the past few decades. Despite the wide diversity of homologs, research attention has primarily focused on particular DHFR proteins and as their mutants. In this study we explore DHFR expression through a knockout E. coli strain ER2566 ΔfolAΔthyA. We focus on the ability of DHFR to both rescue metabolic function and tolerate treatment against the antibiotic trimethoprim, which will allow us to understand how antibiotic resistance emerges given many evolutionarily divergent starting points. Changes in the mutational landscape of DHFR allows for varying survival rates in the presence of antibiotic inhibitors. We conduct a broad mutational scan using a library of 5,000 DHFR homologs synthesized using DropSynth gene synthesis. Variant fitness is determined in a multiplex survival assay in the knockout strain which allows supplementation-dependent conditional selection.

We aim to collect quantitative fitness data on which mutations impact DHFR activity, both in the presence and absence of inhibitors, to elucidate sequence-function relationships and understand how the fitness landscapes vary as a function of the evolutionary distance between homologs. This

data can be applied towards the development of narrow-spectrum and targeted antibiotics and mitigation of resistance through understanding the pathways from which antibiotic resistance arises.

Rezner, Sage
Psychology | University of Oregon
Research Mentor(s): Sara Weston
(In-Person) Poster Presentation

The Effect of College Attendance on Personality Development Trajectories

Personality traits develop throughout adolescence into emerging adulthood; however, it is unclear how college attendance affects the trajectory of development. Participants from the NLSY79 Child and Young Adult cohort provided personality data every two years from 2008 to 2016. The participants are the biological children of the mothers from the NLSY79 cohort, we used the personality data they provided when they were between the ages of fourteen and twenty-five. For each of the Big Five personality traits, we modeled development with both linear and quadratic growth models. College significantly predicted the development of Agreeableness, Neuroticism, and Openness. These findings suggest college attendance influences personality development.

Ricci, Giovanni
Psychology | University of Oregon
Research Mentor(s): Jennifer Ablow
(In-Person) Poster Presentation

Oxytocin: A Pathway for the Intergenerational Impacts of Early Trauma

Coauthors: Jennifer Ablow

Oxytocin (OT) is a peptide hormone and neuropeptide that is produced by the hypothalamus and released by the pituitary gland. Research has shown OT is involved in regulating social behaviors such as pair bonding as well as facilitating maternal-child attachment. Research has also shown early childhood trauma may impair OT production later in life through negative feedback mechanisms. However, the relationship between OT and trauma has rarely been examined using both the Adverse Childhood Experiences (ACE) questionnaire and salivary OT measures. The aim of this study is to explore the association between salivary OT, ACE scores, and maternal-child bonding and attachment using a novel salivary OT measure. We hope to solidify previous findings and argue OT acts as an important factor in the transmission of intergenerational trauma. The study will include a sample of

new mothers of infants who participated in a prenatal study. Maternal salivary OT and the MPAS and PBQ questionnaires will be collected at the outset of a postnatal visit, and ACE scores were collected as part of the prenatal study. Based on preliminary results, we expect maternal baseline OT will be positively associated with healthy maternal-child bonding and attachment, and negatively associated with ACE scores. Should results be as expected, implications for understanding the role early adversity plays in reduced OT production as a potential pathway for the intergenerational impacts of trauma are discussed.

Ritchie, Morning Glory
Art History | University of Oregon
Research Mentor(s): Maile Hutterer
(In-Person) Oral Panel–Herstory Rediscovered, Poster Presentation

Hidden and Unremembered: The Misattributions of Clara Peeters and Judith Leyster

Clara Peeters and Judith Leyster were still-life painters prominent during the 17th-century. These still-life genre paintings were of a popular Dutch style which included painting of the interior domestic household and food items. During this era, women faced extreme challenges to receive an art education and to enter the market. Often, these women would have to have a male family member, such as husband or father, be the one to give the art education. These artists have all had a lack of recognition in art historical scholarship, with several of their works misattributed to other male artists of their time. Several 17th-century works created by women were often misattributed to men. Works by female painters were also attributed to their husbands or fathers, as was the case for several works by Judith Leyster who was unknown for almost three centuries. Many still-life works from this period also lack clarity and evidence for attribution leaving many works without name. Several women artists were extremely prominent and successful with their still-life compositions during the 17th-century. Therefore, it is time to start the search for women painters in order to better understand Early Modern culture and the impact of women in the arts. When not much is known about the life of a female artist due to restraints of the women's role in the domestic household during the 17th-century, their legacy, reputation and contributions to the art world and history eventually fade away.

Rivas, Mia
Human Physiology | University of Oregon
Research Mentor(s): Chantelle Russell
Co-Presenter(s): Ana Gastelu`, Claire Daley, Yesenia Vargas
(Virtual) Oral Panel–Strive to Thrive ARC

Outdoor Inclusion for Hispanic Women

Outdoor recreation is an important part of our community at UO because of the many benefits, such as better mental/physical health, increased academic success, and social connections. However, while there have been attempts to attract minority groups, such as Hispanic women to outdoor recreation activities at the university, there is still a big disparity in participation. We hypothesize that with more inclusive promotion strategies within outdoor-oriented programs on campus and increasing Hispanic representation in leadership positions, people who identify as a part of this community will be more inclined to participate. Our research study explores factors contributing to the inclination to participate in outdoor activities, awareness of university outdoor events, and the interpersonal barriers that influence participation. We used data from interviews with UO outdoor recreation professionals and information from the Redefining Outdoorsy Summit. We looked at statistical and demographic data of Outdoor Program participation records provided by the Department of Assessment and Research. Lastly, we researched how other universities promote diversity in their Outdoor Recreational activities. We found factors that influence Hispanic women's participation in outdoor events are: lack of inclusion and awareness in the promotion of these events, history of childhood participation in outdoor adventures, and negative perspectives related to involvement in outdoor activities.

Roberts, Lucy
Spatial Data Science and Technology | University of Oregon
Research Mentor(s): Joanna Merson, Alethea Steingisser
Co-Presenter(s): Abby Whelan, Peyton Carl
(Virtual) Data Stories–The Languages of Data

Comparing and Contrasting Workflows and Data Management for Web-based vs Analog Cartography

Cartography is a field that allows geographers to visualize information that has a geospatial component, also known as spatial data. Programs like Mapbox and Carto are newer methods of cartography that utilize web design for map creation. In comparison, print mapping workflows use

programs like ArcGIS, ArcMap, and Adobe Illustrator. These programs each have different assets that can be used to produce print-based products. Together, both web mapping and analog mapping have benefits and drawbacks which impact the design decisions a cartographer must make on topics ranging from user accessibility to different map projections. We will analyze these choices through the examination of student research at the Infographics Lab in partnership with Network Startup Research Center. The NSRC is known for their work to "develop national and regional Internet infrastructure for collaborative research, education, and international partnerships". The geographic nature of the NSRC's work facilitates their partnership with the IGL, through which the IGL has produced a wide variety of cartographic products. Analyzing these design choices provides a diverse portfolio for examining cartographic design choices. Understanding the best practices for web and print-based cartography can operate as a proxy to facilitate better scientific communication.

Robinson, Jackson
Physics | University of Oregon
Research Mentor(s): Scott Fisher
Co-Presenter(s): Nico Tuton-Filson
(In-Person) Poster Presentation

Installation and Preliminary Use of Lunt Solar Telescope at Pine Mountain Observatory

Pine Mountain Observatory (PMO) has been operated by the University of Oregon for many years, recently expanding with new fields of observation, such as solar observation. Through our partnership with the Allan Price Science Commons & Research Library, our lab acquired a solar telescope in early 2021. This is the first solar telescope to be installed at the observatory, and therefore our lab team is learning how to best utilize this new equipment. Our end goal is to capture live images of solar activity and share them online in real-time. Through independent research and preliminary data collection, we have worked towards finding the optimal procedure for capturing and processing images. By the end of the summer 2022 we will be finalizing the installation and automation of the telescope and its image processing system. This work is vital to the University because it will create new research opportunities for future undergraduate students and provide an online resource to be used in classrooms at UO and beyond.

Roefaro, Riley
Environmental Studies | University of Oregon
Research Mentor(s): Meredith Jacobson, Katie Lynch
Co-Presenter(s): Emily O'Brien, Armon Ashoubi, Kaylie Smith
(In-Person) Oral Panel–Covering Covid

Environmental Leadership Program: Restoring Connections

The COVID-19 lockdown has caused children to look at their iPads instead of their local environment, creating gaps in their outdoor education. Through a combination of field trips and in-class lessons, our leadership team brought environmental education to over 200 elementary students in Eugene. Our lessons worked to dismantle barriers that prevented students from fostering stewardship and discovering the magic of nature. Field trips included games that introduced students to focal species and animal senses. Students were also given individual journaling time, which connected person to place and encouraged deep reflection on the surrounding environment. Our desire to create awareness and knowledge of the environment and its associated problems has been met. The outcomes of our lessons show that students built a relationship with the outdoors and established a sense of care toward nature. Students showed empathy for wildlife by constructing fairy houses and removing invasive species from the area. We also saw students identify motivating species and distinguish between various habitats within an ecosystem. Throughout lessons this term, we made a difference in our community while strengthening our own environmental education skills. In this technological era, it is important for youth to have access to the outdoors so that care and concern for the world can be established. With this, there is hope the advocation of nature will increase and create positive environmental action.

Romack, Sarah
Psychology | University of Oregon
Research Mentor(s): Elizabeth Skowron
(In-Person) Poster Presentation

Investigation of Individual Characteristics that Influence Parent Emotion Regulation in PCIT

Child maltreatment is a substantial public health issue that creates emotional and psychological impacts on victims and is related to emotion regulation deficits in caregivers. Although Parent-Child Interaction Therapy (PCIT) is effective at reducing child-maltreating behavior and improving positive parenting strategies, little research has been conducted on how it strengthens parents' emotion

regulation skills in the process. To address this, the current study utilized a behavioral measure of parent emotion regulation (the Emotional Go/No-Go task) to identify subgroups of 88 child welfare-involved parents receiving PCIT whose emotion regulation skills changed the most across treatment. An exploratory analysis was then conducted to identify pre-treatment predictors of change in parent emotion regulation scores. Measures of parent stress, readiness for change, mental health (specifically depression and anxiety measures), and child behavioral scores were measured. Parent mental health and readiness for change were found to significantly predict high levels of change in parents' emotion regulation skills. Analyzing the factors that differentiate at-risk parents' response to PCIT treatment, particularly in terms of their emotion regulation skills, is vital in the current efforts to provide effective interventions and better understand how to match individual parents to effective treatments that will hinder child maltreatment.

Rosenthal, Walker
Human Physiology | University of Oregon
Research Mentor(s): Keat Ghee Ong, Salil Karipott
Co-Presenter(s): Noah Greenblatt
(In-Person) Oral Panel–Stimuli and Response

Femoral Fracture Fixation Device to Wirelessly Monitor Real Time, in Vivo Strain

Strain, a primary measure of the dynamic mechanical environment, is important with regard to patient aimed orthopedic treatment especially in minimizing complications that arise after certain bone fracture injuries. Currently, methods aimed at assessing the mechanical environment include external stimulating devices that fail to measure strain during normal gait patterns, and estimated parameters computed from different computational models which lack real-time data. With these limitations in determining real time load condition in bone fracture healing, we aimed to fabricate a bone fixation device that provided adequate mechanical stability to a healing bone fracture and measured strain present on the device in a rodent femur. This device transmits measurements wirelessly to a nearby computer for quantification of strain. Our results showed the ability to successfully measure local axial strain during functional loading on a rodent with a femur fracture. This device facilitates the study of mechanical strain and its role in bone healing in preclinical rodent fracture models. Most importantly, this device allows for future rehabilitation protocols that are evidenced-based and patient specific.

Rosenthal, Walker
Human Physiology | University of Oregon
Research Mentor(s): Kylie Nash
Co-Presenter(s): Alyssa Vongphachanh
(In-Person) Poster Presentation

Utilizing real time strain to modulate patient-specific rehabilitation optimizing bone recovery

Severe bone injuries often result in high complication rates and poor functional recovery. Mechanical loading through rehabilitation is a longstanding treatment for these injuries, but current practices are still challenged with variable healing, limiting this promising therapeutic [1,2]. Recent advancements in implantable strain sensors may promote better understanding of how rehabilitation induced loads contribute to healing outcomes [1]. Our lab uses this idea in a rat femoral segmental model stabilized with an internal fixation plate embedded with an implantable strain sensor to analyze the mechanical environment throughout healing for different loading conditions. Past work has found that load-sharing (compliant) fixation devices exhibited improved healing outcomes when compared to load-shielding (non-compliant) fixation plates [3]. We investigated the effects of rehabilitation on bone volume by using a wireless compliant fixation device capable of acquiring real-time micro-strain measurements on a segmental defect in the femur. We found that bone union occurred in 3/3 rehabilitated rats and only 2/4 in non-rehabilitated, sedentary counterparts. Rehabilitated rats experienced a higher mean strain amplitude and their bones bridged earlier than their sedentary counterparts. Our findings suggest a relationship between strain and bone healing outcomes. We hope to further explore the effects of rehabilitation intensity on local defect strain and thus bone healing outcomes.

