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Resilience in Research and Creative Work

May 24, 2021

We are honored to welcome you to the 11th Annual Undergraduate Research Symposium. The Undergraduate Research 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.

In response to the pandemic we shifted to a virtual format in 2020 and despite the profound disruptions to research and creative work experienced by students and faculty over the past 14 months we are excited to celebrate the work of 287 presenters and their 240 faculty and graduate student mentors this year through 329 presentations across all eight colleges, 63 majors, 20 minor programs, 37 minors, and 15 institutes and centers.

We believe that hosting a virtual 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.

The event provides a valuable opportunity for students to advance their presentation skills and academic portfolios for scholarships, graduate school, and career paths—especially during a time when traveling to present in person at regional and national conferences is not possible.

The reach of the symposium continues to expand through the remote 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 grow the partnership with the Summer Academy to Inspire Learning (SAIL), which has developed a full pre-college collaboration day, including an interactive booklet for students, college student panels, live research demonstrations, and virtual campus tours.

Our collaborations with Lane Community College and Central Oregon Community College have also culminated with the highest number of community college student presentations at the symposium to date, as well as the annual transfer student research panel. Similarly, the UO’s Ronald E. McNair Scholars Program and Graduate School will welcome visiting McNair Scholars presentations.

The opportunity to record the students’ presentations has also enabled us to develop a permanent digital exhibit of undergraduate research and creative work on our symposium YouTube Channel, which hosts nearly 180 videos comprising over 400 presentations—an inventory that will grow with the addition of the 2021 presentations. Visitors may explore the channel’s content by keyword searching or perusing thematic playlists. Videos include the presenters’ abstracts and links to the full-resolution images of research posters.

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.

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 the Division of 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
Agenda Overview

Visit our website to see the full schedule with links to livestreamed and Zoom Webinar sessions, presenter names and abstract titles.

**May 24**

7:00 a.m. Individual poster presentation videos released for viewing on YouTube channel

8:00 a.m. Symposium Welcome Video: Remarks from symposium co-organizers Kevin Hatfield and Nadia Singh, ASURE, and McNair

9:00 a.m. Tamela Maciel, “West Coast to West Cork: 10 Years Since the UO”—Undergraduate Research Symposium Alumni Keynote Speaker

**May 25**

10:45 a.m.-12:15 p.m. Kidd Creative Writing—Line of Inquiry Panel 1

1:45–3:15 p.m. Kidd Creative Writing—Line of Inquiry Panel 2

3:30–5:00 p.m. Kidd Creative Writing—Line of Inquiry Panel 3

**May 26**

9:00 a.m.-3:15 p.m. Pre-College Collaboration Day

9:00-10:30 a.m. Community College Alumni Panel

9:00-10:30 a.m. Concurrent Sessions

10:45 a.m.-12:15 p.m. Concurrent Sessions

1:45-3:15 p.m. Concurrent Sessions

3:30-5:00 p.m. Concurrent Sessions

3:30-5:00 p.m. Kidd Creative Writing—Creative Reading Panel 1

5:15 p.m.-6:45 p.m. Kidd Creative Writing—Creative Reading Panel 2
May 27
9:00 a.m.-10:30 a.m.  Concurrent Sessions
10:45 a.m.-12:15 p.m.  Concurrent Sessions
1:45-3:15 p.m.  Concurrent Sessions
3:30-5:00 p.m.  Concurrent Sessions
5:15 p.m.-6:45 p.m.  Concurrent Sessions

Post-Symposium
All presentation videos will be available on the symposium YouTube channel as an ongoing digital exhibit of undergraduate research and creative work, curated through thematic playlists and keyword searchable.
Alumni Keynote Speaker

Tamela Maciel
West Coast to West Cork: 10 Years Since the UO

Monday, May 24, 2021, 9:00-10:30 a.m., on the symposium YouTube channel

After graduating from the UO as a physics and mathematics major and as the school’s third recipient of the prestigious Marshall Scholarship, Tamela Maciel earned a PhD in astrophysics from the University of Cambridge.

Since 2014 she has worked as a physics writer, editor, and public engagement manager with organizations such as the American Physical Society (Washington DC), Springer Nature (UK), and the National Space Centre (UK). She has extensive experience in research project management, science writing, and science public engagement, with a particular focus on space. Currently, Tamela works as the Project and Communication Manager for an air quality research project led by University College Cork, in Ireland.

Tamela grew up in the hills near Grants Pass, Oregon, and has a passion for the wilderness, the mountains, and the sea. After 10 years in the gentle countryside of middle England, she is delighted to now be based in the mountainous peninsulas of west cork, Ireland. She will share the opportunities and lessons from UO that prepared her for the past 10 years of research, science communication, love, and life abroad.
Week of Research Events
May 24–28, 2021

Alumni Speaker Keynote Address: Tamela Maciel
Monday, May 24, 9:00 a.m.
research.uoregon.edu/week-of-research/coast-to-cork

2021 UO Entrepreneurship Awards
Monday, May 24, 10:45 a.m.–12:15 p.m.
entrepreneurshipawards.uoregon.edu

Culturally Responsive Mentorship Workshop
Monday, May 24, 1:45 p.m.–3:15 p.m.
research.uoregon.edu/week-of-research

Sport and Wellness Initiative
Monday, May 24, 3:30–5:00 p.m.
research.uoregon.edu/week-of-research/sports-wellness

Three Minute Thesis Competition
Preliminary rounds: Tuesday, May 25, 9:00–10:30 a.m. Finals: 1:45 p.m.–3:15 p.m.
research.uoregon.edu/week-of-research/thesis-competition

The Science Communication Experience: UO Students, Research, Creative Work, and a New Minor
Tuesday, May 25, 10:00 a.m.–noon
research.uoregon.edu/week-of-research/science-communication

Environment Initiative Research Webinar
Tuesday, May 25, 10:45 a.m.–12:15 p.m.
research.uoregon.edu/week-of-research
Advancing Gender Equity in Academe: Challenges, Strategies, and Institutional Change with Ann Austin
Tuesday, May 25, 2:00–3:00 p.m.
research.uoregon.edu/week-of-research/advancing-gender-equity

Rehearsing for Life: Practical Skills for Difficult Dialogues
Tuesday, May 25, 3:30–5:00 p.m.
research.uoregon.edu/week-of-research/rehearsing-life

Asian Studies Research Event
Tuesday, May 25, 5:00–7:00 p.m.
research.uoregon.edu/week-of-research/asian-studies

Research Symposium Pre-College Collaboration Day
Wednesday, May 26, 9:00 a.m.–4:00 p.m.
research.uoregon.edu/week-of-research/pre-college

11th Annual Undergraduate Research Symposium
Thursday, May 27, 9:00 a.m.–5:00 p.m.
undergradsymposium.uoregon.edu

Civil War Prisons and the Problem of Confederate Memory
Friday, May 28, noon–1:00 p.m.
ohc.uoregon.edu/calendar_event/civil-war-prisons-and-the-problem-of-confederate-memory
Virtual Symposium Navigation Guide

Welcome to our 11th Annual (virtual) Undergraduate Research Symposium. In place of our traditional floor maps of the Erb Memorial Union (EMU) and poster location diagram, we offer the following virtual guide to the Symposium.

Accessing Presentations and Events

The full schedule for the Undergraduate Research Symposium and Week of Research is available on our Symposium Website. This schedule includes the session titles, names of presenters and faculty mentors, as well as abstracts and abstract titles.

The schedule also allows visitors to filter by venue (e.g. Livestream on YouTube Channel, Zoom Live Webinar, Prerecorded), and type (e.g. Pre-College, Provost Initiative, Undergraduate Research Symposium, Week of Research).

Registration is not required for any of the symposium sessions or Week of Research events.

Links are available to all sessions in the online schedule. A small sample of presentations and events will be livestreamed on the YouTube channels.

Online Exhibit of Undergraduate Research and Creative Work

All symposium presentations will be recorded and posted on the symposium YouTube channel after the Symposium as part of the permanent exhibit of undergraduate research and creative work. Visitors may search the site by thematic playlists and keyword search. Videos also includes students’ abstract titles and abstracts as well as links to high-resolution images of research posters.
Week of Research events will also be recorded and posted to the Week of Research YouTube channel following the event.

Prerecorded poster presentations will be available Monday, May 24; livestreamed events will be available immediately upon conclusion for asynchronous viewing; and all other symposium sessions and Week of Research events will be available in the following week.

Questions and comments for the presenters may be submitted during and after the event to ugresearch@uoregon.edu.
Presentation Awards

The awards given out at the symposium are intended recognize students who have an exceptional poster, oral presentation, or creative work.

The 2021 symposium partners with 23 departmental sponsors to offer 64 presentation awards totaling $13,600.

The symposium is honored to announce the inauguration of the following awards in 2021:

- Asian Studies Award
- Black Culture and Identity Award
- Creative Writing–Kidd Program Award
- Indigenous, Race, and Ethnic Studies (IRES) Award
- Institute of Neuroscience Poster Award
- Latinx Studies Award
- Native American and Indigenous Studies Award
- School of Architecture and Environment Award
- Theater Arts Award

The UO Libraries will further honor the winners of the Biology Poster Award, the CAS Dean’s Poster Award in Natural Sciences, the Human Physiology Poster Award, and the Phil & Penny Knight Campus for Accelerating Scientific Impact Poster Award by installing their posters in the Allan Price Science Commons and Research Library after the symposium.

University Housing will similarly honor the award winners by installing their posters in permanent “Undergraduate Research and Creative Work” exhibits in the residence halls.
School of Architecture and Environment Award (New for 2021)
The School of Architecture and Environment Award recognizes oral, poster, and creative work presentations focused on a topic in the interdisciplinary field of Architecture/Interior Architecture/Landscape Architecture/Historic Preservation and characterized by excellence and creativity in research and design, and clarity of delivery. One $300 award and two $100 awards for honorable mention will be awarded. These awards are co-sponsored by the School of Architecture and Environment and the Division of Undergraduate Education and Student Success.

Award Amount
One $300 award, and two $100 honorable mention awards.

Sponsorship
School of Architecture and Environment and Division of Undergraduate Education and Student Success

Eligibility and Conditions
• Open to current UO undergraduate students from the School of Architecture and Environment
• Must be accepted to present at the 2021 UO Undergraduate Research Symposium.
• If delivering a poster presentation, the digital poster must be submitted no later than May 18 to be eligible for judging (submission link will be provided to symposium registrants).

Asian Studies Award (New for 2021)
The Asian Studies Award recognizes oral, poster, and creative work presentations focused on a topic in the broad, interdisciplinary field of Asian Studies and characterized by excellence in research and clarity of delivery. One $300 award and two $100 honorable mention awards will be given. These awards are sponsored by the Asian Studies Program and the Division of Undergraduate Education and Student Success.

Award Amount
One $300 award, and two $100 honorable mention awards will be given.
Sponsorship
Asian Studies Program and Division of Undergraduate Education and Student Success

Eligibility and Conditions
• Open to current UO undergraduate students from all academic disciplines and majors.
• Must be accepted to present at the 2021 UO Undergraduate Research Symposium.
• If submitting a digital poster, the submission deadline is May 18 to be eligible for judging (submission link will be provided to symposium registrants).

Biology Poster Award
The Department of Biology will offer one $300 award, and may award up to three $100 honorable mention awards for posters with honorable mentions, in the fields of biology and marine biology. Judging will be performed by senior level graduate students.

Award Amount
One $300 award, and may award up to three $100 honorable mention awards.

Sponsorship
Department of Biology

Eligibility and Conditions
• A current undergraduate UO Biology or Marine Biology major working in any science lab at the University of Oregon.
• An undergraduate student (from any major) who is doing work in a lab run by a biology department faculty member.
• The award recipients must be accepted to and present at the 2021 UO Undergraduate Research Symposium.
• The digital poster must be submitted no later than May 18 to be eligible for judging (submission link will be provided to symposium registrants).
2020 Award Recipients
$300 award
• Anna Kulawiec, “The Contributions of Polycomb Repressive Complex 2 and H3K27me3 in Gene Repression”

$100 award
• Adeline Fecker, “Social Behavior is Visually Driven”
• Rennie Kendrick, “Memory Representation Contain Conceptual and Perceptual Information”
• Alina Salagean “Defining the roles of conserved DNA repair complexes in maintenance of C. elegans meiotic genome integrity”

Black Culture and Identity Award (New for 2021)
The Lyllye Reynolds-Parker Black Cultural Center in partnership with Black Studies academic program will offer awards for students who have a Black Culture and/or Identity focus to their research, performance, etc. presented at the Undergraduate Research Symposium. Specifically, we desire to see projects that personify the nuanced, celebratory, and/or complexity of Black identity. We seek projects that range from academic research to performance art. The essence of Black culture and identity should an integral part of the project presented.

Award Amount
Three total awards will be given: two for oral presentations and/or performance awards, and one for a poster presentation.

Oral Presentation and/or Performance Awards
1 $250 award
1 $150 award

Poster presentation Award
1 $100 award

Sponsorship
Lyllye Reynolds-Parker Black Cultural Center, Black Studies Academic Program, and Division of Undergraduate Education and Student Success
Eligibility and Conditions

- A current UO undergraduate, enrolled full-time, from any academic discipline and major. Participants may self-select into one of the categories above (poster or oral/performance presentation) for award consideration.
- Oral Presentation and/or Performance Award. Must be present their work orally or via performance at the symposium. Note: this year, since all oral sessions will be recorded, there is no need to submit any additional recording. The review will be based off the recorded oral/performance presentation.
- Poster Presentation Award. The digital poster must be submitted no later than May 18 to be eligible for judging (submission link will be provided to symposium registrants).
- The award recipients must be accepted to and present at the 2021 UO Undergraduate Research Symposium.

CAS Dean’s Poster Awards

The University of Oregon College of Arts and Sciences (CAS) serves as the “heart and soul” of the institution, providing nearly 50 majors across the humanities, natural sciences, and social sciences. The college boasts a highly accomplished and renowned research faculty who provide students with an unparalleled academic experience.

Award Amount

Three $350 awards total, one in each of the following categories:
- CAS Dean’s Poster Award in Humanities
- CAS Dean’s Poster Award in Social Sciences
- CAS Dean’s Poster Award in Natural Sciences

Sponsorship

College of Arts and Sciences

Eligibility and Conditions

- Participants must be current University of Oregon undergraduate student majoring in the Humanities, Social Sciences, or Natural Sciences
- The award recipients must be accepted to and present at the 2021 UO Undergraduate Research Symposium.
• The digital poster must be submitted no later than May 18 to be eligible for judging (submission link will be provided to symposium registrants)

2020 Award Recipients

CAS Dean’s Award in Humanities
• Zoe Haupt with Tillena Trebon, Maggie Wallace, and Allegra Wesson “The competitive relationship between linguistic perception and production when learning a new sound contrast”
Honorable Mention
• Maya Mackey and Abbey Ward “Language Proficiency and Lexical-Semantic Processing in Bilingual Toddlers”

CAS Dean’s Award in Social Sciences
• Abby Keep “Peace Canal: Conflict, Cooperation, and the Red Sea-Dead Sea Water Conveyance”

CAS Dean’s Award in Natural Sciences
• Faith Collins “Valence modulates self/other neural recapitulation during interpersonal perception”

Center for Environmental Futures Award

With generous funding from the Andrew W. Mellon Foundation, this award recognizes oral and poster presentations involving undergraduate research in the field of environmental humanities, which contextualizes and complements environmental science and policy by pursuing research on narrative, critical thinking, history, cultural analysis, aesthetics, and ethics of diverse environmental topics and issues, such as land use, animals, resource allocation, agriculture, species conservation, climate change, water, and other related issues. Research in environmental justice is also an integral part of the environmental humanities at the UO.

Award Amount
Three $500 awards will be given.

Sponsorship
Center for Environmental Futures
Eligibility and Conditions
• Open to current UO undergraduate students from all academic disciplines and majors
• Must be accepted to present at the 2021 UO Undergraduate Research Symposium
• The digital poster must be submitted no later than May 18 to be eligible for judging (submission link will be provided to symposium registrants).

2020 Award Recipients
• Jaemie Bynum and Alexandra Acosta-Torres “COVID-19, Climate Change, and Collages—A creative analysis disguised as an educational approach to inform about the connection between climate change and COVID-19”
• Michaela Fishback “Population Dynamics in Endemic Serpentine Grassland Plant Communities Amid Anthropogenic Environmental Change”
• Abby Keep “Peace Canal: Conflict, Cooperation, and the Red Sea-Dead Sea Water Conveyance”
• Cal Penkauskas «Hogs and Hazelnuts: Resolving conflict between oak conservation and organic agriculture” (time marker 20:13)
• Amy Shannon “Alutiiq Use of Birds at Rice Ridge (49-K00-363), Kodiak Island”

Creative Writing—Kidd Program Award (New for 2021)
The Creative Writing—Kidd Program Award recognizes excellent oral and creative work presentations from students currently enrolled in the Walter and Nancy Kidd Creative Writing Workshops. For the oral presentations, students will present on their Line-of-Inquiry project, their own exploration into the craft of writing. For the creative presentations, students will give a literary reading of their creative work. One award of $150 will be given for best craft (LOI) presentation and one award of $150 will be given for best creative work presentation, with $100 for one honorable mention in each category.