Saing, Audrey
Product Design | University of Oregon
Research Mentor(s): Dare Baldwin, Jeffrey Measelle
Co-Presenter(s): Sera Lew
(In-Person) Poster Presentation

Possible Benefits of Maternal Thiamine Supplementation for Mother-Infant Joint Attention in Cambodia

Coauthors: Dare Baldwin

Thiamine deficiency is a common micronutrient deficiency in Southeast Asia, including Cambodia (Measelle, et al., 2020). Severe thiamine deficiency contributes to infant mortality, while subclinical

levels undercut infants' neurocognitive development (Fattal-Valevski, et al. 2009). This study focuses on the possible implications of mother-infant thiamine status for neurocognitive development in terms of joint attention interactions where caregivers and babies simultaneously engage with the same object. This study is part of a larger randomized controlled trial in rural Cambodia investigating how low-dose thiamine supplementation of breastfeeding mothers might benefit infants' cognitive development. Cambodian mothers (N=335) were randomly assigned to receive daily supplements of either 0mg, 1.2mg, 2.4mg, or 10mg of thiamine hydrochloride from 2 to 24 weeks postnatal. We hypothesized that mothers and infants who received thiamine would display longer joint attention interactions than those in the control group. Preliminary findings from 70 mother-infant dyads (control: 18; supplementation: 52) provided possible confirmation of these predictions; joint attention interactions were marginally longer for dyads who received supplemental thiamine than those who did not, $F(1, 68) = 3.69$, $p = .059$. If these findings are reflected in the full sample, they would indicate that thiamine facilitates infants' joint attention interactions, a key catalyst for neurocognitive development.

Sanchez, Ruben
Biochemistry, Biology | University of Oregon
Research Mentor(s): Marina Guenza
(In-Person) Poster Presentation

Coursed-Grained Approach for the Protein Dynamics of the SARS-CoV-2 Spike Protein Variants

Severe acute respiratory syndrome coronavirus 2 (SARS-Cov-2) utilizes a spike protein to recognize the receptor protein Angiotensin-converting enzyme 2 (ACE2) of human cells to initiate COVID-19. It is known that the spike protein adopts an active (open) conformation from an inactive (closed) conformation to initiate its infectious cycle. But it is unknown whether the different variants have mutations that affect the protein dynamics of the spike protein.

It was hypothesized that the amino acid mutations of more transmissible variants will have increased protein dynamics leading to a dramatized Monod-Wyman-Changeux model. Identifying and targeting these dynamics may lead to the development of pharmaceuticals that may inhibit the infectivity of the SARS-CoV-2 virus. Therefore, two variants of the spike protein were analyzed using molecular dynamic simulations and the Langevin Equation for Protein Dynamics (LE4PD) to quantitively analyze residue fluctuation within their respective spike proteins. LE4PD quantified the protein dynamics and demonstrated that the more infectious variants have higher fluctuations in their protein dynamics.

Sanchez-Pajuelo, Kai Angel Augusto
Economics | University of the Basque Country (UPV/EHU)
Research Mentor(s): Iker Saitua
(Virtual) Oral Panel–Read, Speak, and Act

Economic and Political Aspects of Peruvian Immigration in the US during the Late 20th Century

"Not in Luxury, But to Get Along:" Economic and Political Aspects of Peruvian Immigration in the United States during the Late Twentieth Century"

The present paper studies Peruvian immigration to the United States during the late twentieth century. More specifically, it analyzes emigration from Peru caused by the sociopolitical and economic instability of the 1980s. In the 1970s and 1980s, the Peruvian economy went through a series of deep and prolonged economic crises that affected the country's economic growth. The great depression of the Peruvian economy was mainly due to the negative effects of external shocks, political instability, limited national entrepreneurial capacity, and the lack of capacity to develop new export economic activities. Such depression pushed many Peruvians to emigrate to the United States to make a new start. Motivations of those immigrants were not limited to economic needs, but were framed in a wider context of lack of prospects in Peru. This wave of immigration into the United States was characterized by professional, qualified and semiqualified immigrants, remarkably working either in the service or clerical sectors. Educated people and skilled workers migrated from Peru to the United States during this period rather than unskilled labor force from rural areas. Furthermore, this immigration wave was characterized by family reunification and an occasional wave of refugees.

Sanchez-Reddick, Carmen
Marine Biology | University of Oregon
Research Mentor(s): Craig Young, Caitlin Plowman
(Virtual) Poster Presentation

Differences in the Morphology and Reproduction of Boltenia villosa Across a Latitudinal Gradient

While the larval and early juvenile stages of Boltenia villosa are well documented in the literature, little is known about the adults. Early documentation of B. villosa describes a relationship between the body size and the stalk length as individuals with smaller bodies tend to have longer stalks and individuals with larger bodies tend to possess very short stalks. Anecdotal evidence suggests that larger individuals with short stalks make up the populations found in Washington, while Oregon

populations consist of smaller individuals with longer stalks. The present study aimed to develop a qualitative understanding of the changes across the latitudinal gradient of Boltenia villosa. This was achieved by using a combination of morphometrics to determine any significant differences between different populations and histology to compare reproductive output. Preliminary results suggest a significant morphological difference between the two populations in body proportions and spine character despite their genetic similarities. Our understanding of the reproductive differences are continuing to be developed. These results indicate the possible existence of a subspecies of Boltenia villosa due to the distinct populations, but more research into each morphotype's range is needed. This research also provides a broader understanding of how different marine environments can curate specific characteristics to appear in their inhabitants' populations.

Sanders, Ciera
Psychology | University of Oregon
Research Mentor(s): Sihong Liu
(Virtual) Oral Panel–Health and Social Science, Poster Presentation

The Relationship Among Parental Stress, Child Well-Being, and Routines During the COVID-19 Pandemic

Coauthors: Sihong Liu

Children are the beacons that will carry their knowledge, ideas, and voices into the future. It is crucial we ensure children are given ample opportunity to develop into healthy adults. Parental stress can negatively impact child well-being. Could the impacts be mitigated by consistent use of family routines? Using data from the RAPID-EC national survey that began in April 2020 and is still ongoing, I compared pre-pandemic ratings of parental stress and child well-being to assessment levels during the pandemic. Then, I examined how parental stress influences child well-being. I completed my analysis by examining the impact family routine has on parental stress and child well-being. I found that parental stress has significantly increased during the COVID-19 pandemic, and child well-being was significantly and negatively impacted during the pandemic. Parental stress levels prior to the pandemic were significantly linked to increased levels of behavioral problems from pre-pandemic to during the pandemic. Further analysis determined family routines were not protecting children from the negative impacts of parental stress; however, family routines were significantly associated with lower levels of behavioral problems. Although family routines were not indicated as a source of protection from parental stress, managing family routines, and other tools for stress reduction could promote optimal developmental outcomes among young children during the COVID-19 pandemic.

Sardar, Christian
Business Administration | University of Oregon
Research Mentor(s): Corbett Upton
(In-Person) Oral Panel–The More You Know (in depth looks and prevention)

Sportswashing: The Expensive Image Laundering Conspiracy Sullying Sport and Foreign Relations

Sportswashing refers to a sovereign entity such as a nation buying a sports team in another country and using it to improve their image. In my research paper I posit that sportswashing, specifically that done by the countries of the Persian Gulf, is not only damaging from a foreign policy perspective but also from a sporting perspective. Most of the teams being bought as soccer teams from Western European nations and their governments seem ambivalent towards the situation. By looking at the exact level of investment by countries such as Qatar, Saudi Arabia, and the UAE I found a whole lot of money being poured into teams which yielded little to no money for the nations that bought them. It also took next to no research in order to discover the vast number of heinous human rights violations being committed in these wealthy countries, yet they are able through sportswashing to redirect public opinion off of themselves. Simultaneously, their name remains untouched or in many cases elevated. Manchester City is right now one of the best soccer teams ever seen and its name is nearly synonymous with the emirate of Abu Dhabi. Similarly the upcoming World Cup is taking place in Qatar in stadiums mostly built by migrant workers living in conditions akin to slavery. This issue is immensely pressing for our current sporting climate and world as this topic really speaks to how nations are trying to spread their soft power across the globe. This research assesses the damage done so far.

Schenk, Karl
Computer and Information Science | University of Oregon
Research Mentor(s): Chantelle Russell
Co-Presenter(s): Jackson Hullinger, Olivia Gurley
(Virtual) Oral Panel–Strive to Thrive ARC

Personal training and its Effects on University of Oregon Students

This paper analyzes how personal trainers affect and influence the wellness of college students at University of Oregon. If students work with personal trainers then their overall wellness will improve because working with a personal trainer offers a more structured workout plan for people who are inexperienced or uncomfortable at the gym, less risk of injury, and guidance on proper nutrition. To

prove this, we read through multiple scientific research papers and spoke to various personal trainers and students about how personal training has benefitted them. Our primary results showed that among the people we interviewed, the overwhelming majority of participants showed improvements in their overall wellness. However, these results were based on prior experience in the gym and their individual relationship with their trainer. The implications of these results can help direct more students who are not comfortable with the gym and/or whose physical and mental health is not well to the Rec Center. Additional possible outcomes of this could be a raised GPA among students at UO, better physical and mental health of students, and just an overall better campus. Overall physical and mental wellness are important aspects of well that UO is trying to help students with, and directing students to meet with a personal trainer would be the most beneficial way to improve

Scherer, Emily
Biology | University of Oregon
Research Mentor(s): Hilary Rose Dawson, Lucas Silva
(In-Person) Poster Presentation

Measuring soil respiration in response to enhanced silicate weathering and mycorrhizal associations

Coauthors: Hilary Rose Dawson, Emily Huckste, Lucas Silva

Enhanced silicate weathering (ESW) is emerging as a top contender to reduce atmospheric carbon and mitigate climate change by accelerating soil C sequestration. However, little is known about ESW's potential for success on global and regional scales. Applying basalt dust to soil can draw down atmospheric C, boost nutrient availability for crops, and counter soil acidification, yet it may also heighten microbial activity and release soil C via respiration. Arbuscular mycorrhizae (AM), ectomycorrhizae (EcM), and plant community composition can also alter weathering rates. Our research tests soil respiration rates in the presence of basalt dust and mycorrhizal associations in local Willamette Valley soils. We hypothesize that respiration will increase due to the fertilizing effects of basalt but that a faster pace of weathering will result in a net C sink. We predict that respiration and sequestration will be greatest in the presence of EcM fungi. To test this theory, we potted four tree species, each known to form an AM or EcM relationship, in soil mixed with none, low or high concentrations of basalt dust. We measured baseline soil pH, initial C stocks, and nutrients. Currently, we are measuring respiration using a soil CO2 flux chamber. As the project advances, we will measure changes to these variables, plant biomass, and inorganic C stocks. This study will contribute to the literature regarding the potential of ESW to offset anthropogenic C emissions.

Schering, Maisey
Biochemistry, Biology | University of Oregon
Research Mentor(s): Katie Fisher, Daniel Grimes
(In-Person) Poster Presentation

An investigation of novel left-right patterning genes in zebrafish

Coauthors: Katie Fisher, Daniel Grim

Breaking of left-right (L-R) symmetry is a fundamental part of animal development. To facilitate this, cell to cell communication via extracellular fluid flow plays a critical role. Failure of this communication results in developmental diseases such as congenital heart disease and abnormal L-R positioning of the organs, termed heterotaxia. Understanding the mechanisms by which fluid flow signals control asymmetry is essential for understanding how to treat these diseases. In embryonic development of zebrafish, the model organism of this project, asymmetric flow in Kupffer's vesicle (KV) breaks L-R symmetry. The flow signal results in asymmetric repression of an mRNA, dand5, triggering asymmetrical development of the emerging organs. How cells sense and transduce fluid flow, leading to dand5 repression, is not understood.

My mentor in the Grimes lab, Katie Fisher, performed a literature review that resulted in 90 novel candidate genes which might regulate L-R asymmetry. These genes are all expressed at the right time and place during development to control fluid flow signaling. We are using a CRISPR/Cas9 screen to identify which of these genes are essential for L-R patterning. Several genes of interest have been identified and homozygous lines with these mutations are currently being generated. I will describe our ongoing screening efforts and early results. By completion of this project, we will know how these novel genes act to ultimately control organ asymmetry.

Schmitt, Jadon
Economics,Mathematics | University of Oregon
Research Mentor(s): Jon Davis
(In-Person) Poster Presentation

CAHOOT's effect on police response times and arrest rates

Schmitt, Kyla
Economics, Environmental Studies | University of Oregon
Research Mentor(s): Alexis Barton, Reyn Yoshioka
(In-Person) Poster Presentation

Signal Crayfish Behavior, Health, & Habitat in the Tryon Creek Watershed

In Portland, Oregon, signal crayfish (Pacifastacus leniusculus) earn the title of "keystone species" by consuming otherwise-inaccessible detritus, which can then be passed up the food chain to various other species, and carving up riverbeds, an act which greatly influences aquatic habitat quality. This study questioned whether habitat factors impact signal crayfish health and behavior in the Tryon Creek Watershed. Overall, crayfish were disproportionately likely to be observed in locations with high human impact levels; silt/sand or boulder and cobble substrates; culverts, runs, and pools; and water 10-39 cm deep. Juvenile crayfish were disproportionately likely to be observed in locations with low human impact levels, silt/sand or cobble and gravel substrates, and water 0-19 cm deep. Unhealthy crayfish–specimens that were deceased, immobile, struggling, or consisted of severed appendages–were disproportionately likely to be observed in locations with culverts or riffles and water 0-19 cm deep. The study found no evidence for an established population of invasive crayfish in Tryon Creek, although further monitoring (particularly in the Tryon Cove area) is necessary to confirm this finding. The study's analysis also suggested that human-caused ecosystem disruptions can seriously decrease the health and wellness of signal crayfish populations if not managed mindfully and holistically, pointing to a need for better waterway designs that benefit fish and crustaceans alike.

Scott, Ethan
Psychology | University of Oregon
Research Mentor(s): Dare Baldwin
Co-Presenter(s): Ava Archer
(Virtual) Oral Panel–Health and Social Science

ChangeDwell: The Interaction Between Change Blindness and Dwell Time Paradigms

People witnessing identical streams of information can experience that information very differently. This phenomenon was strikingly documented in a famous psychological experiment: one group of research participants watching a video of a crowded area failed to notice a man in a gorilla suit meander across the room, although another group described the man in the gorilla suit as the most salient aspect of the video. How do we account for such diversity in experience? My research

investigates this general question via a new technique: the dwell-time paradigm, in which viewers advance at their own pace through slideshows depicting dynamic events while the time they spend looking (dwelling) at each image is measured. As dwell time is an emerging technique within the field of attentional work, there are many new insights that can be gained from collecting data in this manner. We hypothesize that patterns of dwelling across time will clarify which aspects of events viewers are prioritizing in their processing, and thus we will be able to predict–well in advance–who will subsequently report salient features of interest (such as a man in a gorilla suit). If this is confirmed, these findings will hold considerable real-world significance. Specifically, it will be possible to utilize dwell-time patterns across a range of situations where monitoring the focus and adequacy of people's attention is crucial.

Shand, Sequoia
Environmental Studies | University of Oregon
Research Mentor(s): Lynch, Russel
Co-Presenter(s): Jenna Burns, Abby Andrews, Lucy Trapp
(In-Person) Oral Panel–Learning from the Environment

Environmental Leadership Program- Aves Compartidas 2022

Coauthors: Lucy Trapp, Abby Andrews, Leticia Irving, Jenna Burns, Sequoia Shand

Eugene, Oregon and Guanajuato, Mexico have more things in common than you might think, including 25 shared migratory birds that we introduced to students during our time at El Camino del Rio/River Road Dual Immersion Elementary. In light of the COVID-19 pandemic, outdoor education has become evermore important. As participants in the Environmental Leadership Program, we strive to rekindle youth's bond with nature that was neglected during the pandemic. This year, the Aves Compartidas Program taught elementary students about migratory birds through an environmental education lens, and fostered students' connection to their environment and to Guanajuato, Mexico. Our pedagogical approach focuses on the importance of connecting students with the local environment through the use of auditory, visual, and artistic group learning. Within six weeks, our team taught 42 classes, educating 128 students on migratory birds and related environmental issues, focusing on creating safe migration conditions. We incorporated the observation of World Migratory Bird Day, and highlighted this year's theme, "dim the lights for birds at night," in reference to the effect of light pollution on bird flight patterns. The materials created from the program include lesson plans, a project management plan, and an informational website. This will allow continued collaboration between Oregon and Mexico, to nurture the next generation of environmental stewards.

Shin, Eun-Jai
Art History | University of Oregon
Research Mentor(s): Akiko Walley
(Virtual) Oral Panel–Read, Speak and Act

Emasculation of the Other: Meiji Ukiyo-e War Prints and Japanese Identity

The Meiji Restoration of 1868 was one of the most monumental moments of East Asian history, featuring Japan's rise as an imperial power. Rigorous nationalistic development helped it achieve its first victory in the First Sino-Japanese War (1894-1895). However, these feats were not without insecurities, and Japan as the new 'Empire of Asia' necessitated validation of its reformed identity and influence. Ukiyo-e, woodblock printing from the Edo Period, was revitalized during this time and served as a new form of reportage, providing a popularly consumable and replicable source of current events. Furthermore, its realist agenda- assured credibility- enabled it to become an ideal platform for propaganda. This presentation will focus on marginalization- specifically the emasculation- of subaltern others during the First Sino-Japanese War- and how its compositional, figural and symbolic depiction of China and Korea assisted in the Japanese assertion of superiority and dominance.

Shuaib, Maryam
Human Physiology | University of Oregon
Research Mentor(s): Mike McGeehan, Keat Ghee Ong
(In-Person) Oral Panel–Stimuli and Response, Poster Presentation

Optical Based Sensing of Shear Strain using Reflective Color Patterns

Coauthors: Mike Mcgeehan, Mike Ha, Salil Karipott, Keat Ong

There is an increasing need to measure shear force in biomedical applications. Many shear force sensors exist, but are often impractical as they can be bulky, require large amounts of power, and are sensitive to electromagnetic interference. The goal of this project is to apply new optoelectronic sensing principles to measure shear strain. Optoelectronic sensors have various advantages including a smaller design that is able to measure multi-axial shear strain. This particular sensor functions through optical coupling of an LED that emits red, green, and blue (RGB) light, which is then reflected off of an adjacent surface displaying a color pattern consisting of randomized color pixels (Figure 1A). Shearing between these surfaces is measured using a photodiode, which senses changes in the RGB light intensities due to the shifts in the color pattern's position. The purpose of this study was to compare the efficacy of various color patterns and classification algorithms to determine multi-axial shear strain. The optimal sensor configuration was found to be Pattern 3 (Figure 1B) with

a Weighted K-Nearest-Neighbor algorithm with an accuracy of 98%, and a misclassification cost of 0.07 millimeters. The accuracy and robustness of the sensor-derived measurements, along with the practical and scalable design, support the use of this sensor in a multitude of biomedical applications.

Shuler, Sophia
Geography, Spatial Data Science and Technology | University of Oregon
Research Mentor(s): Lucas Silva
(In-Person) Poster Presentation

Refining cloud exclusion methods in tropical montane forest change detection with Landsat timeseries

Satellite based remote sensing is one of the most accessible methods for implementing large-scale terrestrial change detection. However, cloud cover contamination of images is a frequent barrier to the use of change detection algorithms, particularly in places where cloud cover is frequent, such as in tropical mountains. In this project, I offer a method for cloud detection that can improve the quality of satellite image time series in tropical regions. Using both a cloud mask and a cloud index, I detected clouds in a set of Landsat-5 TM and Landsat-7 ETM+ time series from a tropical montane forest in Oaxaca, Mexico to a higher degree of accuracy than would be achieved by using the cloud mask alone. This method was used in sequence with the Breaks For Additive Season and Trend (BFAST) method in order to detect forest disturbances. After using a cloud index threshold of 2.8, the percentage of clouds detected increased from 91.8% to 94.4%. Additionally, this method yielded a 161% increase in the number of forest disturbances detected by BFAST. These results are applicable to change detection projects in regions with frequent cloud cover, where accuracy is limited by the climate conditions.

Simmons, Pippa
Sociology | University of Oregon
Research Mentor(s): Judith Raiskin
Co-Presenter(s): Elle Hopkins
(In-Person) Poster Presentation

The Individual: On Lesbian Lands

Coauthors: Payton Jefferis

The creation of the lesbian homeland called the OWL farm, or Open Women's Land, happened during the second wave of feminism, a movement which lasted from the early 1960s to the late 1980s. This

paper will examine why women, specifically lesbian separatists, chose to create a sanctuary for women that was completely separate from patriarchal influences, how they governed their lands, and why women wanted to visit the lands. This will be done by analyzing primary sources such as journals written by residents on the farm, newsletters published at the farm and other miscellaneous resources from the SO CLAP archival collection. This is an effort to understand why the popularity of lesbians lands peaked over two decades (1975-1995) and has decreased over time and why the views of lesbian separatism don't fit with the modern views of feminism.

Smith, Kaylie
Environmental Studies | University of Oregon
Research Mentor(s): Meredith Jacobson, Katie Lynch
Co-Presenter(s): Riley Roefaro, Emily O'Brien, Armon Ashoubi
(In-Person) Oral Panel–Covering Covid

Environmental Leadership Program: Restoring Connections

Coauthors: Michelle McKee, Maya Gurewit, Hadlie Cyrus, Lucy Partridge, Anne McElyea

The COVID-19 lockdown has caused children to look at their iPads instead of their local environment, creating gaps in their outdoor education. Through a combination of field trips and in-class lessons, our leadership team brought environmental education to over 200 elementary students in Eugene. Our lessons worked to dismantle barriers that prevented students from fostering stewardship and discovering the magic of nature. Field trips included games that introduced students to focal species and animal senses. Students were also given individual journaling time, which connected person to place and encouraged deep reflection on the surrounding environment. Our desire to create awareness and knowledge of the environment and its associated problems has been met. The outcomes of our lessons show that students built a relationship with the outdoors and established a sense of care toward nature. Students showed empathy for wildlife by constructing fairy houses and removing invasive species from the area. We also saw students identify motivating species and distinguish between various habitats within an ecosystem. Throughout lessons this term, we made a difference in our community while strengthening our own environmental education skills. In this technological era, it is important for youth to have access to the outdoors so that care and concern for the world can be established. With this, there is hope the advocation of nature will increase and create positive environmental action.

Smith, Madeleine
Neuroscience, Psychology, and Educational Foundations | University of Oregon
Research Mentor(s): Jenefer Husman, Sara Hodges
(In-Person) Poster Presentation

The Relationship Between Students' Approach to Learning and Future Thinking in a Science Class

Supporting student motivation in post-secondary introductory science courses is an important step in increasing student retention in STEM fields. Prior research has focused on a variable-centered approach to students' motivation to learn, but a person-centered approach to looking at the relationship between self-regulated learning and motivation variables is necessary. Additionally, research suggests that students' future goals and their perception of the future influences their performance in school. This study aimed to identify the relationship between future thinking and motivational and self-regulated learning profiles. 385 participants were recruited from an introductory science course at a large Northwest university and completed an online self-report survey on their motivation, goal orientation, self-regulation, knowledge building strategies, and future thinking. K-means cluster analysis indicated that there are three motivational and self-regulated learning profiles. A multinomial logistic regression was conducted and showed that students' actions towards their future goals are a stronger predictor of their profile adoption than the clarity of their future goals. Understanding the relationship between students' future thinking and their adoption of learning profiles can help post-secondary science instructors alter course structure to support student motivation and self-regulated learning.

Sowles, Alanna
Neuroscience | University of Oregon
Research Mentor(s): Kristen Lee, Chris Doe
(In-Person) Poster Presentation

Utilizing Drosophila to investigate novel regulatory pathways for the Hox gene Sex Combs Reduced

Across species, Hox genes are necessary for an organism's anatomical development, including the nervous system. Interestingly, these proteins continue functioning within neurons of mature organisms. This research seeks to determine the functional purpose of Hox genes post-development, as these mechanisms could provide novel etiological insight into neurodevelopmental disorders. Drosophila melanogaster is an effective tool for this investigation because fly neurons are similar

to mammals, and gene expression of individual neurons is easily manipulated. Within this model, I will utilize the well-characterized Pair1 pre-motor neuron, which expresses the Hox gene Sex combs reduced (Scr). I hypothesize that Scr is functioning in a conserved molecular pathway to preserve the morphology and function of Pair1 neurons. Past research provides intuitive candidates for exploring these mechanisms, like Pair1 proteins Hb and Bcd. RNAi-facilitated knockdown had no significant impact on Scr expression, prompting exploration of alternative genes. Using published resources, several genes with expression patterns similar to Scr were selected and visualized with GFP-tagged proteins. Colocalization of these genes with Scr was assessed via immunohistochemistry, revealing 8 promising candidates for further analysis. Scr expression will be measured after knockdown experiments are repeated for each gene. The results will hopefully illuminate novel regulatory pathways of Scr beyond development.