Award Amount
Two $150 awards, and $100 honorable mention in each category

Sponsorship
Creative Writing Program and Division of Undergraduate Education and Student Success
Eligibility and Conditions
- Open to current UO undergraduate students who are enrolled in the Kidd Program workshop
- Must be accepted to present at the 2021 UO Undergraduate Research Symposium.
- The digital poster must be submitted no later than May 18 to be eligible for judging (submission link will be provided to symposium registrants).

Data Stories Presentation Award
The Data Stories Presentation Award recognizes a data story presented at the Undergraduate Research Symposium. The Grand Prize recipient (1) will receive an award with a value of $300 and two (2) honorable mention recipients will each receive $100 awards.

Award Amount
One $300 award, and two $100 honorable mention awards will be given.

Sponsorship
UO Libraries / Data Services

Eligibility and Conditions
- Open to current UO undergraduate students from all academic disciplines and majors.
- The recipients must be accepted to and present in the Data Stories format at the 2021 UO Undergraduate Research Symposium.
- The award may be used to support the student’s pursuit of research or continued research methods or data education or training.
- Judging will be performed by members of UO Libraries Data Services Department staff and selected student employees.
- The digital poster must be submitted no later than May 18 to be eligible for judging (submission link will be provided to symposium registrants).

2020 Award Recipients
$300 Award
- Maya Auld “What does being Latino/Latina/Latinx mean to you?": A Thematic Analysis of Oregon Latinx Students and Their Ethnic Identity"
Honorable Mention ($100 Award)
• Caryassa Dieni “The Transmission of Ecological Knowledge Through Star Myths”
  Ryan Leriche “Learning to learn: Making sense of electrophysiology data”

Division of Undergraduate Education and Student Success—Oral Presentation Award
The award recognizes undergraduate students who are delivering an oral presentation at the symposium. The award has a value of $500 and must be used to attend an academic conference within one year of receiving the award. A graduating Senior is eligible to receive the award as a scholarship. The Center for Undergraduate Research and Engagement (CURE) can assist the recipient with identifying a conference and preparing their application and presentation.

Award Amount
One $500 award will be given.

Sponsorship
Division of Undergraduate Education and Student Success

Eligibility and Conditions
• Open to current UO undergraduate students from all academic disciplines and majors.
• Must be accepted to present orally at the 2021 UO Undergraduate Research Symposium.
• This year, since all oral sessions will be recorded, there is no need to submit any additional recording. The review will be based off the recorded oral presentation.
• The award will be provided in the form of a scholarship to the student’s billing account.

2020 Award Recipient
$500 Award
• Cal Penkauskas “Hogs and Hazelnuts: Resolving conflict between oak conservation and organic agriculture” (time marker 20:13)

Food Studies Award
The Food Studies Award recognizes oral presentations or posters focused on a topic in the broad, interdisciplinary field of food studies and characterized by excellence in research and
clarity of delivery. This award is sponsored by the Food Studies Program and the Division of Undergraduate Education and Student Success.

**Award Amount**
One $300 award, and one $100 honorable mention award will be given.

**Sponsorship**
Food Studies Program and Division of Undergraduate Education and Student Success

**Eligibility and Conditions**
- Open to current UO undergraduate students from all academic disciplines and majors.
- Must be accepted to present at the 2021 UO Undergraduate Research Symposium.
- The digital poster must be submitted no later than May 18 to be eligible for judging (submission link will be provided to symposium registrants).

**2020 Award Recipients**

$300 Award
- Momo Wilms-Crowe “Desde Abajo, Como Semilla:” Puerto Rican Food Sovereignty as Embodied Decolonial Resistance"

$100 Honorable Mention
- Emma Fallon “A Qualitative Study of Accessibility, Quality, and Affordability of Healthy Foods Within a Rural Oregon Town”

**Department of Global Studies Award**

The Department of Global Studies Award recognizes oral presentations or posters focused on an international or intercultural topic and characterized by excellence in research and clarity of delivery.

**Award Amount**
One $300 award, and two $100 honorable mention awards will be given.

**Sponsorship**
Department of Global Studies

**Eligibility and Conditions**
- Open to current UO undergraduate students from all academic disciplines and majors.
• Must be accepted to present at the 2021 UO Undergraduate Research Symposium.
• The digital poster must be submitted no later than May 18 to be eligible for judging (submission link will be provided to symposium registrants).

**2020 Award Recipients**

**$300 Award**
• Maya Mackey “Ethnolinguistic Vitality of Spanish in Eugene”

**$100 Honorable Mention**
• Raimy Khalife-Hamdan “Uneven Citizenship: Post-September 11 Immigration Enforcement and Separation of Arab, Middle Eastern, and Muslim Families”
• Emma Zairi, Eloise Navarro, Edwin Guerrero “Impacts of Tourism on Machu Picchu”

**Human Physiology Poster Award**

The Department of Human Physiology, on behalf of the American Physiological Society (APS) Local Undergraduate Research Awards in Physiology (LURAP), will offer one $200 LURAP Award for a poster in the field of physiology. In addition, the Department of Human Physiology will offer five $100 Honorable Mention Awards for posters in the field of physiology. Judging for the awards will be performed by two faculty members, one of whom is a current member of the APS, in collaboration with faculty members and/or senior level graduate students.

**Award Amount**
One $200 award including a one-year APS undergraduate membership, and other APS materials, and five $100 awards will be given.

**Sponsorship**
Monetary component of each award provided by the Department of Human Physiology. One-year student APS membership and memorabilia kindly provided by the American Physiological Society.

**Eligibility and Conditions**
• For the LURAP Award, a current undergraduate UO Human Physiology major working on physiology in any science lab at the University of Oregon.
• For the Honorable Mention Awards, a current undergraduate UO Human Physiology major working in any science lab at the University of Oregon.
• For the Honorable Mention Awards, an undergraduate student (from any major) who is doing work in a lab run by a human physiology faculty member.
• The award recipients must be accepted to and present at the 2021 UO Undergraduate Research Symposium.
• The digital poster must be submitted no later than May 18 to be eligible for judging (submission link will be provided to symposium registrants).

2020 Award Recipients

$200 Award
• Byron Lee “Robo4 and its relationship to Alzheimer’s Disease”

$100 Award
• Mohini Bryant-Ekstrand “Cardiopulmonary Differences in Apnea Divers Breathing Isocapnic Normobaric Hypoxia”
• Dominique Denning “Comparison of Stop-Signal and Continuous Movement Reaction Stop Times to Measure Inhibitory Control”
• Vanessa Hufnagel “Electrophysiological Patterns of Skilled Movement”
• Sydney Kobak “Histamine and Cardiovascular Adaptation to Endurance Exercise”
• Karina Shah “Investigating the Relationship between Acute Mountain Sickness, Patent Foramen Ovale, and Systemic Inflammation”

Indigenous, Race and Ethnic Studies (IRES) Award (New for 2021)
The Department of Indigenous, Race and Ethnic Studies will recognize outstanding research and creative work in projects focused on the study of ethnicity, race, and indigeneity, connected to issues of gender, class, sexuality, migration, indigeneity, and colonialism. Projects should highlight the perspectives and experiences of people of color related to social justice, identity and resistance.

Award Amount
Two $200 awards and one $100 award for honorable mention will be given.

Sponsorship
IRES and Division of Undergraduate Education and Student Success
Eligibility and Conditions
Open to current UO undergraduate students from all academic disciplines and majors. Must be accepted to present at the 2021 UO Undergraduate Research Symposium. Must be a project related to Indigenous, Race and Ethnic Studies. Presentations may be delivered in any format – oral, poster, creative work, or data stories. If submitting a digital poster, the submission deadline is May 18 to be eligible for judging (submission link will be provided to symposium registrants).

Institute of Neuroscience (ION) Poster Award *NEW for 2021
The Institute of Neuroscience (ION) will sponsor two $300 awards at the Undergraduate Research Symposium. One award will be given to an undergraduate student who is presenting a poster, is a declared Neuroscience major or involved in research that involves observation or experimental manipulation of the nervous system of any organism. ION is committed to broadening the participation of individuals in neuroscience research in traditionally underrepresented groups. A second ION diversity and equity award ($300) will be presented to a student who is part of an underrepresented group and is a declared Neuroscience major or involved in research that involves observation or experimental manipulation of the nervous system of any organism.

Award Amount
Two $300 awards, one in each of the following categories: One $300 "ION Poster Award" to a declared Neuroscience major or other major and is involved in studying the nervous system. One $300 “ION Diversity and Equity Award” to a student who is part of an underrepresented group, and is a declared Neuroscience major or other major and is involved in studying the nervous system

Sponsorship
Institute of Neuroscience

Eligibility and Conditions:
• A current UO undergraduate, enrolled full-time, declared Neuroscience major or conducting research involving the nervous system.
• Participants may self-select into one of the two categories above for award consideration
• The award recipients must be accepted to and present at the 2021 UO Undergraduate Research Symposium.
• The digital poster must be submitted no later than May 18 to be eligible for judging (submission link will be provided to symposium registrants).

Latinx Studies Award (New for 2021)
The Latinx Studies Program will recognize outstanding research and creative work in projects related to Latinx Studies from all academic disciplines and majors.

Award Amount
Two $200 awards, and one $100 award for honorable mention will be given.

Sponsorship
Latinx Studies Program and Division Undergraduate Education and Student Success

Eligibility and Conditions:
• Open to current UO undergraduate students from all academic disciplines and majors.
• Must be accepted to present at the 2021 UO Undergraduate Research Symposium.
• Must be a project related to Latinx Studies.
• Presentations may be delivered in any format—oral, poster, creative work, or data stories.
• If submitting a digital poster, the submission deadline is May 18 to be eligible for judging (submission link will be provided to symposium registrants).

Museum of Natural and Cultural History Undergraduate Research Poster Award
The award recognizes a project involving museum collections and/or research projects. The award has a value of $250, and may be taken in cash or used to cover fees and travel costs associated with the presentation of student work at disciplinary or national conferences or symposiums. Judging will be performed by the UO Museum of Natural and Cultural History staff.

Award Amount
One $250 award will be given.
Sponsorship
UO Museum of Natural and Cultural History

Eligibility and Conditions
Open to current UO undergraduate students from all academic disciplines and majors. Must be accepted to present at the 2021 UO Undergraduate Research Symposium. The digital poster must be submitted no later than May 18 to be eligible for judging (submission link will be provided to symposium registrants).

2020 Award Recipient
• Shelby Saper “Assessing Typology of Pre-Mazama Corner-notched Points in the Northern Great Basin”

Native American and Indigenous Studies Award (New for 2021)
The Native American and Indigenous Studies Program (NAIS) will recognize outstanding research and creative work in projects focused on interdisciplinary projects within Native American and Indigenous studies. We encourage work from history, anthropology, law, literature, linguistics, education, ethnic studies, environmental studies, political science, philosophy, theater arts, journalism and communication, and other disciplines that seeks to understand Native American history, culture, politics, and contemporary lives.

Award Amount
Two $200 awards and one $100 award for honorable mention will be given.

Sponsorship
IRES, NAIS, and Division of Undergraduate Education and Student Success

Eligibility and Conditions
• Open to current UO undergraduate students from all academic disciplines and majors.
• Must be accepted to present at the 2021 UO Undergraduate Research Symposium.
• Must be a project related to Native American and Indigenous Studies.
• Presentations may be delivered in any format—oral, poster, creative work, or data stories.
• If submitting a digital poster, the submission deadline is May 18 to be eligible for judging (submission link will be provided to symposium registrants).
Phil and Penny Knight Campus for Accelerating Scientific Impact Poster Award

The Knight Campus Poster Award recognizes undergraduate poster presentations characterized by excellence in research and in clarity of design and presentation. The award has a value of $500 and must be used to attend an academic conference within one year of receiving the award.

Award Amount
$500

Sponsorship
Phil and Penny Knight Campus for Accelerating Scientific Impact

Eligibility and Conditions
• Open to current UO undergraduate students conducting research in a Knight Campus Faculty Lab or Knight Campus Associate Faculty Lab.
• Must be accepted to present at the 2021 UO Undergraduate Research Symposium, and must be returning to the UO the following academic year.
• The award may only be used to assist with attendance to present research at a local, regional, or national conference within one year of award announcement.
• The award may be used to pay for travel, conference registration and/or accommodations.
• The digital poster must be submitted no later than May 18 to be eligible for judging (submission link will be provided to symposium registrants).

2020 Award Recipient
Jacob Evarts “Propagating Putative Prion States in RNA Modifying Proteins in Budding Yeast”

Psychology Poster Awards

The Department of Psychology will offer one $300 Grand Prize Award for the best psychology poster. In addition, two $100 specialty awards will be offered: The Innovation Award will be given to a poster demonstrating a particularly novel research question, methodology, and/or application; and the Methodological Excellence Award will recognize exemplary practices in replicability, transparency, and/or open science. Judging will be performed by psychology
researchers (i.e., psychology faculty, post docs, graduate students, and research associates affiliated with the UO).

**Award Amount**
One $300 award, and two $100 awards will be given.

**Sponsorship**
Department of Psychology

**Eligibility and Conditions**
- Open to current UO undergraduate students who are conducting research in a lab run by a psychology department faculty member.
- The award recipients must be accepted to and present at the UO 2021 Undergraduate Research Symposium.
- The digital poster must be submitted no later than May 18 to be eligible for judging (submission link will be provided to symposium registrants).

**2020 Award Recipients**

**$300 Award (shared)**
- Alex Boxberger “The effect of maternal borderline personality disorder symptoms on child externalizing problems, as mediated by parenting stress and maternal warmth”
- Amy Chen “Individual differences in memory self-efficacy and learning ability”

**$100 Award**
- Clare Brinkman “Naturalistic Perspective Taking: Themes Found in People’s Naturalistic Accounts”

**Residence Hall Association (RHA) First-Year Student Presenter Award**
The Residence Hall Association (RHA) award recognizes presentations of any format, and in all academic disciplines. The award is open to any student living within University of Oregon Housing residence halls, and includes first-year, as well as upper division undergraduate residents. This award is sponsored by the University of Oregon Residence Hall Association.
A single $500 award will be given to the best individual presentation, and may be used to attend an academic conference or visit a graduate school prior to the recipient’s graduation. One $500 award will be given to the best group presentation (e.g. ARC or FIG) and may be used for a group-related professional development or academic activity (e.g. travel to Pine Mountain Observatory).

**Award Amount**
One $500 award for best individual presentation, and one $500 award for best group presentation will be given.

**Sponsorship**
Residence Hall Association

**Eligibility and Conditions:**
- Open to current first-year (first-time, full-time), as well as upper division UO undergraduate students from all academic disciplines and majors, who lived in a University Housing residence hall at any time during the current academic year (Fall 2020 through Spring 2021).
- Must be accepted to present at the 2021 UO Undergraduate Research Symposium.
- The digital poster must be submitted no later than May 18 to be eligible for judging (submission link will be provided to symposium registrants).

**Theater Arts Award (New for 2021)**
The Theater Arts Award recognizes oral, poster, and creative work presentations focused on a topic in the broad, interdisciplinary field of Theater Arts and characterized by excellence in research and/or creativity and clarity of delivery. Two $200 awards (for Stage Design/Craft and Costume Design/Craft) and one $100 honorable mention award will be given. These awards are co-sponsored by the Department of Theater Arts and the Division of Undergraduate Education and Student Success.

**Award Amount**
Two $200 awards (for Stage Design/Craft and Costume Design/Craft), and one $100 honorable mention award will be given.
Sponsorship
Department of Theater Arts and Division of Undergraduate Education and Student Success

Eligibility and Conditions
Open to current UO undergraduate students from all academic disciplines and majors

Award criteria includes
- Transparency of process—from goal/intent to creative realization
- Use of research for design
- Creative depth
- Presentation style
- Must be accepted to present at the 2021 UO Undergraduate Research Symposium
- If delivering a poster presentation, the digital poster must be submitted no later than May 18 to be eligible for judging (submission link will be provided to symposium registrants).

UO Common Reading Award
UO Common Reading is a campus-wide conversation that begins between you and the book. But it doesn’t end there: the Undergraduate Research Symposium Committee wants to support students in continuing this conversation with the whole campus community. The Undergraduate Research Symposium Committee and UO Common Reading are offering awards for students who focus on the Listen. Learn. Act. framework in their research, creative work, etc. presented at the 2021 UO Undergraduate Research Symposium. Projects must relate to either or both of this year’s Common Reading selections: Kim Johnson’s *This is My America* or The 1619 Project Podcast.

Award Amount
Four total awards will be given: two for oral presentations and performance, and two for creative work.

Oral Presentation and Performance Awards
- $125 award, oral presentation
- $125 award, performance
Creative Work Awards
- $125 award, artforms
- $125 award, creative writing

Sponsorship
UO Common Reading Program and Division of Undergraduate Education and Student Success

Eligibility and Conditions
- Any current UO undergraduate from any academic discipline and major
- Participants may self-select into one of the categories above for award consideration
- Presentation and/or Performance Awards
- Must present work live, orally or via performance, during the virtual symposium. Note: All oral/performance sessions will be recorded for review and to be shared on the symposium website
- Performance pieces and presentations (oral discussion of project or poster, dance, music, theatre, poetry, storytelling, data story, etc.) should respond directly to either/both Kim Johnson’s *This is My America* or The 1619 Project Podcast.

Creative Work Awards
- Creative works include 2D or 3D objects, audio or digital recordings and short form creative writing (poems, short stories, personal essays, letters, vignettes, lyrics, scripts, etc.) should respond directly to either/both Kim Johnson’s *This is My America* or The 1619 Project Podcast
- Must submit files, images, links, other materials no later than May 18 to be eligible for award review (submission link will be provided to symposium registrants). Note: Images and creative works submitted may be shared on the symposium website.
- Award recipients must be accepted to the 2021 Undergraduate Research Symposium. The Symposium will host a special “Common Reading Experience” session on Thursday, May 27.

2020 Award Recipient
- Kat Sincuir Alvarez “Estrella’s Portrait”
UROP Poster Award

The award recognizes undergraduate poster presentations characterized by excellence in research and in clarity of design and presentation. The award has a value of $500 and must be used to attend an academic conference within one year of receiving the award.

Award Amount

One $500 award will be given.

Sponsorship

Undergraduate Research Opportunities Program, Office for Research and Innovation

Eligibility and Conditions

• Open to current UO undergraduate students from all academic disciplines and majors.
• Must be accepted to present at the 2021 UO Undergraduate Research Symposium.
• Must be returning to the UO the following academic year (seniors graduating in 2021 are not eligible for this award).
• The award may only be used to assist with attendance to present research at a local, regional, or national conference within one year of award announcement.
• The award may be used to pay for travel, conference registration and/or accommodations.
• The digital poster must be submitted no later than May 18 to be eligible for judging (submission link will be provided to symposium registrants).

2020 Award Recipient

• Theemeshni Govender “Interactive Effects of Social Support and Self-Complexity on Depressive Symptoms in Adolescent Girls”
Acknowledgements

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

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Tien-Tien Yu  
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Singer Science Librarian, UO Libraries
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. In response to the pandemic we shifted to a virtual symposium in 2020 for the 10th anniversary and were honored to host 380 presenters and 213 faculty mentors.

Despite the profound disruptions to research and creative work experience by students and faculty over the past year, we are inspired to celebrate the work of 287 presenters and their 240 faculty mentors at the 2021 Symposium through 329 presentations across all eight colleges, 63 majors, 20 minor programs, 37 minors, and 15 institutes and centers.

Over the past ten years the Symposium has hosted nearly 2,900 student presenters.

**Presenter Profile**

<table>
<thead>
<tr>
<th>Total presentations</th>
<th>329</th>
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<tbody>
<tr>
<td>Total presenters</td>
<td>287</td>
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<tr>
<td>Total faculty mentors</td>
<td>240</td>
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**All Colleges: Major and Minor Programs Represented**

<table>
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<tr>
<th>Colleges</th>
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<tbody>
<tr>
<td>Majors</td>
<td>63</td>
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<tr>
<td>Minor programs</td>
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<td>Minors</td>
<td>37</td>
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**Institutional Profile**

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<th>UO—FTFT students</th>
<th>233</th>
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<tr>
<td>UO—Transfer students</td>
<td>43</td>
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<tr>
<td>ARC students (former and current)</td>
<td>103</td>
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<tr>
<td>Central Oregon Community College</td>
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<tr>
<td>Lane Community College students</td>
<td>6</td>
</tr>
<tr>
<td>Visiting McNair Scholars</td>
<td>2</td>
</tr>
</tbody>
</table>
Class Standing
First-year (0–44.99 credits) ............. 15 (5%)
Sophomores (45–89.99 credits) ....... 27 (10%)
Juniors (90–134.99 credits) ........... 27 (10%)
Seniors (≥135 credits) ............... 207 (75%)

Research Type
Clark Honors College .................. 80
Indep/Faculty-mentored/Multi-term .... 149
Course-based/Single-term .............. 154
Departmental honors ................... 119
Summer term ......................... 20
Academic Residential Community (ARC) . 37
Service learning ....................... 13
Study abroad/International projects ... 1

Presentation Type
Poster .................................... 136 (41%)
Oral .................................... 169 (51%)
Data Stories ........................... 3 (>1%)
Creative works ........................ 21 (8%)

Research Area by Presentations
Social science projects ............ 154 (47%)
Natural/physical sciences ........ 110 (34%)
Humanities projects ............... 41 (12%)
Fine/performance arts projects ... 12 (3.5%)
Design .................................. 12 (3.5%)

Major and Minor Programs Represented by College

College of Arts and Sciences .... (43)
Biology .................................. 30
Psychology .............................. 26
Human Physiology .................... 25
Environmental Studies .............. 17
Environmental Science ............. 16
Political Science ...................... 14
Sociology ................................ 14
International Studies ............... 13
Linguistics ............................. 11
Anthropology .......................... 10
Physics .................................. 10
Biochemistry ........................... 9
Chemistry ................................ 9
Economics .............................. 9
Computer and Information Science .. 7
English .................................. 7
Spanish .................................. 7
General Science ...................... 6
Exploring ............................... 5
Indigenous, Race and Ethnic Studies .. 4
Mathematics ............................ 4
Neuroscience ........................... 4
Spatial Data Science and Technology .. 4
Cinema Studies ....................... 3
General Social Science ............. 3
Earth Sciences ......................... 3
Global Studies ......................... 3
Mathematics & Computer Science .................. 3
Philosophy ........................................... 3
Romance Languages ................................. 3
Theater Arts .......................................... 3
Asian Studies ........................................ 2
History ................................................. 2
Japanese ............................................... 2
Chinese ................................................. 1
Comparative Literature ............................. 1
Data Science .......................................... 1
Geography ............................................ 1
Language Teaching Studies ......................... 1
Latin American Studies ............................... 1
Marine Biology ....................................... 1
Pre-Global Studies .................................. 1
Women’s, Gender, and Sexuality Studies ....... 1

Minor Programs ................................. (14)
Global Health ....................................... 15
Creative Writing ..................................... 7
Comics and Cartoon Studies ....................... 4
Ethics .................................................. 3
Food Studies ......................................... 3
Disability Studies .................................... 2
East Asian Studies ................................... 2
Folklore and Public Culture ......................... 2
Writing, Public Speaking, and Critical Reasoning ........................................... 2
African Studies ....................................... 1
Classical Civilization ................................ 1
Criminology .......................................... 1

Minors ................................................. (26)
Chemistry ............................................. 29
Biology ............................................... 18
Spanish ................................................. 15
Earth Sciences ....................................... 6
Mathematics .......................................... 6
Biochemistry ......................................... 5
Environmental Studies ............................. 5
English ................................................ 4
Sociology ............................................. 4
Economics ............................................ 2
French ............................................... 2
History ............................................... 2
Japanese .............................................. 2
Theater Arts .......................................... 2
Women’s Gender, and Sexuality Studies ....... 2
Anthropology ......................................... 1
Chinese .............................................. 1
Classical Civilization ............................... 1
Comparative Literature ............................ 1
Computer and Information Science ............. 1
Geography ............................................ 1
Indigenous, Race, and Ethnic Studies .......... 1
Medieval Studies ..................................... 1
Physics ............................................... 1
Political Science ..................................... 1
Psychology .......................................... 1
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<td>College of Education</td>
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<td>College of Design</td>
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<td>Sustainable Business 5</td>
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Minors ......................................... (1)
Business Administration .................. 1

School of Law ............................... (1)
Minor Programs ............................. (1)
Legal Studies ............................... 12

Centers and Institutes
Institute of Neuroscience ............... 17
Phil and Penny Knight Campus for
Accelerating Scientific Impact ......... 10
Institute of Molecular Biology ........ 8
Center for Translational Neuroscience .. 5
Institute of Ecology and Evolution ... 4
Materials Science Institute .......... 4
Pine Mountain Observatory .......... 3
Prevention Science Institute ........ 3
Center for High Energy Physics (CHEP) .. 2
Institute of Theoretical Science ... 2
Oregon Institute of Marine Biology ... 2
Brain and Memory Lab ............. 1
Center for Environmental Futures ... 1
Institute of Fundamental Science ... 1
Oregon Center for Optical, Molecular, and Quantum Science .... 1

Research Fellowship (HURF) .......... 10
Ronald E. McNair Scholars Program ... 10
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Research Fellowship (FYRE) Award .. 5
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Research Scholars (PURS) ........ 5
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and Engagement (CURE) Emergency
Funding ......................... 4
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Research Summer Program for
Undergraduate Scholars (SPUR) .... 4
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Humanities Undergraduate
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<tr>
<th>Funding Source</th>
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<th>Funding Amount</th>
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<tr>
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<td>Robert D. Clark Honors College Diversity, Equity and UO Summit Scholarship</td>
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<td>UnderGrEBES Research Award</td>
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<td>UROP Mini-Grant</td>
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<td>Continuing Student Scholarship</td>
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<td>IYDC Indigenous Youth Digital Collective</td>
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<td>John Templeton Foundation</td>
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<td>Julie Tripp Fellowship</td>
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<td>Robert D. Clark Honors College Extraordinary Expenses Thesis Grant</td>
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<td>US National Institute on Aging</td>
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<td>Wilkes Theatre Arts Scholarship</td>
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<td>William and Marjorie Shearon Memorial Scholarship</td>
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## Total Presentations, Presenters, and Faculty Mentors

<table>
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<tr>
<th>Year</th>
<th>Total Presentations</th>
<th>Undergraduate Presenters</th>
<th>Faculty Mentors</th>
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<td>2021</td>
<td>329</td>
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<td>2011</td>
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Total Presentations by Divisional Area

- Natural Sciences
- Social Sciences
- Humanities
- Arts
- Design

Years: 2011 to 2021

Presentations by Year:
- 2011: 4, 0, 2, 0, 0
- 2012: 5, 9, 8, 0, 2
- 2013: 14, 11, 3, 0, 2
- 2014: 19, 14, 2, 0, 0
- 2015: 10, 0, 0, 0, 0
- 2016: 14, 0, 0, 0, 0
- 2017: 14, 7, 4, 9, 2
- 2018: 9, 10, 3, 10, 1
- 2019: 12, 19, 5, 12, 1
- 2020: 21, 41, 10, 9, 4
- 2021: 35, 38, 33, 12, 14

Total Presentations by Divisional Area:
- Natural Sciences: 53, 40, 38, 43, 55, 51, 84, 75, 110, 123, 144, 110, 154
- Social Sciences: 28, 9, 9, 6, 14, 19, 14, 7, 4, 9, 10, 12, 41
- Humanities: 4, 0, 2, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0
- Arts: 5, 9, 8, 0, 2, 0, 0, 0, 0, 0, 0, 0, 0
- Design: 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0
Total Presentations by Type
Symposium Presenters

Bailey Adams
Kristen Adams
Odalis Aguilar-Aguilar
Lofanitani Aisea
Stacey Andreeva
Camden Apsay
Ben Backen
Sydney Balderston
Sofia Baldridge
Bridgette Bammann
Bailey Barrett
Andrew Barron
Brenna Barton
Sarah Beaudoin
Adriann Bechtle
Jennifer Beltran
Youri Benadjaooud
Bianca Benitez
William Berg
Kelby Beyer
Lejla Biberic
Page Biersdorff
Trevor Bissert
Ava Blake
Hunter Blaylock
Julianne Bodner
Leo Bordeaux
Madison Bozzo
Sedonah Breech
Anna Brown
Anastasia Browning
MacKenzie Brumbaugh
Alex Bui
Leah Burian
Andi Butts
Mikala Capage
Desiree Casanova
Starla Chambrose
Jennifer Chaney
Anabel Chang
Emily Chavez Romero
Tyler Christenson
Ty Clayton
Noa Cohen
Juliette Coia
Cassie Cole
Rachel Conner
Emily Cook
Paula Costal Lagarde
Rachel Couche
Isabel Crabtree
Skyler Cservak
Isabelle Cullen
Chloe DaMommio
Alisha Davison
Daezhane Day
Danielle Desmet
Sammy DiMinno
Jack Dinovitz
Gracia Dodds
Genevieve Dorrell
Georgia Dowling
Caroline Doyle
Emily Duru
Tabitha Ealy
Erika Eden
Sidney Evans
Jacob Evarts
Eugene Facer
Olivia Farnham
Camerin Feagins
Karly Fear
Madeline Fehlman
Dimitra Fellman
Kit Foreman
Symposium Presenters

Shannon Forsberg
Delaney Fossum
Claire Francis
John Francis
Isabella Franke
Eleanor Froehlich
Gemma Fucigna
Alyssa Fuentez
Delilah Galli
Isabella Garcia
Anna Garrison
Dino Giakoumis
Rose Gibian
Taylor Ginieczki
Emma Glaunert
Aurora Godek
Anika Graack
Mary Green
Georgia Greenblum
Matthew Grimm
Bita Habashi
Datlon Haffner
Alexander Halpren
Amelia Hamerlynck
Alexis Han
Tristan Hanna
Conner Hardwick
Zoe Haupt
Amanda Henney

Michelle Hernandez
Sarah Hill
Riley Hodges
Angelina Huber
Mackenzie Hudler
Spencer Hudson
Emily Hunt
Rachel Hur
Brittany Jeffery
Ireland Johnson
Jyhreh Johnson
Tyra Judge
Courtney Kaltenbach
Sasha Kaplow
Lena Karam
Jade Kast
Natalie Kataoka
Katherine Kaylegian
Nora Kearns
Abigail Kellems
Jillian Kellett
Raimy Khalife-Hamdan
Isabella Kinser
Charlotte Klein
Sarah Kline
Aysa Klocke
Jared Knofczynski
Sahana Krishna Kumaran
Nolan Kriska
Noah Kruss
Rheata Kumala
Sean Kyne
Audrey Landes
Amelia Lawson
Mason Leavitt
Natalie Lehrbach
Emmalyn Leonard
Ryan Leriche
Sarah Levy
Yalin Li
Phyllis Liao
Maya Lieberman
Neva Lills
Amanda Linskens
Rachel Lisle
Grace Liu
Julia Lo
Payton Lommers
Faith Longnight
Isabel Lopez
Alma Lugtu
Cat Luna
Jacqueline Luna
Norma “Noni” Lundy
Lukas MacMillen
Riley Male
Alexie Malone
Rachael Maloney
Symposium Presenters

Michaela Manson  Laura Nosler  Annalise Sacamano
Chester Mantel  Carleigh Ocon  Paola Sanchez
Mollie Markey  Marlee Odell  Anna Sanchirico
Wally McAllister  Hailey O’Donnell  Alyson Sato
Hamish McAlpine  Idil Osman  Miles Saunders-Ruesz
Jaidan McLean  Japi Panganiban  Cian Savoy
Remi McMullen  Eloise Parish Mueller  Natalie Schnoor
Liam McNamara  Lillian Payne  Caitlin Scott
Audra McNamee  Anna Pearl Johnson  Ethan Scott
Angelica Mejia  Sarah Peasley  Kira Seretan
Issabell Melz  Calvin Penkauskas  Karina Shah
Anna Mills  Eoin Penney  Jonathan Sherpa
Erika Moe  Sam Peters  Madeleine Smith
Chloe Moehling  Rachel Peterson  Emma Snyder
Maryam Moghaddami  Noah Pettinari  Kamryn Spease
Riley Monsrud  Sabrina Piccolo  Haley Speed
Parker Morris  Deanna Plunkett  Jude Stone
Tillie Morris  Alli Powell  Liam Stone
Emma Mortland  Marianne Powell  Nathan Stovall
Hannah Motta  Jin Prunuske  Nobuyuki Tamai
Nicole Mullen  Paul Quinn  Alyssa Taylor
Marin Nagle  Andrea Quintanilla  Caroline Taylor
Eloise Navarro  Hossein Rajabzadeh  Jenika Taylor
Myles Nelson  Giovanni Ricci  Jennifer Thompson
Andrew Newbold  Haley Rice  Marie-Rose Tonguino
Anna Nguyen  Alissa Richbourg  Tillena Trebon
Vi Nguyen  Lucy Roberts  Kyle Trefny
Natalie North  Carolyn Roderique  Isabella Tritto
Philip Nosler  Jenna Rudolph  Claire Trostel-Shaw
Symposium Presenters

Manami Uptegrove
Jackson Valentine
Mia Vance
Mia Vance
Madi Vann
Edward Vinis
Hailey Volk
Jennifer Vuong
Erica Waldron
Nicole Wales
Natalie Walker
Maggie Wallace

Maya Ward
Whitney Warth
Marley Weedman
Annie Weibezahn
Emma Wenck
Orion Wesson
Jessica Wilhelm
Julia Williams
Katherine Wilson
Julia Wolf
Shuxi Wu

Sora Wyatt
Min Chieh Yang
Joseph Ycaza
Albert Yim
Jiayi Yin
Shyla Yu
Olivia Zajac
Carly Zamudio
Lucy Zepeda
Sunny Zhang
Sonja Zolnoski
Faculty Mentors

Nicole Abib
Graduate Student, Earth Sciences

Jennifer Ablow
Associate Professor, Psychology

Nadia Abuelezam
Assistant Professor, Connell School of Nursing

Sarah Ackerman
Post Doctorate Student, Institute of Neuroscience

Jared Acosta-King
Graduate Student, Psychology

Peter Alilunas
Associate Professor, Cinema Studies

Lina Aoyama
Graduate Student, Environmental Studies and Biology

A.B. Assensoh
Courtesy Professor, History and African Studies

Melissa Baese-Berk
Associate Professor, Linguistics

Dare Baldwin
Professor, Psychology

Natalie Ball
Mentor/Mother, Alumna

Sarah Baron
Professor, Public Health

Erin Beck
Associate Professor, Political Science

Elliot Berkman
Professor, Department of Psychology

Sarah Beyeler
Graduate Teaching Fellow, Biology

Anders Björkman
Professor, Karolinska Institute

Shannon Boettcher
Professor, Chemistry and Biochemistry

Javier Bonnin
Professor, Architecture

Peg Boulay
Environmental Leadership Program Co-Director, Environmental Studies Program
Faculty Mentors