Speed, Haley
Biology | University of Oregon
Research Mentor(s): Eric Selker
(In-Person) Poster Presentation

Regulation of the Kynurenine Pathway in Neurospora crassa

The kynurenine pathway is a metabolic pathway that degrades tryptophan into NAD+ and several other essential biomolecules. In humans, the kynurenine pathway is closely tied to healthy and disease states, and current research indicates that altering the activity of the pathway could have therapeutic benefits. This ancient pathway is also conserved across all eukaryotes. Previous work from the Selker lab using the filamentous fungus Neurospora crassa as a model organism suggested that the regulation of this pathway is intertwined with general chromatin control processes, including H3K36me and chromatin remodelers. My research aimed to identify novel regulatory factors affecting this pathway. I used a phenotypic screen of the Neurospora Functional Genomics Project strains. In addition, RT-qPCR analyses of RNA for kynurenine pathway enzymes helped reveal which strains were abnormally inducing the pathway. In total, five genes of interest have been identified as potential regulators of the kynurenine pathway, including one factor also tied to MAPK pathway induction. Further research is needed to characterize these genes to understand how they may function to regulate the kynurenine pathway, or if their regulatory function is tied to chromatin control.

Stevens, Aleks
Computer and Information Science | University of Oregon
Research Mentor(s): Ram Durairajan
(Virtual) Poster Presentation

Patching the Internet in Disaster Scenarios using Lower Earth Orbit Satellite Constellations

Stewart, Hayden
History | Lane Community College
Research Mentor(s): Dr. Andrea Goering
(In-Person) Oral Panel–Comics, Classics and Analysis

Creation Myths and Science Fiction: The Human Urge to Structure the Unknowable

In his introduction to "Sun Songs: Creation Myths from Around the World," Raymond Von Over writes, "The myths of ancient mankind attempted to resolve such profound and confusing questions, and therefore when reading myths we experience not so much an emotional insight as a sensation of watching something marvelous grow in the mind of early mankind." It is my belief that science fiction, in its most scientific and cerebral form, is the evolution of the creation myth. A story that symbolizes the question of "where are we going?" rather than "from where did we come?" It is that same growth of something marvelous growing in our minds, but now instead of then.

My presentation includes a story that I wrote. It takes place during the Heat Death of the Universe, on the final abode of humankind. It is meant to be a meditation on how far away storytelling can take us, and what it can show us capable of achieving. Much like how the creation myths of our past told of what was before us, and how and why we came to be, this story aims to tell what will come after us, how, and why we should care about so distant a future.

Along with the aforementioned text by Raymond Von Over and the myths it contains, I'll be drawing from works by Isaac Asimov and Ursula K. Le Guin, and consensus timelines of the eventual fate of the universe.

It's my hope that this collection of ideas can add to the conversation of the importance of art for human self-conception and scientific/philosophical progress.

Stiles, Alivia
Business Administration | Lane Community College
Research Mentor(s): Cecilia Rosenow, Alexandria Nanneman
(Virtual) Oral Panel–Read, Speak and Act

Visual Analysis of Kōshirō Onchi's Family of the Field from Poem no. 2

Kōshirō Onchi is the father of Sōsaku-hanga, a form of Japanese print popularized in the 20th century during the Shōwa Era of Japan. Sōsaku-hanga, often considered an evolution of the print form Shin-hanga, became a global fine art phenomenon and its development as a result of increased Westernization has been explored by many scholars. This essay contributes to this conversation by additionally lacing the Western influence, particularly among cultural driving events of the 20th century like World War II and the Great Depression, with Eastern tradition and response to these circumstances. This combination provides us with a crucial insight: how these global players affected Kōshirō Onchi's personal life and identity, thus affecting the art form of Sōsaku-hanga. This delineation is done through the examination of Onchi's print Family of the Field from Poem no. 2, using a visual analysis to further understand historical and contextual elements presented by previous research in the field. What is indicated by this comprehensive analysis is that there is a certain balance to the contextual and historical influence on Sōsaku-hanga which occurs not only in a culmination of Eastern and Western culture, as well as global events, but also the personal impact of these elements on a single artist, which manifest clearly in the work if one knows where to look. This insight provokes us to think more broadly about what might have influenced visual aspects of a certain artistic piece.

Stinnett, Alexis
Public Relations | University of Oregon
Research Mentor(s): Corbett Upton
(In-Person) Oral Panel–Rights of Humans

Undocumented Workers in Agriculture: How States can Protect Them

Agriculture has been and still is the foundation of our economy, and we rely on it to keep our country running. Even in today's industrialized agriculture system we still see the need for labor in the fields for the backbreaking jobs that cannot yet be done by machines. It is not uncommon that these physically and mentally demanding jobs are typically occupied by undocumented immigrants, who make up about 50% of our work force. Researchers and historians have spent years looking at the history of farm labor in our country, and it is no surprise that in almost every instance it leads back

to undocumented labor. Despite our society and economy's dependence on undocumented workers, there are little to no regulations in place to protect or guarantee them the basic rights that other employees in different fields of work enjoy. The lack of rights and policy around agricultural labor allows for undocumented immigrants to be put in dangerous situations in the workplace as well as making it increasingly easy for them to be exploited. As our system has progressed, our policies and laws have not. There are a variety of social, economic, and political factors that prevent the federal government from passing the legislation that is needed to protect undocumented workers. Because of these factors that prevent the federal government from making the necessary changes, state governments must take initiative and prioritize passing policies to protect undocumented agricultural workers.

Stradley, Meg
Family and Human Services | University of Oregon
Research Mentor(s): Miriam Clark
Co-Presenter(s): Alberto Lepe-Romero, Jasmine Burgin
(In-Person) Poster Presentation

How Does Age of 1st Point of Contact Relate to Highest Level of Educational Attainment?

Ample evidence suggests that policing in schools creates an environment in which children are prosecuted for non-dangerous delinquency, instead of normal school discipline practices, resulting in higher dropout rates and greater likelihood of future incarceration. Limited evidence suggests that the age of first contact with police may similarly impact this trajectory. The current study seeks to examine the relationship between age of first contact with police and highest education level attained to more fully understand how age of first contact may be associated with negative outcomes for kids.

Using data from the Life Study, a dataset consisting of 411 individuals reentering their communities after incarceration, we used Pearson's correlation to determine the correlation between the age of 1st point of contact by police, and the highest level of education completed.

The relationship between the first point of contact and the highest level of education is not statistically significant.

Children being policed in the school system creates a system in which they are set up to have repeat offenses throughout their school career, impacting their educational attainment and quality of education. Though this study shows no statistically significant correlation, further research is

needed beyond this data set to provide greater understanding of how to create a system in which children have a better chance at succeeding by providing other programs that help aid children.

Strobel, Lily
Asian Studies,Global Studies | University of Oregon
Research Mentor(s): Alisa Freedman, Kathie Carpenter
(In-Person) Oral Panel–Sex, Drugs, & Music

How Music is Used to Preserve Ainu Culture

The Ainu are an indigenous population native to northern modern-day Japan who have historically been suppressed and erased by the Japanese government. One of the ways they have resisted this governmental action is through music. In this presentation, how the Ainu use music as a tool to preserve their culture will be analyzed, both historically and in the modern context. To develop an understanding of the Ainu as a population, an in-depth literature review of their history was conducted, particularly as it pertains to music. This information informs an analysis of how music is used in the modern day. Two principal musical approaches were identified: the traditionalist approach, where artists perform music in traditional styles; and the fusionist approach, which combines traditional Ainu music with elements of more modern music, such as reggae or dub. Both of these approaches have the dual purpose of exposing non-Ainu to Ainu culture, as well as a way for Ainu to find belonging and express their heritage. Because the two approaches are drastically different styles of music, they will naturally attract different demographics. By understanding how music specifically is used to preserve Ainu culture, a more robust understanding of how arts in general can be used to the same end will develop. The underlying framework needs only to be slightly altered to map onto other fields, such as dance or literature.

Studer, Madison
Neuroscience | University of Oregon
Research Mentor(s): Acadia DiNardo, Diana Libuda
(In-Person) Poster Presentation

Investigating sexual dimorphic P-granule structures during germ cell development in C. elegans

Proper egg and sperm development is crucial for the faithful passage of the genome from one generation to the next. To prevent infertility and genomic instabilities linked to congenital disabilities, the process of sperm and egg development is tightly regulated by small RNA pathways.

These pathways silence genes that disrupt the genome and maintain silencing across generations independent of DNA sequence, termed transgenerational epigenetic inheritance. In Caenorhabditis elegans, the components of small RNA pathways localize to P-granules, liquid-like condensates that form around the nuclei of developing sperm and eggs. ZNFX-1, a recently discovered structural P-granule component, is required for genome maintenance and fertility. Although ZNFX-1 is known to be involved in transgenerational epigenetic inheritance during egg development, the role of ZNFX-1 during sperm development remains unknown. Preliminary data from the Libuda Lab suggests that ZNFX-1 has sex-specific localization, indicating distinct sex-specific mechanisms for genome maintenance in egg and sperm development. To determine the sexually dimorphic localization patterns of ZNFX-1 during sperm and egg development, I am examining GFP-tagged ZNFX-1 localization in wild type and mutant P-granule strains. This work will reveal the sex-specific role of ZNFX-1 in small RNA pathways and provide insights into the molecular mechanisms that maintain genomic integrity and fertility.

Stutz, Emily
Psychology | University of Oregon
Research Mentor(s): Melissa Moss, Ulrich Mayr
(In-Person) Poster Presentation

The Role of Verbalization in Hierarchical Control

Coauthors: Melissa Moss, Ulrich Ma

Performing complex tasks usually requires the cognitive system to handle rules at multiple levels of abstraction, where lower-level rules depend on the status of higher-level rules (e.g., a child may be allowed to eat with her fingers at home, but use silverware in a restaurant). Previous work has identified verbalization ("inner speech") as critical for such hierarchical control in the context of situations that require following a sequential plan. However, this work did not assess the need for inner speech in the context of non-serial, or cue-based tasks. Further, only relatively simple, two-level hierarchical control sequences were used. The current study used articulatory suppression to assess whether verbalization is important when handling complex serial-order and cue-based hierarchical tasks. Participants executed tasks with one, two, or three levels of either cue-based rule complexity or sequence complexity, while performing a secondary task that manipulated verbalization demands (articulatory suppression versus foot-tapping). Surprisingly and contrary to previous findings, we did not find a decrease in performance in either the cue-based or the sequential tasks with articulatory suppression. These results seem to indicate that hierarchical control does not require inner speech. Potential reasons for the discrepancy with the previous literature results are discussed.

Tan, Eugene
Computer and Information Science | University of Oregon
Research Mentor(s): Reza Rejaie, Chris Misa
(Virtual) Poster Presentation

Visualizations of the IP Address Space with Hilbert Curves to Expose Multifractal Patterns

Coauthors: Chris Misa

A critical challenge in understanding the traffic flowing through modern computer networks is the visualization of traffic features associated with a large number of networked devices. These observed IP addresses from these devices are known to cluster within IP address prefixes formulating a multifractal structure. Leveraging the Hilbert curve we simultaneously visualize the multifractal structure of these observed addresses and the traffic features associated with each address, enabling new observations to be made by combining both aspects of network traffic data into a single visual presentation. This is done through the Hilbert curve's property of locality which enables addresses sharing the same prefix to be mapped to similar locations within the curve resulting in observable clusters in regions of the visualization. We approach this challenge by implementing this visualization tool of mapping addresses to the Hilbert space, utilizing color theory to draw visual feature relationships and patterns that may appear. Therefore, the primary goal of this work is to leverage this visualization tool to examine the relationships between traffic features and the multifractal distribution of observed addresses through a series of case studies.

Taylor, Rosa
Anthropology | University of Oregon
Research Mentor(s): Josh Snodgrass, Alicia DeLouize
Co-Presenter(s): Micah Warner-Carey, Madeleine Getz
(In-Person) Poster Presentation

Global Biomarker Implementation in the WHO's World Health Survey Plus

The Global Health Biomarker Laboratory (GHBL) is collaborating with the World Health Organization to plan and implement the World Health Survey Plus (WHS+). The WHS+ is an expansion on the original World Health Survey, a project conducted during 2002-2004 in 69 countries with over 3,000 participants. The WHS+ is a flexible and comprehensive data collection system that provides countries with the ability to monitor progress towards health goals and obtains high-quality, nationally representative data on health, social, economic, and policy topics. This project aims

to fill data gaps globally and improve health equity within and between countries. By developing protocols, training videos, and technical expertise on point-of-care biomarker implementation, the GHBL is at the forefront of implementing new point-of-care technologies (POCT); the WHS+ biomarkers are hemoglobin as an indicator of anemia, HbA1C and glucose as indicators of diabetes risk, and lipids as indicators of hypolipidemia and cardiovascular risk. Additionally, the survey is collecting anthropometrics, blood pressure, pulse, hand grip strength, walking speed, and cognitive function as direct measures of health. We are currently in the early stages of methods development and implementation; the WHS+ has the potential not only to help countries provide more equitable and sustainable healthcare and promote country-specific care-seeking behaviors, but also to further our global knowledge of healthcare and disease.