**Alejandro Brambila**
Doctoral Student, Institute of Ecology and Evolution

**Bradley Branam**
Associate Professor, Theatre Arts

**Colin Brand**
Graduate Student, Anthropology

**Derek Brandow**
Instructor, School of Journalism and Communication

**Yvonne Braun**
Professor and Associate Vice Provost for Academic Affairs, Global Studies

**Carl Brozek**
Assistant Professor, Chemistry and Biochemistry

**Dan Buck**
Associate Professor, Geography

**Zac Bush**
Graduate Student, Biology

**Kelsey Buzzell**
Interior Architecture Instructor, College of Design

**Ulrick Casimir**
Career Instructor, English, Clark Honors College

**Kristen Chauvin**
Graduate Student, Institute of Neuroscience, Biology

**Robert Chavez**
Principal Investigator, Psychology

**Nikki Chery**
Assistant Director, Counseling Services

**Bob Choquette**
Professor, Public Planning, Policy, and Management

**Thea Chroman**
Assistant Director, Program for Democratic Engagement, Wayne Morse Center, Law

**Camille Cioffi**
Research Associate, Prevention Science Institute

**Kara Clevinger**
Senior Instructor, Assistant Department Head, English

**Lindsay Collins**
Postdoctoral Scholar, Neuroscience

**Amanda Cook-Sneathen**
Assistant Professor, Chemistry

**Maria Coronado Cabrera**
PhD Graduate Student Researcher, Institute for Health in the Built Environment
Faculty Mentors

Marco Corrales-Ugalde  
PhD candidate, Biology

Eric Corwin  
Associate Professor, Physics

Dara Craig  
Graduate Teaching Fellow, Environmental Studies

Jane Cramer  
Associate Professor, Political Science

James Crosswhite  
Professor, English

Don Daniels  
Assistant Professor, Linguistics

Jonathan Davis  
Assistant Professor, Economics

Alison Davison (Kaufman)  
PhD Candidate, Music (Musicology)

Thaís de Faria  
Graduate Student, Chemistry

Jeanette Dejong  
Professor, Theatre Arts

Alicia DeLouize  
Graduate Student, Anthropology

Thomas Desvignes  
Research Associate, Neuroscience

Sarah Dimakis  
Graduate Student, Psychology

Kaitlyn DiMarco  
Graduate Student, Human Physiology

Rachel DiNitto  
Professor, Department Head, East Asian Languages and Literature

Chris Doe  
Professor, Biology, Institute of Neuroscience

Christabelle Dragoo  
McNair Scholars Program Director, Division of Undergraduate Education and Student Success

Sarah DuBrow  
Assistant Professor, Psychology

Ram Durairajan  
Assistant Professor, Ripple Fellow, Computer and Information Science

Clare Evans  
Assistant Professor, Sociology

Hazel Fargher  
Graduate Student, Chemistry

Ben Farr  
Assistant Professor, Physics

Julia Fehr  
Graduate Researcher, Chemistry
Faculty Mentors

Deion Fellers
Graduate Student, Physics

Scott Fisher
Associate Lecturer and Outreach Director; Pine Mountain Observatory, Director, Physics

Lea Frank
Graduate Student, Psychology

Alisa Freedman
Professor, East Asian Languages and Literature, Asian Studies

Stephen Frost
Professor, Anthropology

David Garcia
Assistant Professor, Biology

Alison Gash
Associate Professor, Political Science

Melissa Graboyes
Assistant Professor of African and Medical History, Clark Honors College, History, Global Health

Matthew C. Graham
Research Assistant, Oregon Education Science Lab

Claire Guidinger
Doctoral Student, Family and Human Services

Taylor Guthrie
Graduate Student, Psychology

Tom Hahn
Instructor, Architecture

Mike Hahn
Associate Professor, Bowerman Sports Science Clinic Director, Human Physiology

Lauren Hallett
Assistant Professor, Biology, Environmental Studies

William Harbaugh
Professor, Economics

Aaron Harding
Manager of Cardiac Rehab at PeaceHealth OHVI/ Current PhD Student at the University of Oregon, Human Physiology

Mike Harms
Associate Professor, Chemistry and Biochemistry

James Harper
Associate Professor, Art History

Jill Harrison
Associate Professor, Sociology

Christopher H. Hendon
Assistant Professor, Chemistry
Faculty Mentors

Claire Herbert
Assistant Professor, Sociology

Byron Hetrick
Senior Research Associate, Human Physiology

Marian Hettiaratchi
Assistant Professor, Knight Campus, Chemistry and Biochemistry

Derrick Hindery
Associate Professor, Global Studies

Sara Hodges
Professor, Psychology

Jocelyn Hollander
Professor, Sociology

Jerry Hooker
Scenic Designer, Theatre Arts

Samantha Hopkins
Professor, Earth Sciences, Clark Honors College

Parisa Hosseinzadeh
Associate Professor, Knight Campus

Jenefer Husman
Professor and Department Head, Education Studies

Adrianne Huxtable
Associate Professor, Human Physiology

James Imamura
Professor, Physics

Andrea Imhof
Doctoral Student, Clinical Psychology

Masayuki Itoh
Professor, Environmental Science, Kobe University

Zachary Jaggers
Postdoctoral Scholar, Linguistics

Santiago Jaramillo
Associate Professor, Biology, Institute of Neuroscience

Laura Jeanty
Assistant Professor, Physics Department

Vsevolod Kapatsinski
Associate Professor, Director of Graduate Studies, Linguistics

Salil Karipott
Postdoctoral Scholar, Knight Campus

Iku Karukome
Professor, Environmental Science, Kobe University

Kiana Kawamura
Graduate Student Mentor, Chemistry

Crystal Kelehear-Graham
Assistant Professor, Biology
## Faculty Mentors

<table>
<thead>
<tr>
<th>Name</th>
<th>Title/Institution</th>
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<tbody>
<tr>
<td>Nichole Kelly</td>
<td>Evergree Assistant Professor, Counseling Psychology</td>
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<tr>
<td>Katherine Kelp-Stebbins</td>
<td>Assistant Professor of Comics Studies; Associate Director, Comics and Cartoon Studies Program, English</td>
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<tr>
<td>Solmaz Kive</td>
<td>Assistant Professor, School of Architecture &amp; Environment</td>
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<tr>
<td>Graham Kribs</td>
<td>Professor; Director, Institute for Fundamental Science, Physics</td>
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<tr>
<td>Raina Krivina</td>
<td>PhD Candidate, Chemistry &amp; Biochemistry</td>
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<tr>
<td>Nicole Kurhanewicz</td>
<td>Postdoctoral Researcher, Institute of Molecular Biology</td>
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<tr>
<td>Robert Kyr</td>
<td>Professor of Composition and Theory, Music Composition</td>
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<tr>
<td>Angela Lee</td>
<td>Doctoral Student, Department of Psychology</td>
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<tr>
<td>Kristin Lucile</td>
<td>Courtesy Post-Doctoral Scholar, Biology, Institute of Neuroscience</td>
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<tr>
<td>Kelly Leguineche</td>
<td>Research Engineer/ Lab Manager, Knight Campus</td>
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<tr>
<td>Leslie Leve</td>
<td>Alumni Faculty Professor of Education, Counseling Psychology and Human Services</td>
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<tr>
<td>Jennie Li</td>
<td>Instructor, Creative Writing</td>
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<td>Diana Libuda</td>
<td>Assistant Professor, Biology, Institute of Molecular Biology</td>
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<tr>
<td>Ryan Light</td>
<td>Associate Professor, Sociology</td>
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<td>Angela Lin</td>
<td>Senior Research Engineer, Knight Campus</td>
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<td>Grace Lindquist</td>
<td>PhD Candidate, Chemistry and Biochemistry</td>
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<td>Krystale Littlejohn</td>
<td>Assistant Professor, Sociology</td>
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<tr>
<td>Andrew Lovering</td>
<td>Professor, Human Physiology</td>
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<tr>
<td>Joseph Lowndes</td>
<td>Associate Professor, Political Science</td>
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<tr>
<td>Sharon Luk</td>
<td>Associate Professor, Indigenous, Race, and Ethnic Studies</td>
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## Faculty Mentors

<table>
<thead>
<tr>
<th>Name</th>
<th>Title/Position</th>
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<tbody>
<tr>
<td>Caroline Lundquist</td>
<td>Instructor of Philosophy, Philosophy, Clark Honors College</td>
</tr>
<tr>
<td>Katie Lynch</td>
<td>Environmental Leadership Program Co-Director, Environmental Studies Program</td>
</tr>
<tr>
<td>Michael Malek Najjar</td>
<td>Associate Professor, Theatre Arts</td>
</tr>
<tr>
<td>Andrew Marcus</td>
<td>Professor, Chemistry &amp; Biochemistry</td>
</tr>
<tr>
<td>Galen Martin</td>
<td>Sr. Instructor II, Global Studies</td>
</tr>
<tr>
<td>Gabriella Martínez</td>
<td>Professor, School of Journalism and Communication</td>
</tr>
<tr>
<td>Jack Maurer</td>
<td>Graduate Student, Chemistry &amp; Biochemistry</td>
</tr>
<tr>
<td>Ulrich Mayr</td>
<td>Robert and Beverly Lewis Professor in Neuroscience, Psychology</td>
</tr>
<tr>
<td>Beth McCarry</td>
<td>Graduate Student, Department of Biology</td>
</tr>
<tr>
<td>David McCormick</td>
<td>Presidential Chair, Professor, Biology, Institute of Neuroscience</td>
</tr>
<tr>
<td>Carrie McCurdy</td>
<td>Associate Professor, Human Physiology</td>
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<tr>
<td>Christine McDevitt</td>
<td>PhD Candidate, Chemistry</td>
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<tr>
<td>Michael McGeehan</td>
<td>Doctoral Candidate, Human Physiology</td>
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<tr>
<td>Jeffrey Measelle</td>
<td>Professor, Psychology</td>
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<tr>
<td>Melissa Moss</td>
<td>Graduate Student, Graduate Employee</td>
</tr>
<tr>
<td>Dean Mundy</td>
<td>Assistant Professor, Journalism - Public Relations</td>
</tr>
<tr>
<td>Mikhail Myagkov</td>
<td>Professor, Political Science</td>
</tr>
<tr>
<td>Noelle Nelson</td>
<td>Assistant Professor of Marketing, Lundquist College of Business</td>
</tr>
<tr>
<td>Bryce Newell</td>
<td>David and Nancy Petrone Faculty Fellow, School of Journalism and Communication</td>
</tr>
<tr>
<td>Julianne Newton</td>
<td>Professor, School of Journalism and Communication</td>
</tr>
<tr>
<td>Nicole Ngo</td>
<td>Associate Professor, Planning, Public Policy and Management</td>
</tr>
</tbody>
</table>
Faculty Mentors

Thanh Nguyen
Assistant Professor, Computer and Information Science

Kelly Nichole
Assistant Professor, Counseling Psychology and Human Services

Cristopher Niell
Associate Professor, Biology, Institute of Neuroscience

Matthew Novak
Associate Professor, Psychology, Central Oregon Community College

Cory Olsen
Assistant Professor, Interior Architecture

Ellen Olsen
Graduate Student, Earth Sciences

Keat Ghee Ong
Professor, Chemistry and Biochemistry

Claire Otteson
Graduate Student, Chemistry and Biochemistry

Tim Pack
Senior Instructor II of Theory, School of Music and Dance

Philip Parker
Postdoctoral Scholar, Biology

Raghuveer Parthasarathy
Alec and Kay Keith Professor in Physics, Physics

Jason Paulose
Assistant Professor, Physics

Amanda Peng
Graduate Student, Earth Sciences

Gabriela Pérez Báez
Associate Professor, Linguistics

Sophia Phillips
Graduate Student, Chemistry and Biochemistry

Denise Piscopo
Research Scientist, Biology

Calin Plesa
Assistant Professor, Knight Campus, Bioengineering

Matt Polizzotto
Associate Professor, Earth Sciences

Donnalyn Pompper
Professor, Endowed Chair in Public Relations, School of Journalism and Communication

Michael Posner
Professor, Psychology, Institute of Neuroscience

John Postlethwait
Professor, Biology, Institute of Neuroscience
Faculty Mentors

Chris Potter
Pro Tem Research Associate, Physics Department

Jim Prell
Associate Professor, Chemistry and Biochemistry

Laura Pulido
Collins Professor, Geography and Indigenous, Race, and Ethnic Studies

Jonathan Reeder
Assistant Professor, Knight Campus

Emily Reeve
Graduate Employee, Human Physiology

Alex Renirie
Graduate Student, Environmental Studies

Siobhan Rockcastle
Frederick Charles Baker Chair in Design, Architecture

Amber Rolland
Graduate Student, Chemistry and Biochemistry

Ce Rosenow
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Presentation Abstracts

Police Killings: An Exploration of Black American Perception of Police
Adams, Bailey—Planning, Public Policy, and Management, University of Oregon
Faculty Mentor(s): Nikki Chery
Session: Understanding US Justice

Police brutality has been an issue that has plagued the Black American community with the never-ending killings of unarmed Black children and adults. Black people make-up 13% of the population but are killed at a rate of 2 times more than white people. Due to the excessive number of killings that happen each year, it brings up the question of what the lasting impact is on the Black community in regards to their perception of the police. This study aims to investigate how these continuous killings have affected Black Americans’ perception of the police. Surveys and video interviews were conducted with Black Americans from various backgrounds to answer the question of What are Black Americans Perceptions of Police? And How does it differ based on demographics? Due to the consistent factor of the participants being Black Americans and the shared experiences surrounding police brutality, variation in the data is not expected.

State Legislature Walkouts and Their Causes: Why Some States Have a History of Quorum Walkouts
Adams, Kristen—Political Science, University of Oregon
Faculty Mentor(s): Priscilla Southwell, Noelle Nelson
Session: Understanding US Justice

There have been 26 recorded legislative quorum walkouts in the history of the United States, with 22 of those occurring in the last 50 years. Legislative quorum walkouts are defined as when a party leaves and refuses to return to the chamber in order to prevent a vote or other action from occurring on a specific bill or series of bills. This work explores the phenomena of state legislature quorum walkouts and presents four possible explanations for understanding the overall cause and structure of these walkouts. After analyzing these walkouts what I have found is that three of the explanations
are the potential causes of these walkouts and the other explanation is a tool for legislators to use during these walkouts, rather than a cause for them. Combining these three explanations is what gives us an understanding of the causes of quorum walkouts.

**The Forgotten Stories of Human Rights Violations within the US**

Aguilar-Aguilar, Odalis—History, Latin American Studies, Spanish, University of Oregon

Faculty Mentor(s): Julie Weise

Session: Understanding US Justice

The Bracero Program was a bi-national agreement between the United States and Mexico where Mexican men were allowed to labor legally in the United States. This paper seeks to explore beyond what the program was intended to accomplish; how Braceros themselves viewed the program and discuss how their memory shapes their own truth of how the program was executed and how they coped with their new ways of living even through extreme conditions. The oral histories used as primary sources for this paper can be found in the Bracero Oral History archive, a fully free online database where oral histories and other related artifacts are made available to the public. While analyzing oral interviews and reading other secondary sources, it is challenging to capture to the full extent what this program really meant for Braceros. At the same time, it is just as important to elevate the voices who are often silenced to find truth in what occurred in the fields throughout the United States.

**lwelek honk sa (Let’s Kill It): Revitalizing Indigneous language and Exploding Settler Cows**

Aisea, Lofanitani—Asian studies IRES, University of Oregon

Co-Author(s): Natalie Ball. Seldon Cisco Miller, Coley Kakols Miller

Faculty Mentor(s): Natalie Ball

Session: Pre-Recorded Creative Work

Waqlisi nei a Lofanitani seesatk. Nei a Modocnii choi Black, choi Tongan, choi Tahlequah, choi Ewksikni. What’s poppin’ my name is Lofanitani and I am a young ta’ahine who is Modoc, Black, Tongan, Tahlequah, and Klamath.

What can radical indigenous language revitalization and land back efforts look like in the 21st century?
Specifically, what can Maqlaqsyals (Klamath) language revitalization and land back look like on the Klamath reservation in Chiloquin, Oregon?

Community/family outreach, talking story, navigating ancestral homelands, Canon M50 Camera, Youtube platform, Imovie editing, IYDC funds, Macbook air computer, and family actors.

Exploding settler cows in the language are the first of many steps to get free. Indigenous language revitalization needs to be accessible and centered in art, community, intersectionality, and matriarchal practice in order for it to thrive into the future.

Once you conceptualize your language work as something that is alive, thriving, and necessary it is no longer a choice to revitalize it. You just do it.

If the language is not fun no one is coming to the party and as one of our linguists once told me no one wants to be first to a party. You must be the one to set up the chairs, do the planning, dance, food, create a playlist and make it fun so that others will join too. Once people see it’s poppin’ then people begin taking over by bringing food, dancing, and taking up space. They will begin doing the work as you have done

**Structural changes in organic-inorganic hybrid materials dictated by bond dynamics**

Andreeva, Stacey—Chemistry, University of Oregon

Faculty Mentor(s): Carl Brozek

Session: Up and ATOM

Dynamic chemical bonding is responsible for the basic mechanism of crystallization for many material systems because erroneous bond formation can be corrected through facile reversal until the material settles into the most favorable crystalline phase. A particularly important class of crystalline materials that emerge from this dynamic process are metal-organic frameworks (MOFs). For the past two decades, MOFs have been viewed as rigid structures, but we propose that even after formation, MOFs contain metal-ligand bonds that remain dynamic such that the crystalline structure contains mixtures of partially tight and loose arrangements. We hypothesize that metal-linker bonds are especially dynamic, and with variable-temperature diffuse reflectance infrared Fourier transform spectroscopy (VT-DRIFTS) aided by ab initio plane wave density functional theory, we demonstrate that similar evidence for melting behavior in zeolitic imidazolate frameworks (ZIFs)—reversible metal-linker bonding driven by specific vibrational modes—can be observed for other classes of MOFs by monitoring the redshifts of stretches coupled to metal-linker modes. We present general evidence that challenges the common perception of MOF metal-linker bonds being static. Insight into their
labile nature would provide a predictive model of their growth mechanism and inspire important applications such as the use of MOF for self-healing membranes.

**Oral Histories of the Oregon Holiday Farm Fire: Understanding place, people and community impact**

*Apsay, Camden—Environmental Studies, University of Oregon*

*Co-Author(s): Annie Williams, Myrthe Stalenhoef, Hana, Francis, Eugene Davis, Alex Binder*

*Faculty Mentor(s): Katie Lynch, Bela Sanchez*

**Session: People and Place**

This project is an exercise in collecting oral histories surrounding the Holiday Farm Fire in order to preserve the first hand experiences of individuals affected by the fires, while acknowledging trauma, resilience, and land management. This research will be conducted through in-person observations and virtual interviews with McKenzie River community members. Preliminary research relied on working closely with the McKenzie River Trust and the McKenzie Education Foundation to gather more information about the community and area. A comprehensive interview guide was created that touches on people, place, and community. Due to the COVID-19 pandemic, interviews will be recorded using Zoom. The interview process will be followed by transcription, editing, and processing to produce a GIS story map, a multimedia storytelling presentation combining text and interactive maps of the Holiday Farm Fire. This project will provide a platform for the community to share events and experiences of the Holiday Farm Wildfire. It is our intention that these stories may serve as both a resiliency resource for other rural communities following natural disasters and as a healing process for those affected by the fire. This story map can also serve as a starting point for further research regarding the wildfire events of 2020.

**Predicting Stock Market Fluctuations Based on Reddit Data**

*Backen, Ben—Computer and Information Science, University of Oregon*

*Faculty Mentor(s): Sam Schwartz*

**Session: Data Driven Crystal Ball**

In February 2021, a group of users on the social media website “Reddit” caused GameStop short sellers to lose nearly 13 billion dollars, bankrupting at least one hedge fund. My research question was, “Can we use a neural network to predict if a stock’s price is going to increase or decrease
based on Reddit posts?" This experiment focused on GameStop's stock and Reddit submissions from WallstreetBets between January 1st and February 21st. I scraped over 750,000 posts, storing the numbers of upvotes, the upvote ratios, the numbers of comments, and the numbers of awards into a MySQL database. A neural network with 2 hidden layers then trained on this data. I found that the model was able to correctly predict the direction of GameStop’s price changes 81% of the time.

**Student Responses to Climate Change: Determinants of Participation in Collective Action**

Balderston, Sydney—Sociology and Environmental Studies, University of Oregon

Faculty Mentor(s): Jill Harrison

**Session: Policies, Impact, and Response**

My research uses in-depth interview research with undergraduate students at the University of Oregon to understand why the amount of public concern about the climate crisis is not reflected in the amount of collective action to address the issue. To gain insight into the factors that determine whether a concerned student becomes activated to address climate change collectively, my research focuses on 20 students who are deeply concerned about climate change and see it as an urgent threat. I recruited two subgroups within this population of concerned students. The first 10 students I refer to as active and are currently involved in collective action to address climate change and were recruited through their group, club, organization, or movement. The second group of 10 students I refer to as inactive because they have not been mobilized to take action beyond the individual level. I argue that the application of general sociological theories around movement mobilization is insufficient for understanding the current state of inaction around an issue as dynamic as climate change. Whether students translate their concern into collective action is dependent on their comfortability in activist spaces, perception of climate activism, their view of their role is within the crisis and how likely they think climate change will be contained. Insights from this research and additional studies using the experiences of concerned Americans could be utilized to activate more to the fight.
When Communities Care: Treating People with Substance Use Disorder Through a Multi-Disciplinary Team

Baldridge, Sofia—Planning, Public Policy and Management, University of Oregon

Faculty Mentor(s): Nicole Ngo

Session: Pre-Recorded Poster Presentation

People recovering from a Substance Use Disorder (SUD) face a myriad of physical, emotional, and psychological challenges. Parents in recovery may also face the additional burden of mandatory participation in multiple community agencies including the Department of Human Services, Community Justice Parole and Probation offices, and medical treatment. The Oasis Center of the Rogue Valley is a nonprofit primary clinic that specializes in treating parents and families who are affected by drug dependency. The Oasis Center recognizes the need for centralized care amongst parents in recovery who belong to multiple agencies and has created a Multi-Disciplinary Team (MDT) to help coordinate care for people in recovery who belong to two or more community agencies. My research questions asks: does the Oasis Center of the Rogue Valley’s MDT program increase the chances of maintaining long-term recovery for parents with Substance Use Disorder? Structured interviews and online surveys were conducted with 14 current and past MDT participants along with 6 interviews of MDT staff members to determine the program’s effectiveness. My analysis shows that the majority of the MDT participants who responded believed the MDT increased their chances of maintaining long-term recovery and has improved their recovery thus far. My study concludes that the MDT helps parents in recovery and measures should be taken to increase the number of MDT’s utilized to treat people in recovery.

Who are these Virtue Signalers Anyway?: Answers from a Sustainable Transportation Survey

Bammann, Bridgette—Psychology, University of Oregon

Faculty Mentor(s): Sara Hodges, Sarah Dimakis

Session: Pre-Recorded Poster Presentation

Virtue signaling—advertising one’s allegiance to actions that reflect a moral character—is a popular cultural concept, but there has been little research exploring who in the general population partakes in virtue signaling. The present study aims to describe virtue signaling as observed in a naturalistic setting. Data were obtained from the open-ended responses of a larger survey about Eugene/
Springfield Oregon residents’ transportation habits before and during the COVID-19 lockdown of spring 2020 (n = 673). In coding survey responses, we found unprompted comments highlighting their sustainable transportation habits and attitudes—i.e., virtue signaling. Who engaged in this method of communication? We expect younger participants and participants with higher incomes to be the more likely virtue signalers. We further expect those who scored higher on a measure of beliefs and attitudes regarding environmental policy to be more likely to virtue signal. Labelling something as “virtue signaling” is often uncomplimentary, but we will explore whether virtue signalers may have other qualities that make them effective targets for future environmental protection interventions.

Lack of Diversity in Drosophila Species in Eugene, Oregon

Barrett, Bailey—Biology, University of Oregon

Faculty Mentor(s): Nadia Singh

Session: Pre-Recorded Poster Presentation

Species distributions shift with climate change, invasions, and biotic and abiotic factors. The genus Drosophila, with thousands of species, is particularly notable for changes in species distribution over the course of human history. The goal of this project was to better understand the biodiversity of different fruit flies in the area. To achieve this goal we conducted a survey to identify the species of fruit flies living in Eugene, Oregon from December 2020 to January 2021. We collected wild fruit flies (n = 85) using fermented bananas, soda bottles, and fly vials. We then extracted DNA, amplified a fragment of the 16S gene using PCR, and sequenced this fragment using Sanger sequencing. After receiving the DNA results, we compared nucleotide sequences to public databases using BLAST software to identify the species. The results of the study concluded that all 85 flies we captured were Drosophila suzukii, an invasive species. None of the native species of fruit flies were documented in this survey. Therefore, a shift in the Drosophila distribution in Eugene, OR favors the invasive population over the native population, resulting in a lack of fruit fly diversity. These findings emphasize the necessity for a solution to control the invasive Drosophila suzukii population in Eugene, Oregon.
Queer Violence: the disembodied homosexual persona affected by the spiritual and existential

Barron, Andrew—Cinema Studies, University of Oregon

Faculty Mentor(s): Lou Terlikowski

Session: Creative KIDDs

My project explores the queer identity of various contemporary poets, including Ocean Vuong, Christopher Soto, and Joshua Jennifer Espinoza, in conflict with the spiritual world through an existential lens. With these poets in mind, my own upbringing came into question. Raised Catholic, I prayed for acceptance. I prayed for understanding. I grew into the shoes of queer-fear: the inherited anxiety of not being accepted by my family, nor God. I was far too existential at such a young age. How does a child reconcile themselves to their beliefs? This raises the greater question: how are queer poets affected by existentialism and spirituality? Through the physicality of sex, these poets practice confessional writings, subverting sullen themes by creating a dramatized envisioning of queerness by disembodying their physical self onto the page, in lush energy and grounded violence. In this way, religion and existentialism affect how queerness is embodied through poetry, perpetuated by the oppression and moralistic division of Christianity. Through careful analysis and a reflection of my own homosexual writings, I believe poets have seen some truth to religion, to God, and the art of faith. Through homoerotic poetry, I feel tethered to God. My writing is masochistic, bridging the isolation of existentialism and the otherworldliness of spirituality with dismembered bodies and the erotic, emphasizing a direct link to art as religion, and desire as religious subversion.

Analyzing Letters to La Pirenaica as Migrant Narrative

Barton, Brenna—Romance Languages, University of Oregon

Faculty Mentor(s): Julie Weise

Session: Pre-Recorded Poster Presentation

Francisco Franco’s regime and the aftermath of World War II marked a period of political repression and economic instability in Spain, causing thousands of Spaniards to migrate in search of freedom and work. Throughout the 1950s and ’60s, hundreds of thousands of Spanish transplants entered France’s labor market, where they were largely exploited due to the language barrier and their immigration status. These migrants also struggled to find community in the French countryside, so they formed their own via a clandestine radio station nicknamed La Pirenaica which transmitted anti-
Franco propaganda. Migrants wrote letters to the station expressing political opinions and describing their time in France, many of which were read on air, creating solidarity among the station’s audience in Spain and abroad. This research investigates the migrants’ experience in their own words through the content of these letters. Through the stories in these letters of workplace exploitation, experiences with French labor unions, political speech, and the poverty that awaited the Spaniards in France, these migrants formed their own narratives of the decades under Franco’s regime which contradict the official story of prosperity. Immigrant voices tend to be forgotten by history, but it is vital to uncover a perspective on the migrant experience in this era directly from the pens of some of the most deeply impacted.

Anion Exchange Membrane Electrolyzers for Dirty Water Splitting
Beaudoin, Sarah—Chemistry, University of Oregon
Faculty Mentor(s): Grace Lindquist
Session: Pre-Recorded Poster Presentation

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 (AEM) electrolysis, utilizing an anion-selective membrane, shows promise for greater resistance to contaminants, potentially allowing for operation using impure water sources. Research regarding AEM electrolyzer performance and failure during operation in impure water feed will contribute to the development of impurity-tolerant electrolyzers and therefore increase the accessibility and implementation of sustainable hydrogen fuel.

Electrochemical measurements were conducted using an electrolyzer test stand hardware powered by a Biologic potentiostat. In addition to current and voltage profiles over time, impedance measurements were conducted to understand conductivity changes within the membrane electrode assembly over time. To study the effects of feed water purity, an H-cell consisting of two liquid compartments of varying impurity on either side of an MEA was used. Monitoring the movement of ions between the anode and the cathode was completed via conductivity and pH probe analysis. Using these methods, I have shown that ion transport of Cl⁻ to the anode is driven by diffusion and not accelerated by an applied potential, while Na⁺ transport from the anode to cathode is enhanced at low current densities but completely mitigated at high current densities.
Museum of Stolen Land: Problematicizing American Colonialism Through Architectural Design
Bechtle, Adriann—Architecture, University of Oregon
Faculty Mentor(s): Solmaz Kive

Session: People and Place
Architecture can be used for war and oppression or to tell the story of the oppressed. This project, the Alaei’k-ae Museum, is a redesign of the Fort Vancouver Artillery Barracks that problematizes the colonialisit nature of Fort Vancouver and offers a platform for contemporary members of the Chinook Nation to speak and connect with one another. The project title honors the site’s indigenous name: Alaei’k-ae, or Turtle Place. Before becoming a military base, Alaei’k-ae was a Native American hunting grounds, trading post, and seasonal village. The project development considered statistics, historic data, insights from Native communities, and existing projects that challenge American Colonialism. The U-shaped footprint was redesigned around a Chinook Wawa phrase: ankati, alta, alki (formerly, presently, eventually). The museum’s spatial sequence follows the chronology of American Colonization’s impact on Native peoples. The galleries begin with the massive death toll from plagues and war, continue into forced relocation, then reach shattered identities and cultural appropriation. After the galleries, visitors can go into the eastern wing, which includes a market for local Native artists and a Chinook cultural center to encourage learning and preserve the Chinook Nation’s tribal knowledge. By redesigning an existing colonial military building, the Alaei’k-ae Museum works to educate people about the dark truth and persistent effects of American Colonialism.

Racism as a Public Health Crisis
Beltran, Jennifer—Global Studies, University of Oregon
Co-Author(s): Cheye Klamath Williamson. Lilli Udarbe, Jesus, Landa, Aspen Jones, Bella Bringhurst
Faculty Mentor(s): Kristin Yarris

Session: Health Considerations
Health inequity, caused by systematic disparities between communities, results in poor health outcomes and decreased quality of life among certain groups of people within a population. It is accredited to social determinants of health, life stressors, or other social factors present in one’s environment such as transportation, housing, etc. In the US, BIPOC individuals report higher levels of negative experiences with health outcomes compared to other social groups. Contributing to these
disparities in Oregon are the state’s historically deep-rooted racism and structural inequalities. Our project investigates racial and ethnic health disparities in Oregon, including those that have impacted BIPOC communities during the Coronavirus pandemic. Using available secondary data sources (e.g., at Oregon Health Authority), and focusing on population-level health indicators (e.g., chronic disease morbidity, self-perceived health ratings, and COVID health outcomes), we document these racial and ethnic disparities in health. Additionally, we use qualitative data from primary data sources (interviews and questionnaires), with Lane County residents to further examine the impact of racial discrimination on lived experiences of health. Our study highlights how experiences with racism put the BIPOC community at a health disadvantage. We aim to publicize these disparities through shared infographics in hopes of alleviating this burden for BIPOC individuals by sharing ideas for public action.

Disentangling neural activation to self and others using structural connectivity

Benadjaoud, Youri—Psychology, University of Oregon

Faculty Mentor(s): Robert Chavez, Taylor Guthrie

Session: Pre-Recorded Poster Presentation

The medial prefrontal cortex (MPFC) is prevalent in self-referential and social cognition tasks, often found to be split between the ventral MPFC and dorsal MPFC with the former engaging in self-reference and the latter engaging in responses when thinking of others. Yet, the split has limited neuroanatomical definition as there is frequent and significant overlap of activation between the two regions. In this study, we investigate the role that structural connectivity, measured by probabilistic tractography, may play to differentiate the overlap in the MPFC to distinguish self-other related activity. In a sample of 114 subjects, we measured brain activation to self and others using a trait-judgement fMRI task paradigm. Using diffusion tensor imaging (DTI), a regularized regression model will be used to predict activation values within the MPFC for both self and others based on the underlying structural connectivity patterns. By comparing the structural connectivity pattern weights, the model aims to differentiate activity for self vs. other within overlapping areas within the MPFC. Results will be presented testing the utility of using predictive models based on structural connectivity for differentiating these processes which may aid in understanding how different mental processes share overlapping cortical real estate.
Incorporating Qualitative Data Into Parent Intervention Clinical Research

Benitez, Bianca—Biology, University of Oregon

Faculty Mentor(s): Andrea Imhof

Session: Always On My Mind

Incorporating Qualitative Data Into Parent Intervention Clinical Research. Introduction—Qualitative data and methodology must continue to be incorporated into clinical research in order to create equal evaluations of caregiving in parent intervention. This is significant because it affects the validity of the data gathered from parent intervention in clinical research. This review will highlight why these methods work and why they are needed, by analyzing various pieces of literature that have created a qualitative approach for Spanish speaking families when a measure is created with an English speaking family.

Methods: All articles have been selected because they have incorporated qualitative methods in their studies involving English and Spanish speaking families, and have shared the pros and cons of doing so. The articles selected will be compared to one another, based on their approaches of incorporating qualitative methods in their studies. The way their approaches affect Spanish speaking families versus English speaking families will also be compared. Whichever kinds of qualitative methods were most effective according to the studies, based on the ability to provide the strongest validity in evaluation, will be left.

Conclusion: Based on the comparisons made, the most effective study and their approach will be named. The significance of incorporating qualitative methods in parent intervention with English and Spanish speaking families reflects in the data.

Duck Buddy Program App to be Proposed to Physical Education and Recreation

Berg, William—Business Administration, University of Oregon

Faculty Mentor(s): Chantelle Russell

Session: Academic Residential Communities: Emerging Researchers

For this project, we designed an app idea to propose to the Department of Physical Education and Recreation, for people to find workout buddies. Incoming students at the University of Oregon who participated in the Student Wellbeing and Success Initiative survey, conducted by the Office of Student Life Assessment and Research, can be identified as having low wellbeing indicators. The creation of the Duck Buddy app is to encourage first year students with low wellbeing indicators
to use the Student Recreation Center more. We developed an app concept for students to join and find workout buddies. Students can create a profile to make sure that they are paired with someone who also has similar workout goals and is also at the same athletic ability. This app also includes tutorials on how to use the equipment in the REC. This is a proposal for an app that we would present to the Department of Physical Education and Recreation (PE & Rec). If this app were created and implemented, future research could explore its effectiveness and determine if it positively impacted students with low wellbeing indicators to take advantage of the programs and resources in the PE & REC. We believe that this app will be beneficial to students because going to the gym without prior experience or a friend can be intimidating. This app would help inform students on the resources and opportunities available at the PE & REC and help the PE & REC connect with students.