Thomas, Sarada
Anthropology, Architecture | University of Oregon
Research Mentor(s): Richard Margerum
(In-Person) Oral Panel–Connection and Community

Freedom Towns, Freedom Colonies: A Primer for Prosperity

The study examines Freedom Towns and Colonies. The newly freed had few resources but established hundreds of these communities. Many were very successful, and some are still in existence today.

Modern African American communities are materially in the same place as those from the early 1800s. Previous research indicates the same methods could be used to create similar economic transformation. The study answers the questions: how did these towns and colonies emerge? What are the lessons, successful practices, and guiding principles from their history? How can policy support and protect efforts to apply them?

A primary literature review framed the study at the intersection of political economics, sociopolitical history, and community development. A secondary literature review of oral histories, government documents, and journalistic articles provided data for analysis.

Primary findings show cooperative and collective behaviors span successful communities while failures were induced externally. The implication is privation among ADOS communities can be alleviated using internal and external solutions drawn from history.

This work is significant in its assumption of ability, motivation, and ongoing effort by ADOS communities. Second the study centers the community's cultural habits as a solution to their economic, social, and political condition. Third, this work is significant in its clarification of policy's role to support, promote and protect the community and its efforts.

Thomas, Sarada
Anthropology, Architecture | University of Oregon
Research Mentor(s): Richard Margerum
(In-Person) Poster Presentation

Freedom Towns, Freedom Colonies: A Primer for Prosperity

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Thwaites, Alexis
Family and Human Services | University of Oregon
Research Mentor(s): miriam clark
Co-Presenter(s): Gabe Goldstein, Cody Bagay
(In-Person) Poster Presentation

How do Healthy Relationships in Prison Correlate to Healthy Relationships Once Released?

Coauthors: Gabe Goldstein, Cody Bag

Study purpose: Prison culture has shown an increased occurrence of withdrawal by inmates which is causing a lack of healthy prosocial interactions between prisoners. Opportunities to foster quality

relationships are limited; therefore, positive personal relationships may not have the chance to flourish. That is important because relationships in prison may help prisoners build essential skills that will benefit their relationships once released. The current study seeks to examine the correlation between quality relationships in prison on the quality and quantity of relationships once released from prison.

Study design: Utilizing data from the Life Study, a dataset consisting of 411 individuals reentering their communities after incarceration, we used Pearson's correlation to determine the relationship between having a loved one or close relationship in prison with having close loving relationships after release.

Findings: Findings indicated no correlation between having quality relationships in prison with quality or quantity of relationships once released from prison

Conclusion: Understanding the effects and benefits of positive relationships in prison is necessary to encourage the widespread implementation of prison policies that can facilitate these positive relationships. Current results from the Life-Study data show no correlation between having strong and close relationships with other inmates while in prison, with the quality or quantity of relationships maintained once released from prison.

Topping, Maisie
Biochemistry | University of Oregon
Research Mentor(s): Brad Nolen, Heidy Narvaez Ortiz
(In-Person) Poster Presentation

Developing an In Vivo Assay for Quantitative Analysis of Arp2/3 Complex Inhibitors

Coauthors: Heidy Narvaez Ortiz, Brad Nol

Branched networks in the actin cytoskeleton are critical for a variety of cellular processes such as motility and endocytosis. New branched actin filaments are nucleated by Arp2/3 complex, and the deregulation of this protein is related to a variety of diseases including cancer. Several classes of small molecule inhibitors of Arp2/3 complex have been discovered, most of which function by blocking an activating conformational change of the complex. These molecules are useful tools because they allow researchers to turn off activity in different processes, and they have potential as drugs due to Arp2/3 complex's increased activity in some diseases. These inhibitors have been characterized in vitro and have been used in experiments, but they have never been quantitatively analyzed in vivo. My project will develop an in vivo assay for quantitatively measuring the effects of Arp2/3 complex

inhibitors on cytoskeleton dynamics. The assay will use Drosophila S2 cells expressing a low level of GFP-tagged actin and total internal reflection fluorescence (TIRF) microscopy to extract velocity data from the cell's actin cytoskeleton before and after treatment with inhibitors. These experiments will lead to a better understanding of how Arp2/3 complex inhibitors affect living things because this assay is a better approximation of biological systems than the currently used in vitro methods. The different assays can be used in concert to provide a fuller characterization of these inhibitors.

Topping, Maisie
Biochemistry | University of Oregon
Research Mentor(s): Brad Nolen, Heidy Narvaez Ortiz
(In-Person) Poster Presentation

Exploring the Role of the Arp2 D-Loop in Activation of Arp2/3 Complex

Coauthors: Heidy Narvaez Ortiz, Brad Nol

Branched networks in the actin cytoskeleton are critical for a variety of cellular processes including endocytosis. New branched actin filaments are nucleated by Arp2/3 complex, and the deregulation of this protein is related to diseases such as cancer. Arp2/3 complex is intrinsically inactive. During activation, the complex undergoes a conformational change that brings two of its subunits, the actin-related proteins Arp2 and Arp3, into a position that mimics two consecutive actin subunits within a filament, thereby creating a template for the new filament. When actin polymerizes into filaments, a portion of the protein called the D-loop helps to stabilize the filamentous structure, and the Arp2 and Arp3 subunits both contain a similar D-loop. A previously solved structure of Arp2/3 complex at a branch junction indicates that a contact between the D-loop of Arp2 and ArpC3 may be important for stabilizing the activated complex at the junction site. This project aimed to assess the importance of that contact in activation of Arp2/3 complex. We generated a strain of budding yeast with three mutations in the Arp2 D-loop, purified Arp2/3 complex from cells, and used pyrene actin polymerization assays to test the ability of the mutated complex to nucleate actin filaments compared to the wild type. The Arp2 triple mutant showed greatly decreased activity, indicating that the contacts between Arp2 and ArpC3 are important for the activation and function of Arp2/3 complex.

Tosio, Pilar
Psychology | University of Oregon
Research Mentor(s): Grace Waddell
(In-Person) Poster Presentation

Molecular Dissection of the SHIP1 Phosphatase

Coauthors: Grace Waddell

The 145 kDa lipid phosphatase SHIP1 is a critical component in immune cell signaling pathways and allows hematopoietic cells to undergo chemotaxis. Although the enzymatic role that SHIP1 plays in the dephosphorylation of phosphatidylinositol-3,4,5-phosphate (PI(3,4,5)P) lipids is understood, much remains unknown about the role SHIP1 plays in the excitable signaling network. Using TIRF microscopy, we can observe SHIP1 being recruited to the plasma membrane where the protein can be activated and inactivated. How this lipid phosphatase is being localized to the plasma membrane is not yet understood. We hypothesized that the region responsible for SHIP1 localization exists within the SHIP1 C-terminus. By performing a molecular dissection of the SHIP1 phosphatase, we determined that the last 110 amino acids of SHIP1's C-terminus is required for SHIP1 to display polarized membrane localization patterns in human neutrophils. This finding has helped to elucidate the biochemical underpinnings of immune cell migratory functions.

Trammell, Grace
English | University of Oregon
Research Mentor(s): Emily Simnitt
Co-Presenter(s): Matthew Hampton
(In-Person) Data Stories–The Languages of Data

Data "Counterstory:" Academic Text Accessibility and Open Educational Resources

Textbooks are an essential aspect of learning in higher education curriculum. In many cases professors will require students to purchase one or multiple textbooks, creating an additional financial burden for students. When this happens, students are left with few options: find a lower-cost alternative, or drop the class. Thus, textbooks are a means of creating a literacy and education gap within higher education, with low-income students most impacted by it. However, Open Educational Resources (OERs) are a means to reduce this gap by providing equitable literature to all students within higher education. In recent years, (OERs), free academic texts, have in-part filled the gap by providing public knowledge to students and other groups. With the use of OERs openly

accessible on the internet or in libraries, community members not affiliated with universities also have the opportunities to learn about various subjects they may not have had before. While working on an in-house University of Oregon OER, the Talking Stories website, we discovered that putting together a well-researched OER had as much to do with compiling credible academic information as presenting it in a way that anybody, regardless of education level, can understand. Based on this, we will share our experience and knowledge gained during this project to creating change and expanding community literacy. We will speak to how broadening academic text accessibility through OERs can increase community literacy.

Trapp, Lucy
Educational Foundations | University of Oregon
Research Mentor(s): Lynch, Russel
Co-Presenter(s): Jenna Burns, Lucy Trapp, Sequoia Shand
(In-Person) Oral Panel–Learning from the Environment

Environmental Leadership Program- Aves Compartidas 2022

Coauthors: Christie Clark, Gabriel Gae, Isabella Cambell, Caroline DeBruine, Madeline Zweber

Eugene, Oregon and Guanajuato, Mexico have more things in common than you might think, including 25 shared migratory birds that we introduced to students during our time at El Camino del Rio/River Road Dual Immersion Elementary. In light of the COVID-19 pandemic, outdoor education has become evermore important. As participants in the Environmental Leadership Program, we strive to rekindle youth's bond with nature that was neglected during the pandemic. This year, the Aves Compartidas Program taught elementary students about migratory birds through an environmental education lens, and fostered students' connection to their environment and to Guanajuato, Mexico. Our pedagogical approach focuses on the importance of connecting students with the local environment through the use of auditory, visual, and artistic group learning. Within six weeks, our team taught 42 classes, educating 128 students on migratory birds and related environmental issues, focusing on creating safe migration conditions. We incorporated the observation of World Migratory Bird Day, and highlighted this year's theme, "dim the lights for birds at night," in reference to the effect of light pollution on bird flight patterns. The materials created from the program include lesson plans, a project management plan, and an informational website. This will allow continued collaboration between Oregon and Mexico, to nurture the next generation of environmental stewards.

Travers, Jenna
Marine Biology | University of Oregon
Research Mentor(s): Mark Carey
(In-Person) Oral Panel–Learning from the Environment

Stories of Decline: Narratives and Risk Framing of Glacier Retreat and Salmon in Washington, USA

Climate change is threatening both glaciers and salmon in Washington with extinction, putting the state's economy, culture, and ecosystems at risk. However, the overlapping crises are framed and understood differently throughout the state, affecting policy and climate action. This study analyzed 115 media sources from four main stakeholder categories to determine a) which narratives of glacier retreat and salmon declines are the most prevalent; b) how perceived risks change among stakeholders and cause narratives to diverge; c) how these narratives are shaped by stakeholder identity, geographic location, knowledge sources, and time; and d) how narratives of overlapping climate emergencies differ from narratives of a single crisis. Key narratives were identified by creating a qualitative codebook that was applied using Dedoose, and the presence of narratives was analyzed across the categories to evaluate trends. The study found that while a common narrative did exist, stakeholder identity, geographic location, and source of knowledge were all key factors in shaping narratives. It also found that narratives of overlapping climate emergencies were more likely to diverge than those of a single crisis. As climate change worsens and causes more overlapping crises, understanding how climate narratives are created and shaped will become increasingly important for understanding stakeholder conflicts, effective climate campaigns, and how people view themselves within these crises.

Treder, Maya
General Science | University of Oregon
Research Mentor(s): Ashley Shaw, Lauren Hallett
(In-Person) Oral Panel–Fuel, Fire, Grass and Compost, Poster Presentation

Effects of Rangeland Compost Amendments on Nematode Abundance

California rangelands are often over-grazed, nutrient-depleted, and subject to variable rainfall. Compost amendments are gaining popularity as a management tool due to their potential for soil carbon sequestration. Despite positive effects on plant growth, little is known about how soil communities respond to these amendments, especially across variable precipitation conditions. Nematodes are excellent indicators of soil community responses as they span every trophic level and

are sensitive to changing environments. Here, we examined how amendment treatments (compost, fertilizer, none) affect nematode communities across variable precipitation conditions (drought, irrigation, wet). We hypothesized: 1) amendments increase nematode abundance, where compost has a greater positive effect than fertilizer; 2) nematodes respond positively to elevated soil moisture and negatively to drought; 3) effects of amendment and precipitation are interactive, where compost mitigates drought's effects on nematodes. As expected, compost increased nematode abundance relative to other amendment treatments. However, overall, nematodes were most abundant under ambient precipitation, contrary to expectations. This was due to the precipitation-amendment interaction. While compost and fertilizer had similar positive effects on nematodes under ambient and irrigation, under drought, fertilizer had a negative while compost had a positive effect on nematode abundance compared to the no amendment treatment.