Ecological Design: Designing a Pollinator-Supportive Native Garden on Campus

Beyer, Kelby—Journalism, University of Oregon

Faculty Mentor(s): Peg Boulay

Session: Academic Residential Communities: Emerging Researchers

The recent decline of pollinator populations, including bees and other species, has been largely due to parasites, diseases, increased pesticide use, and habitat loss. Pollinator pocket gardens are urban habitats which support pollinators by offering them space to build hives, collect nectar and pollen, wash off in water, and rest as they move between other pollinator habitats. In partnership with UO Campus Planning & Facilities Management staff, our team compiled and implemented a comprehensive plan for a native pollinator pocket garden near the Urban Farm. This garden will primarily support pollinators and secondarily educate and serve as a pastime space for University of Oregon students, staff, and campus visitors. First, we chose an unused garden plot by considering two plots’ attributes as prospective spaces serving both humans and pollinators. Next, we used our plot’s characteristics among other criteria to select appropriate plants for our garden. We compiled guidelines for our garden’s implementation and maintenance, which Environmental Leaders ARC students implemented during spring term by planting native plants in our plot. The garden we designed will support pollinators’ critical ecological role and serve as an entry point for pollinator conservation conversations at the University of Oregon among university students, faculty, and staff, as well as the larger Eugene community.
**Charge state impact on protein gas phase structure simulated with molecular dynamics**  
Biberic, Lejla—Biochemistry, University of Oregon  
Co-Author(s): Amber Rolland, Jim Prell  
Faculty Mentor(s): Jim Prell, Amber Rolland  
Session: Pre-Recorded Poster Presentation

The structure of a protein is key to understanding its biological functions. Analytical techniques are used to elucidate structural models. Some techniques may be time consuming or are limited by solution conditions. Computational methods are thus an attractive approach to confirming analytical results and predicting structures. One experimental technique, native mass spectrometry, enables preservation of noncovalent structures. However, understanding what happens to the structure of a protein during desolvation and the influence of charge state remain to be determined. Here, we used molecular dynamics (MD) to study how the charge state of four different proteins influences ion compaction as well as how unfolding and charging occur. Our lab previously determined that the GROMOS96 43a2 force field is useful for MD simulations of gas-phase proteins. The software Collidoscope was used to determine a low-energy native charge state configuration for β-lactoglobulin, concanavalin A, and glutamate dehydrogenase. In vacuo MD simulations were performed on each protein using GROMACS software. The collision cross section (CCS, or effective area) was computed in buffer gas with Collidoscope, and compared to literature results. Structures were analyzed in PyMOL. The native charge states of another protein, LFn, were subjected to an in vacuo temperature heating ramp. CCS results revealed that compaction and charge-dipole effects seem to counterbalance for native proteins ions.

**Science/Comics Interdisciplinary Research Program**  
Biersdorff, Page—Psychology, University of Oregon  
Co-Author(s): Laura Jeanty  
Faculty Mentor(s): Katherine Kelp-Stebbins, Tien-Tien Yu  
Session: Excelsior! Science in the Panels

The Science/Comics Interdisciplinary Research Program unites two growing areas at the University of Oregon: Comics & Cartoon Studies and STEM (science, technology, engineering, and mathematics). As comics artists, undergraduate students work with science faculty to produce scholarship that
utilizes both humanistic and scientific research practices. Our roundtable will bring together the student artists to discuss the challenges and benefits that we encountered in this program. We will also feature our science faculty partners, who will discuss their role in our work. The panel will showcase all of the science comics that we have made (see website here) and feature our insights on how to use comics for interdisciplinary research purposes. Learning how to communicate complex ideas to individuals outside of specific fields of study is an essential skill, particularly when it comes to engaging a broader public in our research; Science/Comics brings together diverse research approaches and skills in order to make scientific research more accessible and inclusive. Our panel will allow for urgent conversations on how to use art and comics to communicate scientific research to everyone.

**Differential Functional Connectivity of Anterior and Posterior Hippocampus**

Bissert, Trevor—Psychology, University of Oregon  
Co-Author(s): Lea Frank  
Faculty Mentor(s): Dasa Zeithamova, Lea Frank  
Session: Pre-Recorded Poster Presentation

The hippocampus aids in remembering and linking a variety of experiences in order to form general representations of the world. Previous research shows that anterior hippocampus supports generalized memory, while posterior hippocampus supports memory for specific experiences. Hippocampus may serve both functions through interactions with distinct cortical memory regions. To test this notion, we measured hippocampal connectivity while participants were resting in an MRI. This allows us to see which regions spontaneously activate in unison, indicating their interaction. Outside of the scanner, participants took tests of memory specificity and generalization. We measured which regions were connected with the posterior or anterior hippocampus. Our analysis revealed widespread connectivity for both anterior and posterior regions of the hippocampus. Most regions were preferentially connected to the anterior or posterior hippocampus, with a few regions connected to both. The anterior hippocampus was connected to regions known to support generalization: the ventromedial prefrontal cortex and temporal pole. Posterior hippocampus was significantly connected to regions known to support memory specificity, such as angular gyrus and the inferior frontal gyrus. We will test how the strength of these connections relate to each person’s specific and generalized memory. These results further explicate previous results enlightening distinct functional connectivity across the hippocampus.
I’m Not Sorry I’m Sick // And The King Declares Zugzwng

Blake, Ava—Political Science, University of Oregon

Faculty Mentor(s): Lou Terlikowski

Session: KIDDs Get Creative

For this poetry reading I’m going to read “I’m Not Sorry I’m Sick :: I’m Sorry My Ma Saw Me”. This poem was inspired by the seven-foot tall concrete samurai statue my dad bought. I will also be reading “Starting Our 23rd Life Together” which was created from a prompt to go to a location you’ve never been before and write a poem. I went to a Catholic Church because I was raised Catholic and always wondered if I would ever go back to church.

The Art of Confessions Within Poetry: How They Reflect Society

Blake, Ava—Political Science, University of Oregon

Faculty Mentor(s): Lou Terlikowski

Session: Creative KIDDs

Common morals influence pieces of art, we can see this in confessional poetry. Confessional poetry is a reflection of a society and its ideals because a confession implies aspects that are seen as taboo and have been built by society. Poetry is inherently a mirror or society and politics. Through looking at different confessional poetry we can see commonalities. There are also trends with when the poems when made. For example, during the 1950s, a time that’s regarded as being very suppressive and with media getting rapidly more influential, confessional poetry took off. Even when there lacks a bluntly stated confession, different poetic shifts hold the same social cues. This perception has a hold on many facets of life. For example, international relations political science theories suggest that society perception and expectation is what lowers threatening actions. There’re patterns, regardless of time period or poem subject, that show how society’s perception has a strong hold on poetry. This creates bigger implications of how not just art is affected by the perception that our society and culture gives us but every aspect of our lives.
Fetal Programming and the Effects of Maternal Diet on Offspring Cellular Quality Control

Blaylock, Hunter—Human Physiology, University of Oregon

Faculty Mentor(s): Carrie McCurdy, Byron Hetrick

Session: Pre-Recorded Poster Presentation

Maternal obesity has been shown to negatively impact offspring metabolic health, leading to a predisposition for developing metabolic diseases, such as type 2 diabetes. Given that rates of obesity have been steadily increasing over the past four decades, in utero exposure to obesity likely contributes to the ongoing obesity crisis, but this hasn’t been thoroughly studied. Using a non-human primate model, the McCurdy lab recently found many genes dysregulated in the skeletal muscle of offspring born to dams fed a western-style, high fat, and high sugar, diet (WSD). Genes that were differentially expressed in maternal WSD exposed animals were enriched in genes linked to cellular quality control pathways of autophagy and mitophagy. Disruption of these pathways in skeletal muscle may contribute to the predisposition to metabolic disease observed in individuals exposed to maternal obesity in utero. To determine if the altered expression of these genes results in altered function of their pathways, we developed flow cytometry-based assays to measure the ability of non-human primate primary myoblasts isolated from offspring exposed to maternal WSD or CTR diet in utero to effectively clear damaged mitochondria and regulate the biogenesis of lysosomes, which are vital to the process of autophagy. We hypothesize that maternal WSD exposure results in a reduced ability of these myoblasts to turn over mitochondria and form lysosomes in response to autophagic signaling.

Stories & Spaces: Updating Classic Plays for Modern Audiences Through Research-Based Ideas in Scenic Design

Bodner, Julianne—Theater Arts, University of Oregon

Faculty Mentor(s): Jerry Hooker

Session: Pre-Recorded Creative Work

A crucial ingredient to the long-term success of classic stories is their ability to remain relevant over time. Retelling stories allows us to illuminate and explore lessons from iconic narratives that have been overlooked. Using extensive research, we created scenic designs for updated versions of the classic plays, Iphigenia in Aulis and Hedda Gabler. Hedda Gabler, written by Henrik Ibsen in 1890, finds
new relevance when placed in America in the 1950s; Hedda's boredom and frustration at her limiting life match the stifling expectations for conformity of the women of that time. Additionally, Iphigenia at Aulis written in 410 BCE by Euripides finds new relevance when placed around the time of D-day, Normandy in the 1940s. Agamemnon's ardent drive to find a solution to the seemingly unsolvable and immense problem of the direction of the winds parallels the soldiers' drive to complete their unpredictable campaign and immeasurable task: to storm Normandy. In regards to methods, the writings of Sylvia Plath, Emily Dickinson, and Virginia Woolf were utilized in the Hedda project as supplemental research; the Iphigenia project included images and literary references from the 1940s and specifically D-day. Theatre is an inherently dynamic art form because it gives breathing room for artists and creators to adapt the classics in new and exciting ways. The restoration of classic plays provides a valuable basis with which to view the evolving and dynamic society which surrounds us.

**LGBTQ Rights: The Push and Pull for Progress in China**

**Bordeaux, Leo—Psychology, University of Oregon**

**Faculty Mentor(s): Matthias Vogel**

**Session: Pre-Recorded Poster Presentation**

The People's Republic of China is home to one of the largest LGBTQ communities on the planet. However, according to the UN, an overwhelming majority of queer Chinese individuals hide their sexuality in their daily lives. Why? In this study, we bear the findings of personal interviews with some of China's most prominent LGBTQ voices. We also inspect literature on history, law, and censorship, contextualizing the PRC with systems around the world. We encounter a national history free from the Abrahamic religious prejudice that drove homophobia in regions like the United States. Yet more recently, western powers have influenced the oppression and stigmatization of Chinese LGBTQ communities. Our research finds that the PRC's barriers around LGBTQ rights are exacerbated by a centralized political structure that impedes social momentum. In today's China, gay marriage is not legal, same-sex couples are unable to adopt, transgender individuals cannot change their gender marker at their personal discretion, and discrimination on the basis of sexuality is still allowed. Despite pervasive censorship, advocacy groups and internet communities are working to improve queer lives and the country as a whole. While marriage equality and additional equal rights are advancing under various Asian governments, the future of such change in China remains unclear. This ambiguity makes the work of LGBTQ advocates, like those we spoke to, vital in forging the path ahead.
**Women's Migration from Mexico Due to Gender Inequality: Psychological Effects of the Language Gap**

**Bozzo, Madison—Linguistics, University of Oregon**

**Faculty Mentor(s): Matthias Vogel**

**Session: Pre-Recorded Poster Presentation**

According to past research, the migration process has shown to be taxing on individuals. More specifically, the language gap can create additional psychological stresses and keep women in Mexico from seeking asylum in the US. Women are fleeing Mexico in order to liberate themselves from the oppressive systems due to patriarchy in their home country. This research will explore how differences in language regarding the immigration process can have an influence on the psychological health of women seeking asylum. To answer this question, previous research on the topic of Mexico/US Migration will be used and examined through psychological and linguistic lenses—the authors’ area of focus. This extensive investigation shows that women face psychological tolls from the language differences when seeking asylum—which in turn creates immense difficulty in this search for a better, safer life. This issue involves Americans because we need to be aware of the vast injustices faced daily by Mexican women and be willing to provide resources to ensure their health and well-being. This is our responsibility because women’s rights are human rights—and we must ensure this is sustained in our sister country, Mexico. By improving the availability of information regarding immigration as well as simply living in the US afterward, we can improve their well-being and eliminate the additional stressors keeping women from immigrating and finding a better and safer life in the US.

**What are the limits of our interior spaces? Designing offices during a pandemic**

**Breech, Sedonah—Architecture, University of Oregon**

**Faculty Mentor(s): Jill Kellett**

**Session: The Virtual and Physical Space We Live In**

Interior Architecture is used as a tool to provide safe and healthy environments during the COVID-19 pandemic. This project sought to design office spaces located in Seattle, Washington in the historic Maritime Building. The design highlighted the importance of community engagement through a 2,000 square foot public access space, connected to the main 1,500 square foot office space. The client, RSTUDIO06 Architects, provided an extensive list of expectations and deadlines in the form of a document called a “program”. The program was fulfilled through the use of office client interviews,
material studies, space planning and square foot calculations, weekly design tests and experiments reviewed by peers and instructors, and a final analysis by the client. The result is a community space focused around the historic significance of Seattle’s Alaskan Way Viaduct elevated freeway, forming an interactive Viaduct Informational Center. The RSTUDIO06 office connected to this public space applies a theme of biophilic (nature focused conditions) design that provides a safe and productive working environment during COVID-19. The space combines aspects of materiality, high and low seating conditions, variety in furniture and enclosed spaces, and the use of UV rays and passive ventilation. The research conducted to produce the design for RSTUDIO06 highlights the influence of interior spaces on the emotional and physical reactions of users' productivity and health during an ongoing pandemic.

Assessing and promoting pollinator diversity in a hazelnut orchard using cover crops

Brown, Anna—Biology, University of Oregon

Faculty Mentor(s): Alejandro Brambila

Session: Migratory Stories: Sea, Land and Air

Developing a sustainable species pool of native plants that can be used in agricultural contexts is important for supporting pollinating insects in environments with changing land use and climates. Insects can provide pollination services to both crops and native plants as well as pest control, and flowering cover crops provide food and habitat for these organisms in agricultural environments where one or few crop species predominate. The study sites used in my research are 3 hazelnut orchards in Marion County, where blocks were established and seeded in fall 2019 with native annual and perennial species as well as a non-native industry seed mix. During spring and summer 2020-21, I am evaluating diversity (the number of pollinator taxa) and abundance (pollinator visitation frequency) for plants in these seed mixes. In fall 2020, plants growing in the orchard were cut back or scraped in preparation for hazelnut harvesting; these disturbance treatments will determine which plant species can survive in a managed orchard. Of these surviving species, I will continue evaluating which survivors best support pollinator diversity and abundances. First year results indicate higher pollinator visitation and diversity on native flowering plants, and I aim to better determine the differences between plant species during current second-year sampling. Ultimately, this research will create a cover crop seed mix suitable for agricultural environments while supporting pollinating insects.
Leveraging Evidence-Based Messaging to Prevent the Spread of COVID-19
Browning, Anastasia—Psychology, University of Oregon
Faculty Mentor(s): Elliot Berkman
Session: Fact or Fiction?
With cases of COVID-19 still surging in America, and vaccines still inaccessible or undesired by many, one of our primary defenses against this deadly virus remains to mitigate its spread on an individual level. Official messaging targeting appropriate mitigation procedures is critical for reducing virus transmission. This study assessed whether approach-versus-avoidance message framing and goal-orientation affect individual’s intentions to use mitigation procedures. To test this, 832 subjects were randomly assigned to view mitigation messaging with either approach or avoidance framing, and either self-protective or altruistic goal-orientation. Kruskal-Wallis tests revealed a significant effect of goal-orientation, suggesting that altruistic (over self-protective) goal-orientations in COVID-19 health messaging lead to stronger intentions to follow mitigation procedures. No significant effect of approach or avoidance framing was found on individual intentions to follow mitigation procedures. These results suggest an immediate need to address the framing of our public health messages. By adjusting goal-orientation, we can leverage our official communications as a prevention tool to protect at-risk populations from contracting COVID-19.

Breaking Barriers: Exploring Female Athletes in the Age of Social Media
Brumbaugh, MacKenzie—Sociology, University of Oregon
Faculty Mentor(s): Jessica Vasquez-Tokos, Ryan Light
Session: Sociology Honors Seminar Research on Gender to Present Day
Female athletes have proven themselves time and time again to be capable and often more talented than their male counterparts, although society does not give them the recognition that they deserve. This study investigates how, if at all, female athletes are represented on social media, and if that representation mirrors society’s view of female athletes. To conduct this research, three different, popularized sports news outlets’ tweets were examined for all of 2020 to determine how often female athletes were mentioned. Within tweets about female athletes, the replies to those tweets were examined to better understand society’s perception of female athletes. It was found that for all three Twitter accounts, tweets about female athletes made up less than 3% of their total tweets for 2020. Based on the replies to these tweets, it was found that many tweeters supported female athletes,
but that there was a niche group of mainly conservative individuals that commented sexist, racist, and overall hateful rhetoric towards female athletes. The results of this study show that there is a much-needed change in who and what is being reported about in sports news, and that while we believe that our society is moving towards a climate of inclusion and support, there is still massive work that needs to be done in terms of gender equality.