Trom, Scout
Biology | University of Oregon
Research Mentor(s): Hannah Bates, Thaís de Faria
Co-Presenter(s): Faith Longnight
(In-Person) Poster Presentation

Structure-Property Relationship of Halogen bonding Supramolecular Receptors

Anion receptors hold an important place within the field of supramolecular chemistry due to the vast biological impacts many anions have in biology. Our project focuses on the synthesis of various novel reversible halogen-bonding anion receptors. The investigation varies the withdrawing characteristics of substituents of charged and neutral receptors to enable a thorough structure-property relationship study. Preliminary results show that the neutral receptors have significantly lower binding strength when compared to their corresponding charged receptors. We also see that the more electron-withdrawing the substituent group, the stronger the binding for the charged receptors. We also see that the binding pocket of our receptors best fit to chloride, our target analyte, when compared to the other halide anions. Through this study, we hope to identify the key structural characteristics needed to bind smaller anions, like chloride, so that future work can include creating receptors that can bind chloride in cells. The results of this study will provide fundamental knowledge of the most efficient way to modify receptors for an optimal binding moving forward in the field of halogen-bonding supramolecular sensors.

Tuton-Filson, Nico
Physics | University of Oregon
Research Mentor(s): Scott Fisher
Co-Presenter(s): Jackson Robinson
(In-Person) Poster Presentation

Installation and Preliminary Use of Lunt Solar Telescope at Pine Mountain Observatory

Pine Mountain Observatory (PMO) has been operated by the University of Oregon for many years, recently expanding with new fields of observation, such as solar observation. Through our partnership with the Allan Price Science Commons & Research Library, our lab acquired a solar telescope in early 2021. This is the first solar telescope to be installed at the observatory, and therefore our lab team is learning how to best utilize this new equipment. Our end goal is to capture live images of solar activity and share them online in real-time. Through independent research and preliminary data collection, we have worked towards finding the optimal procedure for capturing and processing images. By the end of the summer 2022 we will be finalizing the installation and automation of the telescope and its image processing system. This work is vital to the University because it will create new research opportunities for future undergraduate students and provide an online resource to be used in classrooms at UO and beyond.

Van Laanen, Andi
Psychology | University of Oregon
Research Mentor(s): Melissa Baese-Berk, Myrihe Rohbock
Co-Presenter(s): Victoria Pineiro
(Virtual) Oral Panel–Read, Speak and Act

Professionalism: Swearing in the Workplace

In recent years, swearing has moved from somewhat of a taboo topic to a more common and acceptable practice in day to day life. This particular research examines how swearing impacts perceptions of professionalism in the workplace, with gender stereotypes as a sub focus. To investigate this, two surveys were distributed to primarily college aged individuals, and each survey had two sets of audios with the same scripts, one with a woman swearing and man not swearing, and the other with a man swearing and a woman not swearing. Participants were then asked about their perceptions of the speaker in each audio and to reflect on their feelings towards each as a whole. Overall, we found that swearing and professionalism have a negative relationship, regardless

of gender. In conclusion, by conducting this research we are able to investigate the various ways professionalism is portrayed through different linguistic choices.

Vandermolen, Andrea
Biology | Lane Community College
Research Mentor(s):
Co-Presenter(s): Shandi Morris
(In-Person) Poster Presentation

Fatal Flight: A Survey of Bird Window Collisions at Lane Community College

Window collisions kill a high number of birds each year in the United States, but different architectural and landscape characteristics can make certain buildings deadlier than others. From October 20th to November 19th, we surveyed five campus buildings at Lane Community College in Eugene, Oregon to see which ones experienced the most bird window collisions. We walked the perimeter of each building three times per week and recorded the number of birds, partial remains or feather piles found within a 1.5 meter border of each building. The highest count was on our first day of surveying, likely because it included birds that had died over the summer. Over the course of our survey we mostly found partial remains, but were able to identify two Hermit Thrushes and one of each of the following: Dark Eyed Junco, Anna's Hummingbird, American Robin, Lesser Goldfinch and European Starling. The two buildings with the most remains collected were Building 30 and the Center Building. This was the first fall survey of window collisions on campus and surveys were continued through the winter. The results from our survey will be used to locate collision hotspots and will inform the college's future mitigation efforts.

Vargas, Yesenia
Family and Human Services | University of Oregon
Research Mentor(s): Chantelle Russell
Co-Presenter(s): Ana Gastelu`, Mia Rivas, Claire Daley
(Virtual) Oral Panel–Strive to Thrive ARC

Outdoor Inclusion for Hispanic Women

Outdoor recreation is an important part of our community at UO because of the many benefits, such as better mental/physical health, increased academic success, and social connections. However, while there have been attempts to attract minority groups, such as Hispanic women to outdoor recreation activities at the university, there is still a big disparity in participation. We hypothesize

that with more inclusive promotion strategies within outdoor-oriented programs on campus and increasing Hispanic representation in leadership positions, people who identify as a part of this community will be more inclined to participate. Our research study explores factors contributing to the inclination to participate in outdoor activities, awareness of university outdoor events, and the interpersonal barriers that influence participation. We used data from interviews with UO outdoor recreation professionals and information from the Redefining Outdoorsy Summit. We looked at statistical and demographic data of Outdoor Program participation records provided by the Department of Assessment and Research. Lastly, we researched how other universities promote diversity in their Outdoor Recreational activities. We found factors that influence Hispanic women's participation in outdoor events are: lack of inclusion and awareness in the promotion of these events, history of childhood participation in outdoor adventures, and negative perspectives related to involvement in outdoor activities.

Volker, Hannah
Family and Human Services | University of Oregon
Research Mentor(s): Miriam
Co-Presenter(s): Max Wilson
(In-Person) Poster Presentation

The relationship between prison work and education programs and employment post incarceration

Coauthors: Maxwell Wilson

Study Purpose: Individuals who were formerly incarcerated have a more difficult time gaining employment than those who weren't. Education programs offered in prisons are meant to help reintegrate individuals back into society once they are released. These programs include educational resources that cover basic education, GED certification, degree programs, trade training, and more. The purpose of this study is to examine the relationship between prison education or work programs and employment post incarceration.

Study Design: Using data from the Life Study, a dataset consisting of 411 individuals reentering their communities after incarceration, we conducted a Pearson's Correlation to determine the correlation between any participation in prison education or work programs, and employment post incarceration.

Findings: Our findings suggest that there is no statistically significant correlation between participating in a prison education or work program and employment post incarceration.

Conclusion: These results may indicate that variables beyond education are involved in limiting the ability to find employment after serving one's sentence. They could also indicate that the current way these programs are run is ineffective at preparing individuals for finding jobs. Future research should further examine this relationship and explore how to make prison education programs more effective at educating incarcerated individuals and preparing them for the workforce at reentry.

Vongphachanh, Alyssa
Human Physiology | University of Oregon
Research Mentor(s): Kylie Nash
Co-Presenter(s): Walker Rosenthal
(In-Person) Poster Presentation

Utilizing real time strain to modulate patient-specific rehabilitation optimizing bone recovery

Severe bone injuries often result in high complication rates and poor functional recovery. Mechanical loading through rehabilitation is a longstanding treatment for these injuries, but current practices are still challenged with variable healing, limiting this promising therapeutic [1,2]. Recent advancements in implantable strain sensors may promote better understanding of how rehabilitation induced loads contribute to healing outcomes [1]. Our lab uses this idea in a rat femoral segmental model stabilized with an internal fixation plate embedded with an implantable strain sensor to analyze the mechanical environment throughout healing for different loading conditions. Past work has found that load-sharing (compliant) fixation devices exhibited improved healing outcomes when compared to load-shielding (non-compliant) fixation plates [3]. We investigated the effects of rehabilitation on bone volume by using a wireless compliant fixation device capable of acquiring real-time micro-strain measurements on a segmental defect in the femur. We found that bone union occurred in 3/3 rehabilitated rats and only 2/4 in non-rehabilitated, sedentary counterparts. Rehabilitated rats experienced a higher mean strain amplitude and their bones bridged earlier than their sedentary counterparts. Our findings suggest a relationship between strain and bone healing outcomes. We hope to further explore the effects of rehabilitation intensity on local defect strain and thus bone healing outcomes.

Vuong, Jennifer
Family and Human Services, Psychology | University of Oregon
Research Mentor(s): Dr. Elizabeth Budd
(In-Person) Oral Panel–Covering Covid

Food Security Among University of Oregon Students During the COVID-19 Pandemic

U.S college students are vulnerable to low food security and students of color more so than White students. Those with low food security tend to consume fewer daily servings of fruits and vegetables. Low food security and lower fruit and vegetable intake are associated with poor health outcomes. Food security and eating behaviors of University of Oregon (UO) students during the pandemic are unknown. This study examines the food security and eating behaviors of UO students, whether food security varies by race and ethnicity, and how fruit and vegetable intake may vary by students' income level, student status, and use of food assistance programs. From August-October 2020, 779 UO students completed a Qualtrics survey. One-way ANOVAs were conducted. In Fall 2020, 47.2% of UO students reported low food security. Black/African American students experienced low food security at higher rates than White students (p = .045). Fruit and vegetable intake significantly varied by income (p = .001; p = .001) and student status (p = .01; p = <.001). Only vegetable intake significantly varied by use of food assistance programs (p =.04). Concerningly, low food security is common among UO students and more common among Black/African American students. Also, undergraduates and lower-income students consume fewer fruits and vegetables than other students. Findings can inform programs to support food security and healthy eating.

Waghorn, Lucy
Earth Sciences | University of Oregon
Research Mentor(s): Dave Sutherland, Alex Hager
(In-Person) Poster Presentation

Geometric and Thermal Constraints on the Timing of Alaskan Tidewater Glacier Retreat

Glaciers around the world are retreating at increasing rates, prompting concerns over sea level rise and the future of the cryosphere. In southern Alaska, some have retreated while their neighbors have advanced, indicating that local atmospheric conditions are not the only influence on glacial retreat. One possible factor is the interaction of ocean water with the glacier at the terminus. However, fjord geometry can alter the ocean water that interacts with the terminus, and the interaction

of fjord geometry and ocean temperature anomalies has not been investigated in Alaska thus far. To investigate the interaction of fjord geometry and glacier retreat, we used bathymetry, air temperature (AT), sea surface temperature (SST), and terminus position data. Here we show that high SST anomalies may enhance glacial retreat in fjords with shallow sills. During a high SST anomaly, some glaciers in shallow-silled fjords retreated rapidly from a point of relative stability. Many glaciers also showed enhanced retreat in the two years after a high AT anomaly. It is possible that shallow sills influence fjord water circulation where only the warmest part of the water column can enter the near terminus region, potentially leading to enhanced glacier retreat after high SST anomalies. Though other factors can also contribute, understanding these processes and interactions that lead to glacier retreat is becoming increasingly important as climate change alters the atmosphere and environment.

Waldron, Erica
Psychology, Sociology | University of Oregon
Research Mentor(s): Dare Baldwin
(In-Person) Poster Presentation

Exploring the Effect of Social Media Popularity Metrics on Curiosity

Social media inundates us with information about popularity; for example, social media posts are accompanied by a number of likes and comments. Dubey and colleagues (2020) recently demonstrated that such indicators of popularity influence people's curiosity to learn more about specific topics. If so, this is one unexpected, beneficial side effect of social media popularity metrics. However, the way in which they manipulated popularity via Reddit-like "upvotes" may have introduced a confound into their findings. In particular, people were asked to report about an item's popularity immediately before reporting on their curiosity regarding that item. The immediate juxtaposition of these two questions may have led participants to assume that popularity was relevant to curiosity, thereby creating what is called a demand characteristic that contaminated their findings. My thesis research attempts to replicate Dubey and colleagues' research while avoiding this potential demand characteristic. People rated curiosity first and were asked about popularity only at the end of the survey. Analyses on preliminary findings modeled after Dubey et al. suggest that their findings are not replicating. That is, people are no more curious about items with a high number of upvotes than those with a low number of upvotes. To the extent that my full data set is consistent with this non-replication, these new findings bring into question whether popularity has any relationship to curiosity.

Walter, Megan
Computer and Information Science | University of Oregon
Research Mentor(s): Reza Rejaie, Chris Misa
(Virtual) Oral Panel–Inner Space and Internet

On the Multifractal Structure of Observed Internet Addresses

As a result of society's increasing dependence on the internet, we observe an uptick in internet attacks and network management issues. However, the growing speed and volume of internet traffic makes finding portions of traffic responsible for creating problems difficult. Current approaches to classifying connections as harmful or benign tend to regard each connection independently of one another. However, the nature of IP addresses points to correlations between addresses located in similar parts of the IP address space. Understanding the structural characteristics of the IP address space could lead to novel ways to create network management algorithms that deal with aggregates of flows.

We examine the structure of observed IP addresses in network traffic collected from border routers at the University of Oregon. Previous work indicates that the characteristics of observed IPv4 address structures are consistent with a multifractal model. We work to solidify the existence of this multifractal structure and provide an initial contribution to the development of network security and management solutions that aggregate flows by IP address. We use a brand new method of multifractal analysis using the method of moments to produce an initial characterization of how observed IPv4 addresses relate to one another. We applied this process across traffic samples representing three different timescales, allowing us to look at the temporal dynamics of these multifractal characteristics.

Ward, Olivia
Exploring | University of Oregon
Research Mentor(s): Melissa Baese-Berk
Co-Presenter(s): Dylan Lew, Josh Weinrobe, Evan Wong
(In-Person) Oral Panel–Communication: How and Why

Usage of Taboo Words in Online Settings of Varying Anonymity

This is an observational study to see how the use of taboo language on social media platforms changes depending on the anonymity of its users. To accomplish this, we examined the contents of comments on posts from three different social media platforms: Instagram, Reddit, and Twitter. Each of these varies slightly in how much emphasis is put upon the user's image, with Instagram

emphasizing personal content production (selfies, snapshots, etc.) while Twitter and Reddit content being more impersonal (e.g. discussions, news, etc.). We hypothesized that users on platforms that promote personal content less would correlate with less frequent usage of taboo words, as usage of these words could be considered harmful to a user's image. For several days, we collected 100 comments total across several posts and tallied the number of total swears present across all comments. We also categorized each swear into either definite swears, and non-definite swears whose taboo nature is debated in order to measure the intensity of swearing. Our preliminary results conform to our initial hypothesis, with Instagram comments having much lower amounts of swearing present than on Reddit or Twitter. This may indicate that anonymity plays a significant role in user behavior online regarding swearing, with more anonymity corresponding with more intense and/or frequent swearing.

Warner Carey, Micah
Global Studies | University of Oregon
Research Mentor(s): Josh Snodgrass, Alicia DeLouize
Co-Presenter(s): Rosa Taylor, Madeleine Getz
(In-Person) Poster Presentation

Global Biomarker Implementation in the WHO's World Health Survey Plus

The Global Health Biomarker Laboratory (GHBL) is collaborating with the World Health Organization to plan and implement the World Health Survey Plus (WHS+). The WHS+ is an expansion on the original World Health Survey, a project conducted during 2002-2004 in 69 countries with over 3,000 participants. The WHS+ is a flexible and comprehensive data collection system that provides countries with the ability to monitor progress towards health goals and obtains high-quality, nationally representative data on health, social, economic, and policy topics. This project aims to fill data gaps globally and improve health equity within and between countries. By developing protocols, training videos, and technical expertise on point-of-care biomarker implementation, the GHBL is at the forefront of implementing new point-of-care technologies (POCT); the WHS+ biomarkers are hemoglobin as an indicator of anemia, HbA1C and glucose as indicators of diabetes risk, and lipids as indicators of hypolipidemia and cardiovascular risk. Additionally, the survey is collecting anthropometrics, blood pressure, pulse, hand grip strength, walking speed, and cognitive function as direct measures of health. We are currently in the early stages of methods development and implementation; the WHS+ has the potential not only to help countries provide more equitable and sustainable healthcare and promote country-specific care-seeking behaviors, but also to further our global knowledge of healthcare and disease.

Weinrobe, Joshua
Business Administration | University of Oregon
Research Mentor(s): Melissa Baese-Berk
Co-Presenter(s): Dylan Lew, Olivia Ward, Evan Wong
(In-Person) Oral Panel–Communication: How and Why

Usage of Taboo Words in Online Settings of Varying Anonymity

This is an observational study to see how the use of taboo language on social media platforms changes depending on the anonymity of its users. To accomplish this, we examined the contents of comments on posts from three different social media platforms: Instagram, Reddit, and Twitter. Each of these varies slightly in how much emphasis is put upon the user's image, with Instagram emphasizing personal content production (selfies, snapshots, etc.) while Twitter and Reddit content being more impersonal (e.g. discussions, news, etc.). We hypothesized that users on platforms that promote personal content less would correlate with less frequent usage of taboo words, as usage of these words could be considered harmful to a user's image. For several days, we collected 100 comments total across several posts and tallied the number of total swears present across all comments. We also categorized each swear into either definite swears, and non-definite swears whose taboo nature is debated in order to measure the intensity of swearing. Our preliminary results conform to our initial hypothesis, with Instagram comments having much lower amounts of swearing present than on Reddit or Twitter. This may indicate that anonymity plays a significant role in user behavior online regarding swearing, with more anonymity corresponding with more intense and/or frequent swearing.

Whelan, Abby
Spatial Data Science and Technology | University of Oregon
Research Mentor(s): Joanna Merson, Alethea Steingisser
Co-Presenter(s): Peyton Carl, Lucy Roberts
(Virtual) Data Stories–The Languages of Data

Comparing and Contrasting Workflows and Data Management for Web-based vs Analog Cartography

Cartography is a field that allows geographers to visualize information that has a geospatial component, also known as spatial data. Programs like Mapbox and Carto are newer methods of cartography that utilize web design for map creation. In comparison, print mapping workflows use programs like ArcGIS, ArcMap, and Adobe Illustrator. These programs each have different assets

that can be used to produce print-based products. Together, both web mapping and analog mapping have benefits and drawbacks which impact the design decisions a cartographer must make on topics ranging from user accessibility to different map projections. We will analyze these choices through the examination of student research at the Infographics Lab in partnership with Network Startup Research Center. The NSRC is known for their work to "develop national and regional Internet infrastructure for collaborative research, education, and international partnerships". The geographic nature of the NSRC's work facilitates their partnership with the IGL, through which the IGL has produced a wide variety of cartographic products. Analyzing these design choices provides a diverse portfolio for examining cartographic design choices. Understanding the best practices for web and print-based cartography can operate as a proxy to facilitate better scientific communication.

Whitty, Phaedra
Biochemistry | University of Oregon
Research Mentor(s): David Garcia
(In-Person) Poster Presentation

The Role of Ribosome-Associated Protein Quality Control in a Prion-Based Epigenetic State

Coauthors: Mikala Capage

A prion that has been discovered in yeast, [BIG+], allows cells to adopt a 'live fast, die young' strategy, accelerating growth rate at the cost of a shortened lifespan. Prions are heritable, alternatively-structured proteins that are implicated in many mammalian neurodegenerative diseases. However, they can also act as a beneficial epigenetic mechanism by altering gene expression in cells. The [BIG+] prion is a form of Pus4, an RNA-modifying enzyme conserved throughout nature, and has been shown to affect protein synthesis. The epigenetic state induced by it is characterized by accelerated cell proliferation, increased cell size, shortened lifespan, and increased translation activity. The mechanism of the [BIG+] prion remains unknown. This project investigates the ribosome-associated protein quality control pathway (RQC), a cellular system to monitor issues in translation, as a potential contributor to the [BIG+] phenotype. A genetic approach was taken to knock out each of four genes coding for proteins involved in RQC. These strains were used in luciferase reporter assays to examine the difference in translation phenotypes between mutant naïve and mutant [BIG+] strains. A notable change in the [BIG+] translation phenotype of mutants as compared to wild-type strains suggested the involvement of at least two RQC proteins, Hbs1 and Rli1, in the prion phenotype. These results are some of the first mechanistic insights into how this prion affects translation.

Wille, Gabrielle
English | University of Oregon
Research Mentor(s): Emily Simnitt
Co-Presenter(s): Frida Graumann
(In-Person) Data Stories–Data and more Data

Volunteering at GrassRoots Garden: How to Grow Individual and Community Food Literacy

Most college students are often disconnected from their food sources and are unaware of the positive effects that gardening has on their physical, mental, and emotional health. This project reports our personal experiences of volunteering at Food For Lane County's GrassRoots Garden, a community-funded garden that primarily grows produce for donation and strives to educate its volunteers. We have detailed the evolution of our understanding of gardening's role in food insecurity and community food literacy. Inspired by Robin Wall Kimmerer's Braiding Sweetgrass, our research reveals the reciprocal relationship between individuals or communities and gardening. As much as we can do for a garden, a garden can do for us. Our intention for this project is to inspire more college students to get involved in a community garden to increase their food literacy, as well as raise awareness of the benefits that working in the soil has on all aspects of one's health.

Wilson, Ashia
Environmental Studies | University of Oregon
Research Mentor(s): Alai Reyes
(Virtual) Poster Presentation

Methane Emissions in Hydropower Reservoirs

The Klamath Hydroelectric Project (FERC No.2082) does not track or manage their methane production and emissions related to their hydropower projects . Methane is a potent greenhouse gas resulting from the decomposition of organic material in environments with no oxygen; it has 80x the warming power compared to carbon dioxide during the first twenty years of being emitted into the atmosphere (contributes to climate change). PacifiCorp, owners, and operators of the Klamath Hydroelectric Project control 169-megawatt project located in a predominantly rural area in Southern Oregon. The project includes; Link River Dam, Keno Dam, J.C. Boyle Dam, Copco No. 1 Dam, Copco No. 2 Dam, and Iron Gate Dam. PacifiCorp states, "The project generates approximately 716 gigawatt-hours of emissions-free electricity on an annual basis – enough power to supply the energy needs of approximately 70,000 households."

Dam construction has significantly altered water, nutrient, and ecosystem dynamics and fluxes in river networks and is linked to the amplification of methane emissions in deep-water hydropower reservoirs . From the very beginning of these projects, the emission of methane is present . The United Nations, many individual countries, and western states classify hydropower projects as “clean energy.” Under the United Nations’ Clean Development Mechanism, dams are one of the most common projects funded with carbon offset funds.

Wilson, Max
Family and Human Services | University of Oregon
Research Mentor(s): Miriam
Co-Presenter(s): Hannah Volker
(In-Person) Poster Presentation

The relationship between prison work and education programs and employment post incarceration

Study Purpose: Individuals who were formerly incarcerated have a more difficult time gaining employment than those who weren’t. Education programs offered in prisons are meant to help reintegrate individuals back into society once they are released. These programs include educational resources that cover basic education, GED certification, degree programs, trade training, and more. The purpose of this study is to examine the relationship between prison education or work programs and employment post incarceration.

Study Design: Using data from the Life Study, a dataset consisting of 411 individuals reentering their communities after incarceration, we conducted a Pearson’s Correlation to determine the correlation between any participation in prison education or work programs, and employment post incarceration.

Findings: Our findings suggest that there is no statistically significant correlation between participating in a prison education or work program and employment post incarceration.

Conclusion: These results may indicate that variables beyond education are involved in limiting the ability to find employment after serving one’s sentence. They could also indicate that the current way these programs are run is ineffective at preparing individuals for finding jobs. Future research should further examine this relationship and explore how to make prison education programs more effective at educating incarcerated individuals and preparing them for the workforce at reentry.

Winningham, Annabel
Art History | Lane Community College
Research Mentor(s): Alexandria Nanneman
(In-Person) Oral Panel–Comics, Classics and Analysis

Princess Mononoke: A Masterpiece of Japanese Animation

Hayao Miyazaki's films are renowned for their fantastic visual complexity, cohesiveness, and heart-warming narratives. Miyazaki is able to unite oil-painting-like backgrounds with a great sense of depth and super-flat styled character to create playful, mystical, and breathtaking atmospheres. Although his art style is child-like and charming, the narratives of his work have very serious themes, and like much Japanese art post World War II, are highly influenced by westernization, industrialism, and the atomic bombings of Hiroshima and Nagasaki. In Princess Mononoke, he portrays a sense of nationalism with an appreciation for the traditional Japanese way of life, yet detests the influence that the modern world has had on Japanese culture, especially as it contradicts many of the basic morals of the central religion of Japan, Shinto. The focal theme of the film is environmentalism, but he dives into the complexity of this issue by also portraying the benefits that have come with western industrialization. The film depicts a seemingly unresolvable conflict between the animals and spirits of the forest versus humanity, yet by the end of the film, Miyazaki beautifully displays the harmony that can be achieved, but only after devastating conflict and disaster. The film is a warning. The final battle is suspenseful and action-pact, but the movie concludes on a deeply pensive and hopeful note. My essay is a visual, historical, and contextual analysis of Princess Mononoke.