**Evaluating Responsive Caregiving: Validity of the Simple Interactions Tool**

**Bui, Alex—Neuroscience, University of Oregon**

**Faculty Mentor(s): Andrea Imhof**

**Session: Pre-Recorded Poster Presentation**

Research has shown responsive caregiving may mitigate the effects of early childhood stress on socio-cognitive development. To evaluate the quality of caregiver-child interaction, the Simple Interactions (SI) Tool is used as a video-coding assessment to quantify dyadic interactions. The SI Tool is primarily divided into dimensions of “Connection” and “Reciprocity”—Connection measures social and emotional connectedness through matched affect and joint attention, and Reciprocity evaluates balanced, mutual interaction. Despite a growing body of literature implementing these constructs within research settings, the underlying properties of each subscale remains unclear. This study aims to evaluate the external validity of the Connection and Reciprocity subscales via correlational analyses.

Filmed interactions from 138 caregiver-infant dyads were gathered from a larger multi-part intervention study whose primary interactions were recorded in Spanish. Each dyad was evaluated during reading and free play tasks, and the latter were scored using an additional third measure to quantify parent and infant vocalizations. We expect to find significant correlations between coded interactions measured using the Connection and Reciprocity subscales, and a strong relationship between Reciprocity and coded verbal utterances. Finally, we anticipate these analyses will reveal robust properties of the Connection and Reciprocity subscales and validate the use of the SI Tool in broader contexts.
Voices Along the Path: Jewish Roots in “Dum Pater Familias” of the Codex Calixtinus

Burian, Leah—Music, University of Oregon
Faculty Mentor(s): Alison Davison (Kaufman)
Session: Session: Artistic Impressions

The song “Dum Pater Familias,” from the twelfth century Codex Calixtinus is unique for several reasons: it stands alone in the Codex as the sole secular and macaronic piece, and it is written in Aquitanian notation instead of Burgundian. There is strong evidence of a diffusion of Spanish and Jewish culture in the Codex, and many connections between twelfth century Jewish musical practices of ornamentation and polyphony to the notation found in "Dum Pater Familias". In my paper, I analyze the musical and cultural links between Jews and Christians in the Iberian peninsula to present a recommendation for the performance practice of “Dum Pater Familias”. I draw on the relationship between cantillation notation and ornamentation, and evidence of Hebrew texts and melodies in the Codex to form my recommendations. Additionally, I analyze several modern recordings of “Dum Pater Familias,” including one polyphonic setting by Marcel Peres, based on Corsican oral traditions. My recommendations will develop ideas put forward by other artists while including new recommendations based on my own research. My methodology may then be applied to other pieces that combine medieval Jewish and Christian traditions in the Iberian peninsula.

Exploring How Modern Female Poets Write About Abuse and Trauma (in a Culture that Demands Otherwise)

Butts, Andi—English, University of Oregon
Faculty Mentor(s): Michael Wilson
Session: The KIDDs Are Alright

Trauma is a widespread and well-established phenomenon across the globe, yet there is a great deal of stigma associated with enduring and surviving it. This is particularly true when the trauma in question is the result of abuse. The world of poetry (and that of literature at large) are not immune to this stigma; indeed, writing about abuse and trauma in poetry is often regarded as self-indulgent and anti-intellectual—overly concerned with the poet’s emotional catharsis at the expense of intentional and skillful technique. My research is focused on subverting this notion by surveying how modern female poets, such as Lucille Clifton, Cindy Williams Gutiérrez, Emily Skaja, write about (and reconcile
with) abuse and trauma in their work. In examining these writers’ poetry about abuse and trauma, I argue that these poets do not abandon their focus on craft in the pursuit of emotional catharsis but rather employ specific technical choices—including repetition and attention to the themes of time and memory—in order to convey the psyche-splitting and transformative nature of trauma. Moreover, I seek to highlight how the disdain of poetry about abuse and trauma is a result of misogyny and how, because of the patriarchy in which we live, writing about such subjects is an act of resistance and necessity.

**Hunting for Prions: Propagating Putative Prion States in Budding Yeast**

**Capage, Mikala—Biology, University of Oregon**

**Faculty Mentor(s): David Garcia**

**Session: Pre-Recorded Poster Presentation**

Prion proteins, although commonly associated with neurodegenerative diseases, are not universally harmful to cells. Instead, prions may allow cells to alter their phenotype in response to adverse environmental conditions by acting as an epigenetic mechanism. Importantly, prions are not dependent on chromosomal segregation and have inheritance patterns distinct from traits caused by genetic mutations. The Garcia Lab recently screened RNA modifying enzymes for their potential to induce prion conformations. From this screen, six enzymes, Abd1, Cet1, Ppm2, Pus4, Pus6, and Trm5, exhibited higher maximum growth rates than control strains when exposed to adverse chemical stressors. It is now necessary to confirm that the heritable growth states are truly caused by a prion-based conformation of an RNA modifying enzyme. Here, patterns of mitotic, diploid, and meiotic inheritance were determined for each strain by using central methods in yeast genetics, including a tetrad sporulation and dissection protocol and growth assays. Taken together, these results are key in attributing the previously identified growth states to a prion conformation of each of the six RNA modifying enzyme. The Garcia lab will continue to investigate these putative prions in future experiments. This research represents an important contribution to our understanding of epigenetic mechanisms and their effects on key cell processes.
Rebound and Resurgent Malaria Globally: Explanations and Under-estimations via a Meta-Review

Capage, Mikala—Biology, University of Oregon
Faculty Mentor(s): Melissa Graboyes
Session: Health Considerations

Over the past century considerable efforts have been put forth to eliminate malaria. Such attempts have proved fragile, with many gains and successes followed by a resurgence of malaria cases. In 2012, Cohen et al. published the first systematic review of malaria resurgence events globally, and concluded that most failures were the result of pull-backs in funding for elimination programs. While this publication was an excellent first step, it provides a narrow scope and definition of resurgence that fails to capture potential events or address the ethical implications of resurgence. This research both replicates and expands on Cohen et al.’s work by providing a more nuanced investigation of the concepts, causes and consequences of resurgence. This meta-review added social science and primary archival sources, broadened Cohen et al.’s definition of resurgence, including events reported for only one year, and discuss ethical implications of resurgence. Our preliminary results captured 117 resurgences over 160 years. Our work also found that terms used to describe resurgence are not clearly delineated in malaria literature, descriptions of resurgences are often vague, and causes of resurgence are not as straight-forward or categorical as they appear in the work of Cohen et al. These findings call for expanded research into resurgence, as well as how it is conceptualized and reported.

Finding a Correlation Between Adolescent Drug Abuse and Adult Memory Recall Deficits

Casanova, Desiree—Psychology, University of Oregon
Faculty Mentor(s): Sarah DuBrow
Session: Always On My Mind

Relationships Between Adolescent Drug Abuse and Adult Memory Recall Deficit. Many studies have been done involving the long term effects that drug abuse has on memory recall, but it is still not well understood how and if the brain heals from prolonged usage during critical developmental periods. If we can understand some of these long term consequences better, we can develop early intervention systems and make young people aware that the consequences of drug use may last for many years even after the drug use has ended. First, we need to explore the relationship between adolescent
drug use and the decay of memory recall as a sober adult. In this study, participants are going to be asked about their perception of their memory recall skills, followed by their drug use history that occurred (or did not occur) in adolescents. After data collection is completed we will be able to correlate a composite measure of drug use with a composite measure of subjective memory ability and also compare these correlates to different demographic populations. It is hypothesized that those with more drug exposure in their teenage years will perceive their memory recall skills to be worse than those who hadn't. The data from this study can be used in future research as a starting place to further investigate long term cognitive deficits after drug exposure in adolescents.

**A History of Muscular Dystrophy: The Biosocial Nature of Disease**

Chambrose, Starla—History and Biology, University of Oregon

Faculty Mentor(s): Arafaat Valiani

Session: The Fate of Humanities: Humanities Undergraduate Research Fellowship

The Human Genome Project (HGP) signaled the beginning of a paradigm shift in biomedicine; as a result of the project’s completion, our understandings of sickness and health have increasingly shifted from a “molar” (i.e. visible) to a molecular level. This turn to genetics has altered not only the way we discuss the cause of disease, but also our understanding of what qualifies as a disease, and, ultimately, what it means to be “cured.” Accordingly, my research studies the evolving narratives of “disease” and “cure” in the history of muscular dystrophy from the 19th century to the present. What did it mean to have (and treat) muscular dystrophy before scientists began to fully characterize its genetic basis, and how do these answers differ now in the post-genomic age? Addressing these questions adds to a growing body of literature that argues that genetic diseases like muscular dystrophy are shaped by both biological and social factors. By considering the sociomedical aspects that have shaped conceptions of this group of muscle diseases, my research provides an important humanistic perspective that is currently absent in the literature. This type of integrative research requires a methodological approach that relies on a unique blend of sources—both medical journals and works by medical anthropologists and historians who have written about disease and cure—to move muscular dystrophy beyond the biomedical into a cultural context.
Adapting artist Miriam Katin’s Graphic Narrative Memoir into a stage play

Chaney, Jennifer—Theater Arts, University of Oregon

Faculty Mentor(s): Michael Malek Najjar, Bradley Branam

Session: Pre-Recorded Creative Work

As a theater major and developing playwright, I was inspired to adapt Katin’s 2006 graphic novel, *We Are On Our Own* for the stage. To tell the story of her family’s survival during the Holocaust in Budapest, Hungary, artist Miriam Katin wrote her memoir in the form of graphic narrative, a type of literature that is written and illustrated in the style of a comic book. I envisioned this as a dramatic work from the moment I began flipping through the pages and illustrations. Through my own interest in the Holocaust genre and themes of survival with female protagonists, I began researching the possibility of adaptation. Miriam and I met online weekly, beginning in September, 2020 to discuss taking the story from page to stage. Michael Malek Najjar, Associate Professor of Theatre Arts, guided my research and playwriting process. Several other UO professors assisted in my Holocaust, graphic narrative and set projection research. I completed the first draft of my full-length play, “The Face of the Deep,” in March of 2021 and a formal reading will be presented by the Pocket Playhouse on Zoom with a cast of UO student and alumni actors on May 14th.

Characterizing Conformational Fluctuations of DNA

Chang, Anabel—Biochemistry, University of Oregon

Faculty Mentor(s): Andrew Marcus, Jack Maurer

Session: Pre-Recorded Poster Presentation

The Marcus Group uses fluorescence spectroscopy to study the dynamics of macromolecules and molecular systems in biological environments. In this project we perform single molecule measurements on double-stranded (ds) DNA to determine the number of conformational macrostates and the timescale of their interconversion; can we characterize the free energy landscape governing single-stranded (ss)-ds DNA junctions? We are interested in the local conformational fluctuations of dsDNA molecules, or DNA breathing. Base pairs are broken and exposed to the environment during breathing events, which allows proteins to access and bind the ssDNA. DNA breathing fluctuations affect the assembly and functional activity of macromolecular machines, which are enzyme complexes with active sites performing life-essential tasks like ATP synthesis. The Marcus Group uses a variety of spectroscopic methods to study the conformations and fluctuations of
DNA breathing. This project labels single DNA molecules with fluorescent optical probes, and uses rotating polarization techniques to study the dynamics of the molecule using time correlated single photon counting. Studies are ongoing, but have resulted in a better understanding of DNA breathing conformational states and their transition rates. Further characterization and analysis of these thermal fluctuations using time correlation functions and kinetic modeling will help create a mechanistic picture of DNA breathing.

Dreams That Cross Borders: A Short Documentary of the lived Undocumented-DACAmented experience.
Chavez Romero, Emily—Ethnic Studies, University of Oregon
Faculty Mentor(s): Lynn Stephen, Gabriella Martínez
Session: Pre-Recorded Creative Work
Chavez Romero (UO Indigenous, Race and Ethnic Studies Major, Ford Family Foundation Scholar and Latinx Studies Experiential Learning Fellowship recipient)—a current undergrad at the University of Oregon—lived undocumented for 15 years in the United States and has been a DACA recipient for the past six years. Overcoming systemic barriers and pursuing higher education in the face of adversity, Emily and her family share their fears and anxieties in navigating life in the shadows and the overall effect of immigration on their personal and professional lives. The short documentary follows their experiences with racism, discrimination, and anti-immigrant sentiment in the 2016 elections. Documenting this particular period of anti-immigrant sentiment and the lack of humanity present in state and federal policies is important to preserve the histories of a marginalized and oppressed population in the US

An Affordable Search for Dark Matter—The ForwArd Search ExpeRiment in a Nutshell
Christenson, Tyler—Physics, University of Oregon
Co-Author(s): Eric Torrence, Deion Fellers
Faculty Mentor(s): Eric Torrence, Deion Fellers
Session: Dark Matters
Dark matter is a hypothesized solution for a problem that has been perplexing scientists for nearly a century. There is strong, indirect evidence that dark matter particles make up 80% of the mass in our
universe, but to date there has been no direct observation of them. The search for dark matter is still ongoing and it has become one of the main goals of High Energy Physics. The Large Hadron Collider (LHC) unfortunately hasn’t yet found any evidence, and so this has sparked a greater interest in the low-mass regime. FASER, an acronym for “ForwArd Search ExpeRiment,” is a new particle physics collaboration aimed at probing an unexplored regime of dark matter candidates in which we will search for new weakly interacting, low-mass particles such as the dark photon. The data collection will take place in a small and relatively inexpensive particle detector located in a service tunnel just 480 meters downstream from the interaction point of the ATLAS experiment at the LHC in Switzerland. In this presentation, the preparations for upcoming 2022 LHC data-taking run will be described, including simulations of the FASER detector, development of data reconstruction algorithms, and data analysis of initial commissioning data collected from the newly installed detector.

Wellbeing resources on campus: Thrive ARC’s Knowledge of UO Wellness Resources Compared to First-year Students Living on Campus.

Clayton, Ty—Exploring, University of Oregon
Faculty Mentor(s): Chantelle Russell
Session: Academic Residential Communities: Emerging Researchers

The goal of this research project is to compare the knowledge of Thrive students to first-year students when it comes to the awareness of wellness resources on campus. Thrive: Healthy Living is an Academic Residential Community centered around personal wellbeing, wellness resources on campus, peer education, and community influence. We hypothesize that due to the nature of the ARC, being a wellness-based community, these students will have more exposure and knowledge of UO wellness resources than the average first-year student. We will come to our conclusion using classroom experience with presenters, our own research on the UO website, and the future use of a student-wide survey to understand the breadth of knowledge possessed by the first-year student population. This will be paired with our own research of wellness resources across campus and whether or not we knew of them. Our primary results will support our hypothesis that students in the Thrive ARC have more knowledge of wellbeing resources than the average UO freshman. The findings of this project highlight the wellness information that our team gained through the ARC experience. This will lead us to the conclusion that there is an abundance of resources that UO students outside of the Thrive ARC are unaware of, which may benefit their personal wellbeing as well as other aspects of their lives.
Evolution of Investment in Immatures in Adult Male Japanese Macaques (Macaca fuscata)

Cohen, Noa—Anthropology, University of Oregon
Faculty Mentor(s): Michael Posner, Pascale Voelker
Session: Pre-Recorded Poster Presentation

Adult male investment in immatures is uncommon in non-human primates and varies from costly infant-carrying in callitrichids to affiliation in cercopithecines. Several evolutionary hypotheses can explain the variation in care including the mating effort hypothesis (MEH) and the alliance formation hypothesis (AFH). The MEH proposes that adult males direct care towards immatures to influence female mate choice. The AFH proposes that males direct care towards immatures to establish future alliances. Juvenile-directed affiliation by adult males has been repeatedly observed in Japanese macaques (Macaca fuscata). However, the variables which influence degree and recipient choice of juvenile-directed affiliation are unknown. In this study, we examined sex-based preferences in juvenile-directed affiliation by adult male semi-free ranging Japanese macaques. We conducted 512 hours on focal males in semi-free ranging Japanese macaques (Macaca fuscata) at Oregon National Primate Research Center (ONPRC). We then calculated the rate of affiliation directed towards male juveniles versus female juveniles and ran a replicated goodness of fit test on the observed frequency of adult male interactions with juvenile males and females. We found that, of the 8 adult males which demonstrated juvenile-directed affiliation, 5 of these males showed sex-based preference in their juvenile social partner. These results offer preliminary insight into the factors guiding male juvenile-directed affiliation.

Racism as a Public Health Crisis

Coia, Juliette—Economics, University of Oregon
Co-Author(s): Tony Lovincey, Jessica Wilheim, Michaella Amamilo
Faculty Mentor(s): Kristin Yarris
Session: Health Considerations

Health inequity, caused by systematic disparities between communities, results in poor health outcomes and decreased quality of life among certain groups of people within a population. It is accredited to social determinants of health, life stressors, or other social factors present in one’s environment such as transportation, housing, etc. In the US, BIPOC individuals report higher levels of
negative experiences with health outcomes compared to other social groups. Contributing to these disparities in Oregon are the state’s historically deep-rooted racism and structural inequalities. Our project investigates racial and ethnic health disparities in Oregon, including those that have impacted BIPOC communities during the Coronavirus pandemic. Using available secondary data sources (e.g., at Oregon Health Authority), and focusing on population-level health indicators (e.g., chronic disease morbidity, self-perceived health ratings, and COVID health outcomes), we document these racial and ethnic disparities in health. Additionally, we use qualitative data from primary data sources (interviews and questionnaires), with Lane County residents to further examine the impact of racial discrimination on lived experiences of health. Our study highlights how experiences with racism put the BIPOC community at a health disadvantage. We aim to publicize these disparities through shared infographics in hopes of alleviating this burden for BIPOC individuals by sharing ideas for public action.