Wisniewski, Adriana
Human Physiology, Multidisciplinary Science | University of Oregon
Research Mentor(s): Josh Snodgrass, Alicia DeLouize
(In-Person) Oral Panel–Healthy Considerations

The Prevalence of Metabolic Syndrome Components and their Association with HbA1c in Tunisia

Coauthors: Alicia DeLouize, Tian Walk, Josh Snodgrass

The prevalence of diabetes and other noncommunicable diseases (NCDs) is rapidly increasing worldwide. Metabolic syndrome (MetS) is characterized by a combination of metabolic components (e.g., abdominal obesity and elevated blood pressure) that are risk factors for NCDs such as cardiovascular disease, stroke, and type 2 diabetes. Anthropometric, biomarker, and sociodemographic data were collected from a nationally representative sample of individuals 15

years and older (n = 7444) as part of the Tunisian Health Examination Survey, a collaboration between the World Health Organization and the Tunisian Ministry of Health. Examining both diabetic and nondiabetic groups, we hypothesize that: 1) there will be positive associations between HbA1c levels and individual components of MetS, and 2) there will be positive associations between HbA1c levels and the cumulative number of MetS components. Results showed that both diabetic women and men had positive associations between HbA1c and triglyceride levels and between HbA1c and systolic blood pressure(SBP). Nondiabetic women and men had positive associations between HbA1c and LDL cholesterol levels and HbA1c and triglyceride levels. Nondiabetic men also had a negative association between HbA1c and HDL cholesterol levels. These findings highlight the different MetS components and metabolic risk factors that are associated with increasing HbA1c levels in Tunisian diabetic and nondiabetic populations.

Wong, Evan
History | University of Oregon
Research Mentor(s): Melissa Baese-Berk
Co-Presenter(s): Dylan Lew, Olivia Ward, Josh Weinrobe
(In-Person) Oral Panel–Communication: How and Why

Usage of Taboo Words in Online Settings of Varying Anonymity

This is an observational study to see how the use of taboo language on social media platforms changes depending on the anonymity of its users. To accomplish this, we examined the contents of comments on posts from three different social media platforms: Instagram, Reddit, and Twitter. Each of these varies slightly in how much emphasis is put upon the user's image, with Instagram emphasizing personal content production (selfies, snapshots, etc.) while Twitter and Reddit content being more impersonal (e.g. discussions, news, etc.). We hypothesized that users on platforms that promote personal content less would correlate with less frequent usage of taboo words, as usage of these words could be considered harmful to a user's image. For several days, we collected 100 comments total across several posts and tallied the number of total swears present across all comments. We also categorized each swear into either definite swears, and non-definite swears whose taboo nature is debated in order to measure the intensity of swearing. Our preliminary results conform to our initial hypothesis, with Instagram comments having much lower amounts of swearing present than on Reddit or Twitter. This may indicate that anonymity plays a significant role in user behavior online regarding swearing, with more anonymity corresponding with more intense and/or frequent swearing.

Woods, Micah
Environmental Science | University of Oregon
Research Mentor(s): Hope Healey, William Cresko
Co-Presenter(s): Vithika Goyal
(In-Person) Poster Presentation

Expression of FGF Signaling Genes during Threespine Stickleback Development

The fibroblast growth factor (fgf) signaling pathway is essential to vertebrate craniofacial development. Alterations in fgf receptors and ligands can lead to craniofacial disorders. While deleterious effects are observed in response to pathway mutations in many vertebrates, syngnathid fishes (pipefishes, seahorses, seadragons) have lost several of these genes (fgf3, fgf4, and others). Syngnathids have also evolved unique craniofacial features, such as an elongated snout, important to suction feeding, and absence of teeth. Since fgf3 and fgf4 are involved in craniofacial development, it is possible that their loss in syngnathids is related to the family's unique faces. Our lab is investigating the developmental impact of the loss of fgf3 and 4 in syngnathids. To establish the ancestral expression patterns of fgf genes, we studied stickleback fishes due to their recent divergence from syngnathids. Using in situ hybridization, we assessed the spatial localization of fgf expression in stickleback embryos through development. Embryos were imaged and fgf/fgfrs staining patterns were compared to zebrafish. We observed expression of fgfr1a and fgf3 in the pharyngeal arches of stickleback embryos, paralleling zebrafish. Understanding the ancestral expression patterns of genes in the fgf signaling pathway reveals the deep conservation of the fgf signaling pathway in stickleback and provides opportunities for better interpreting the impact of the losses of these genes in syngnathids.

Yeung, Natania
Architecture | University of Oregon
Research Mentor(s): Carli Torti
Co-Presenter(s): Sidney Zabell, Ian Dahl
(Virtual) Poster Presentation

Holy Dish! How wet dishes affect CO2 and humidity in a built space

Coauthors: Sidney Zabell, Ian Da

This study evaluated how placing dishes of different dryness levels in a cabinet contributed to increased levels of humidity and CO2. CO2 is a by-product of mold and mildew production, which can easily develop in an enclosed space with high humidity levels. This is a common issue in construction

and built spaces with limited airflow, and CO2 levels can be considered dangerous if above 1000 ppm. To see whether moisture levels would increase humidity and CO2 to hazardous levels, wet dishes were dipped in water and stacked inside a kitchen cabinet with a GOVEE humidity monitor and HOBO CO2 monitor. The plastic dishes were kept inside an isolated kitchen cabinet and kept closed for three days to record measurements of humidity and CO2 levels. We compared this data against the original humidity and CO2 levels inside the cabinet before any wet plates were put inside. Group 1 of testing was the control group of 12 dry plates. Group 2 of testing consisted of 3 wet and 9 dry plates, group 3 of 6 wet and 6 dry plates, and group 4 of 9 wet and 3 dry plates. The results show increased humidity and CO2 levels in all phases of testing. The increase of CO2 levels was nearly 25% higher in group 4 compared to the 10% increase in group 2, and increases in humidity levels were nearly 5% higher compared to group 1 indicating the correlation between moisture build-up in a small space and increased humidity and CO2 levels.

Yi, Eleanor
Business Administration | University of Oregon
Research Mentor(s): Chantelle Russell
Co-Presenter(s): Santino Gentile, Cheyenne Bissonnette, Alana Hilkey
(Virtual) Oral Panel–Strive to Thrive ARC

Impacts of Access to Nutritional Information on College Students

Our research entails the benefits of nutrition on the mind and body, as well as the effects of having access to nutritional information, specifically macronutrients and ingredients, for college students. Students having access to the nutritional information of dining halls would be greatly aided in their personal and/or medical diets. Firstly, we discuss the beneficial effects of nutritional decisions and how they can improve the mental stability and physical health of students and all adults in general, which was found through secondary, scholarly research. Making knowledgeable decisions about dietary intakes can improve mood, blood sugar levels, quality of life, movement, energy levels, sleep quality, cognitive function, and physical recovery. This leads to an improved general quality of life for college students. The next step in this research must be addressing whether students, in particular students attending the University of Oregon (UO), would similarly follow nutritionally beneficial diets to improve their mental and physical health in this way. This data was found via external research from previous studies nation/worldwide. It can be concluded that college students can and will make healthier dietary decisions upon learning about the nutritional information available to them via the dining halls. Multiple benefits, including mental and physical health as well as medical, would open up to students upon becoming knowledgeable in this subject matter.

Yim, Albert
Neuroscience | University of Oregon
Research Mentor(s): Jonathan Reeder
(In-Person) Poster Presentation

Wearable Microfluidic Colorimetric Sweat Sensors for Real-Time Personalized Hydration Monitoring

Continuous, real-time sweat analysis is an underdeveloped field with promising applications ranging from aiding clinical health care to tracking athletic performance. Noninvasive, biochemical metrics indicative of physical exertion, hydration, and injury risk are highly sought-after. Currently, microfluidic devices allow for noninvasive collection and storage of sweat through precisely engineered microchannels but lack a method to record continuous sweat rates. Sweat rate and biomarker composition are highly variant between individuals, requiring a personalized hydration feedback approach. The biomarker variance is significantly attributed to sweat rate, making rate normalized biomarker concentrations from recorded continuous sweat rates indicative of performance metrics. Photolithography was used to create molds with designed microchannels. SIS was used to create a soft, flexible device to collect, store, and analyze sweat. UVO treatment increased efficiency of device bonding and fabrication. Colorimetric reagents were used as the basis for a gradient system to characterize a continuous sweat rate. This was analyzed using video documentation and a pressure-driven flow pump at set flow rates to emulate sweating. Data obtained was suggestive this system was able to measure a continuous sweat rate but was not conclusive. Further research as the sources of inconsistency in results would be required before this would become a feasible method to measure biomarker changes.

Yin, Jiayi
Biochemistry | University of Oregon
Research Mentor(s): Mike Harms, Sophia Phillips
(In-Person) Poster Presentation

Determining How S100A9 Activates TLR4 Using Evolutionary and Biochemical Approach

Coauthors: Mike Harms, Sophia Phillip

The immune system activates inflammation in response to both foreign pathogens and internal damage. Dysregulated inflammation can lead to many chronic diseases such as arthritis, inflammatory bowel disease, and some cancers. S100A9, a protein expressed in immune cells, has

been found in high concentration in inflamed tissue of many of these chronic diseases. S100A9 strongly activates TLR4, a proinflammatory receptor, and thus activates pathological inflammation. Understanding how S100A9 interacts with TLR4 would be useful to create therapeutics to treat these diseases. My project is to use evolutionary and biochemical techniques to find out what sequence changes to S100A9 were important in its evolutionary history that led to greater proinflammatory activity. I will continue to characterize modern mammalian S100A9s that diverged more distantly from humans such as koala, platypus, and echidna, using recombinant protein expression and purification of S100A9 proteins from Escherichia coli followed by functional assays in human embryonic kidney cells. I will also couple these studies with further characterization of how TLR4 specificity and activity for endotoxin, the pathogenic ligand for which TLR4 evolved to recognize, changed in different species. These data will help us understand how the host protein S100A9 evolved inflammatory activity, and how TLR4 evolved to activate with a variety of ligands.

Zabell, Sidney
Architecture | University of Oregon
Research Mentor(s): Carli Torti
Co-Presenter(s): Ian Dahl, Natania Yeung
(Virtual) Poster Presentation

Holy Dish! How wet dishes affect CO2 and humidity in a built space

This study evaluated how placing dishes of different dryness levels in a cabinet contributed to increased levels of humidity and CO2. CO2 is a by-product of mold and mildew production, which can easily develop in an enclosed space with high humidity levels. This is a common issue in construction and built spaces with limited airflow, and CO2 levels can be considered dangerous if above 1000 ppm. To see whether moisture levels would increase humidity and CO2 to hazardous levels, wet dishes were dipped in water and stacked inside a kitchen cabinet with a GOVEE humidity monitor and HOBO CO2 monitor. The plastic dishes were kept inside an isolated kitchen cabinet and kept closed for three days to record measurements of humidity and CO2 levels. We compared this data against the original humidity and CO2 levels inside the cabinet before any wet plates were put inside. Group 1 of testing was the control group of 12 dry plates. Group 2 of testing consisted of 3 wet and 9 dry plates, group 3 of 6 wet and 6 dry plates, and group 4 of 9 wet and 3 dry plates. The results show increased humidity and CO2 levels in all phases of testing. The increase of CO2 levels was nearly 25% higher in group 4 compared to the 10% increase in group 2, and increases in humidity levels were nearly 5% higher compared to group 1 indicating the correlation between moisture build-up in a small space and increased humidity and CO2 levels.

Zaidan, Dana
Neuroscience | University of Oregon
Research Mentor(s): Joseph Bruckner, Judith Eisen
(In-Person) Poster Presentation

Exploring the effect of bacterial signaling pathways on zebrafish neuro-immune development

The gut microbiota has been linked to human health and development. We found that the gut microbiota is required for normal zebrafish social behavior, but how it influences the brain development required for social behavior is not well understood. We previously identified a population of zebrafish forebrain neurons that are also required for normal social behavior. By raising zebrafish "germ-free", we found that the microbiota is required for normal forebrain neuronal arborization. Microglia are brain-resident immune cells that remodel neurons and are excellent candidates for mediating interactions between the microbiota and the brain. We previously discovered that the microbiota promotes forebrain microglial abundance. We also found that neuronal arborization and microglial abundance are restored in germ-free fish after colonization with several different zebrafish-associated bacterial strains, suggesting that the microbiota might influence social neurodevelopment by a mechanism common to many bacteria. One pathway we explored involves a class of host proteins that receive bacterial signals called the Toll-like receptor (TLR) proteins. We also explored if and how proteins present in bacterial cell walls are sensed by host mechanisms in the brain. Identifying the signaling components that link the microbiota and brain development will clarify our understanding of how host-microbe interactions can influence human health.