A Culture to Call Home: Cultural Gatekeeping in the Vietnamese Community

Cole, Cassie—Public Relations, University of Oregon

Faculty Mentor(s): Donnalyn Pompper

Session: The Fate of Humanities: Humanities Undergraduate Research Fellowship

From my HURF application: My research will answer the central question: how is modern racial gatekeeping expressed in those of Vietnamese descent? I will be creating an anonymous survey to ask participants about their own experiences with gatekeeping, as well as questions about their thought processes and background in regards to the race and culture they are a part of. The survey will be posted on a Facebook group with thousands of Vietnamese-identifying members from different parts of the world and different lived experiences. The data collected will answer my research questions both in terms of the gatekeepers and those who are being kept out of a race they identify with, while providing multiple perspectives. I will also use my findings to create a new definition of racial gatekeeping, according to participants in my survey that explain their gatekeeping thought processes. Using the hermeneutic phenomenological technique, I will study the lived experiences of my participants equally and without bias, and analyze my research to create conclusions about gatekeeping behavior and patterns found within this phenomenon. I expect to find patterns within my data that will provide insight on both sides of racial gatekeeping.
100 Years of Malaria Prevalence in Zanzibar, East Africa

Conner, Rachel—Human Physiology, University of Oregon

Co-Author(s): Anders Björkman, Melissa Graboyes

Faculty Mentor(s): Melissa Graboyes, Anders Björkman

Session: Data Stories

This project presents and interprets 100 years of malaria prevalence data from the island of Zanzibar. Malaria control measures have been present in Zanzibar for over a century, and the island has been the site of a great deal of scientific hope and expectation. However, more than once, Zanzibaris have suffered epidemics of rebound malaria that were a direct result of international efforts to reduce malaria that failed. This project seeks to find and interpret available archival materials to construct a full history of malaria prevalence and control in Zanzibar. This project sources archival materials from the World Health Organization and Zanzibar National Archives, among others. All available prevalence data was extracted and compiled, and community-based surveys of children under 5 were selected as a marker of overall prevalence. Results indicate that in many cases, large-scale attempts to control malaria have initially been very successful, with rates decreasing as much as 80% in less than a decade. However, many projects begin with the goal of eradication, and even low rates of malaria may be perceived as a failure, leading to project termination. It is essential to use the historical record to understand the full picture of malaria control and understand how and when measures have been effective or ineffective. This better understanding of history isn’t just relevant for understanding the past—it is essential to future decisions regarding malaria control and prevention.

Rebound and Resurgent Malaria Globally: Explanations and Underestimations via a Meta-Review

Conner, Rachel—Human Physiology, University of Oregon

Faculty Mentor(s): Melissa Graboyes

Session: Health Considerations

Over the past century considerable efforts have been put forth to eliminate malaria. Such attempts have proved fragile, with many gains and successes followed by a resurgence of malaria cases. In 2012, Cohen et al. published the first systematic review of malaria resurgence events globally, and concluded that most failures were the result of pull-backs in funding for elimination programs. While this publication was an excellent first step, it provides a narrow scope and definition of resurgence
that fails to capture potential events or address the ethical implications of resurgence. This research both replicates and expands on Cohen et al.’s work by providing a more nuanced investigation of the concepts, causes and consequences of resurgence. This meta-review added social science and primary archival sources, broadened Cohen et al.’s definition of resurgence, including events reported for only one year, and discuss ethical implications of resurgence. Our preliminary results captured 117 resurgences over 160 years. Our work also found that terms used to describe resurgence are not clearly delineated in malaria literature, descriptions of resurgences are often vague, and causes of resurgence are not as straight-forward or categorical as they appear in the work of Cohen et al. These findings call for expanded research into resurgence, as well as how it is conceptualized and reported.

**Intraspecific variation in Sandburg bluegrass (Poa secunda)’s resistance to annual grass invasion**

Cook, Emily—Environmental Science, University of Oregon

Faculty Mentor(s): Lauren Hallett, Lina Aoyama

**Session: It’s a BIO thing**

Exotic species pose a threat to many ecosystems within the western US. The annual grass species known as cheatgrass (Bromus tectorum) is a prevailing invader in the Great Basin. Cheatgrass invasion combined with a change in fire regime and climate exacerbates large fires in the region, contributing to loss of native plant species. Seeding of native perennial grass species has been adopted as a management strategy for post-fire rehabilitation. Native grass species are known to have high variability in traits across climate and space. Knowing this, some populations may be better at resisting invasion to B. tectorum than others. This study explores how water availability and intraspecific variation in traits affect the native Sandburg bluegrass’s (Poa secunda) capacity to resist invasion by B. tectorum. I hypothesize that (1) P. secunda populations from warmer, drier environments will better resist B. tectorum than those from cooler, moister environments due to P. secunda’s ability to develop large seed mass and germinate quickly in arid conditions and (2) P. secunda populations with greater trait plasticity will better resist invasion. Seeds from six populations of P. secunda within the Great Basin were collected and sown in monocultures and in competition with B. tectorum in a greenhouse. I evaluated relationships between several leaf and plant traits with a wet and dry treatment. Significant trait variation was found among populations and between wet and dry treatments.
Feminicide in the Face of Democracy—Policy Implementation Gap in Mexico
Costal Lagarde, Paula—Global Studies, Political Science, University of Oregon
Faculty Mentor(s): Yvonne Braun, Erin Beck
Session: Rights, Race, and Justice

Feminicide stands out as the most extreme form of gender-based violence. Although Mexico has taken the lead as a country that has successfully passed multiple laws to address feminicide and capture the seriousness of this alarming situation, the inadequate implementation of legislation has resulted in the issues of feminicides and gender-based violence to persist in the country. My research emphasizes the role that feminist groups play to highlight the gap between the passage and implementation stages of the policy process and aims to identify what are the factors that contribute to, or mitigate against, the gap between policies on paper and their implementation? And as it relates to policies addressing feminicide in Mexico, I distinguish the lack of reliable information and statistics on feminicide, disinvestments in programs designed to protect women, high levels of impunity and corruption, lack of homogeneity among federal and local sentencing standards, criminal codes, and policies, and a culture of misogyny as the elements that create and strengthen this gap. I conclude that the inclusion of feminist movements and other interested parties in the implementation stage of the policy process is necessary for the successful implementation of policies, as well as systemic and institutional changes to transform the current political, economic, and social context that naturalizes the suffering of women and facilitates the occurrence of feminicides.

Race-Related Discrimination is Linked to Body Image Concerns in Asian/Asian American Men
Couche, Rachel—Family and Human Services, University of Oregon
Faculty Mentor(s): Claire Guidinger, Nichole Kelly
Session: Pre-Recorded Poster Presentation

Asian/Asian American men report higher levels of body image concerns relative to their ethnic peers. One potential reason may be due to experiences with racism, which are associated with disordered eating symptoms. No studies to date have investigated if experiences with racism are associated with body dissatisfaction in this population. We hypothesized that experiences with racism would be positively associated with Asian/Asian American men’s body image concerns, and that ethnic
identity commitment and exploration would buffer these associations. Participants (266 Asian/Asian American men; Mage=24.4 ± 3.6y) completed an online survey that measured demographics; experiences with racism and microaggressions; ethnic identity commitment and exploration; and muscularity and body fat concerns. After adjusting for body mass index, income, education, and presence of a psychiatric diagnosis, linear regression models indicated that both experiences with racism and microaggressions were significantly and positively associated with concerns with muscularity and body fat, B's = 1.32-1.19, p's< .05. Ethnic identity commitment buffered the link between experiences with microaggressions and concerns with muscularity (B =—1.22, p< .05). Our data suggest that experiences with racism are negatively associated with body image in Asian/Asian American men, and that a greater ethnic identity commitment may serve as a protective factor. Prospective data are needed to clarify these associations.

**Nationalism and “Foreign” Speech: Influence of Listener Ideology on Perception of Non-Native Speech**

Crabtree, Isabel—Linguistics, University of Oregon

Faculty Mentor(s): Melissa Baese-Berk

Session: Pre-Recorded Poster Presentation

Implicit attitudes about social groups are often associated with the language varieties used by those groups. As a result, listeners not only make social evaluations based on a person’s language and accent, but may also perceive speech differently based on social expectations for speakers. However, there is little work investigating the influence of differences in social beliefs among listeners, rather than social differences between speakers, and even less work examining the perception of intensity (volume). This study investigated the relationship between a listener’s social ideology and the way they perceived the volume of non-native (“foreign-accented”) speech. Native English speakers listened to a series of sentences in native-accented English, non-native English, and native Turkish, Spanish, and Mandarin, and they were asked to rate the volume of each sentence they heard. Next, they indicated their agreement with either nationalist or globalist ideological attitudes. Across intensity conditions, participants perceived native-accented English as louder than both non-native English and non-English languages. Ideology comparisons were limited, with the participant pool heavily skewed toward globalism, but the data suggest ideology may predict the extent to which listeners perceive a volume difference between native and non-native English. Implications for real-world interaction are discussed, and further research is recommended.
Restoring Connections: Reconnecting Young Minds to Place in a Virtual Setting
Cservak, Skyler—Environmental Studies, University of Oregon
Co-Author(s): Gwen Ortega. Lena Karam, Mike, Salmon, Nicole Plumb
Faculty Mentor(s): Katie Lynch, Nick Sky
Session: Always On My Mind
Children today are more plugged into technological devices and less connected to the natural world than ever before which rings even more true in the midst of a pandemic. The Restoring Connections Project, in collaboration with Mount Pisgah Arboretum, Adams Elementary, and the University of Oregon’s Environmental Leadership Program, aims to help elementary students form personal bonds to natural places by introducing children to local nature elements. Utilizing the standards set by the North American Association for Environmental Education, our team created 15, 30-minute lessons filled with story-telling and participatory activities. Over the course of five weeks, we have joined 14 hybrid and remote classrooms visiting once a week, varying from 8–25 kindergarteners, first, and second graders. Students have developed scientific literacy, greater ecological awareness, and personal investment in our community’s conservation efforts by the end of the lesson. Throughout the last five years, Restoring Connections has found that integrating a transdisciplinary, place-based, and equitable learning environment into the classroom nurtured lasting connections with local nature, fostered stewardship, and redefined the wonders of nature for students. In an era where technology is prevalent, restoring students’ connection to the land through environmental education encourages them to become stewards and create strong and beneficial relationships with their local environment.

Active Olfactomotor Responses in Head-Fixed Mice
Cullen, Isabelle—Neuroscience, University of Oregon
Co-Author(s): Matt Smear. Avinash Singh Bala, Jared, Acosta-King
Faculty Mentor(s): Matt Smear, Avinash Singh
Session: Synaptic Connections and Pre-Recorded Poster Presentation
Olfactomotor responses are respiratory, orofacial, and locomotive movements for sampling and reacting 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 pain insensitivity, have been identified in
individuals with Autism Spectrum Disorder (ASD). In addition, Rosenkrantz et al. (2015) showed that olfactomotor behavior is affected in children with ASD. These children did 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), pinene (neutral odor), or clear air over 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 suggest that mice alter their sniffing 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.

Science/Comics Interdisciplinary Research Program
DaMommio, Chloe—Marine Biology, University of Oregon
Faculty Mentor(s): Katherine Kelp-Stebbins, Tien-Tien Yu
Session: Excelsior! Science in the Panels

The Science/Comics Interdisciplinary Research Program unites two growing areas at the University of Oregon: Comics & Cartoon Studies and STEM (science, technology, engineering, and mathematics). As comics artists, undergraduate students work with science faculty to produce scholarship that utilizes both humanistic and scientific research practices. Our roundtable will bring together the student artists to discuss the challenges and benefits that we encountered in this program. We will also feature our science faculty partners, who will discuss their role in our work. The panel will showcase all of the science comics that we have made (see website here) and feature our insights on how to use comics for interdisciplinary research purposes. Learning how to communicate complex ideas to individuals outside of specific fields of study is an essential skill, particularly when it comes to engaging a broader public in our research; Science/Comics brings together diverse research approaches and skills in order to make scientific research more accessible and inclusive. Our panel will allow for urgent conversations on how to use art and comics to communicate scientific research to everyone.
The Research Behind Costume Design
Davison, Alisha—Theater Arts, University of Oregon
Faculty Mentor(s): Jeanette DeJong
Session: Artistic Impressions

There is much more that goes into the process of costume design than many may assume. It’s an extremely labor-intensive process that requires a lot of attention to detail. I learned this while taking TA 416: Costume Design with Jeanette DeJong, and pulling knowledge from TA 412: Costume History II with Sandy Bonds helped as well. Larger projects in the Costume Design class involved drawing original costumes for specific plays including Madwoman of Chaillot (set in 1920s France with specific influences from the 1870s) and King Stag (set in a fictional village, which I chose to set in the 18th century). One of my goals when creating my designs was to be historically accurate with the silhouettes and embellishments of the clothing. To achieve this, I researched extant garments made in each of these eras and discovered fashion plates documenting the clothing that was in fashion at the time. After establishing the general appearance of a certain era of fashion, I used the personalities and attitudes of each character to determine what sort of clothing they would wear. These decisions included colors, accessories, practical items, and whether or not they would follow fashion trends of the era. I combined all of these aspects through different variations of sketches and came to the final design, which would be sewn together and put on the stage. This work is important not only for the rediscovery of historical fashions and creative thinking surrounding them!

How HIPAA Was Integrated Into Law
Day, Daezhane—Human Physiology, Lane Community College
Faculty Mentor(s): Ce Rosenow
Session: Pre-Recorded Poster Presentation

In my presentation I will discuss the enactment of the Health Insurance Accountability Act (HIPAA) and how this act was passed through the different branches of government such as judiciary, bureaucracy, and congressional. My knowledge and research was obtained through online sources and PS 202 taught at Lane Community College, which discusses the different actions of the political government and how each branch utilizes one another to pass law. In all I have found that in order to pass law, especially one like the Health Insurance Accountability Act, it first begins in Congress discussed throughout the house and senate where it is then lobbied and voted and sometimes makes
it all the way to the Supreme Court. Lastly, that law if not pass to the Supreme Court, will then make it to the President who will also be able to make vetoes, implementation/corrections, or deny or except the law that is being passed. This law has allowed protection and security of an individuals health care and health care information from each employer.

**How Hookup Culture at the University of Oregon Has Changed in Response to COVID-19**

Desmet, Danielle—Sociology, University of Oregon

Faculty Mentor(s): Krystale Littlejohn

**Session: Sociology Honors Seminar Research on Gender to Present Day**

This project seeks to explore how hookup culture at the University of Oregon has changed in response to the coronavirus pandemic. The pandemic has had an affect student life, especially as universities like the UO have resorted to predominantly remote learning. Safe and casual sex has been an undeniable institution of college life, and with the introduction of the pandemic, there is much to be learned about how students have or haven’t adjusted their safe sex practices. To best understand this, I interviewed 20 UO students, asking them about their opinions, thoughts, and experiences about hookup culture both prior to the pandemic and during. After close analysis, patterns began to emerge that affected students differently which was directly a response to their socially ascribed gender. Female students were quicker to reduce their amount of hookups, citing covid safety, and begin to question potential partners extensively prior to meeting up. Female students also demonstrated a particular fear of exposing others to the virus that was unparalleled in male students. This project is examining how these different responses are a result of the gender binary based socialization and shows how the binary enforces a different set of standards of behavior for socially ascribed males compared to socially ascribed females, which can put students unknowingly at risk and could potentially change safe sex as we know it.
Pregnant Female Athletes and How They Are Framed in the Media
DiMinno, Sammy—Journalism, University of Oregon
Co-Author(s): Lori Shontz, Julianne Newton
Faculty Mentor(s): Lori Shontz, Julianne Newton
Session: Pre-Recorded Poster Presentation
The purpose of this research is to examine how female athletes are framed and covered in the media in regard to both pregnancy and motherhood. The media plays an important role in framing women’s sport and how the media covers female athletes, has an impact on the way the public views them. By conducting a limited case study approach analyzing the news and sports media coverage of four athletes: Serena Williams, Alysia Montaño, Joy Fawcett, and Candace Parker, I aim to answer my research questions regarding what the common patterns are and what the media can do better moving forward. By also considering factors of race and gender, I aim to also propose guidelines for how the media can improve their coverage of how they frame pregnant female athletes. My findings indicated that the media commonly framed the athletes’ pregnancy as a career roadblock which further can lead to a type of comeback story. The media also commonly frames these athletes as either mothers, an athlete who is also a mother, or as a superwoman. Furthermore, this research contributes to the future of how the media should frame pregnant female athletes. There is still a fight for sex equality in sports and the media should continue to fight for pregnant female athletes and their representation in the media.

“forever, forever” A Poem by Jack Lindsay Dinovitz
Dinovitz, Jack—English, University of Oregon
Faculty Mentor(s): Lou Terlikowski
Session: The KIDDs Are Alright
I wrote this poem titled “forever, forever” about falling in love on a train. How the body and soul of the person can be so inspiring you must write a poem to capture the moment you met them. When the main character falls in love with another man he slowly becomes enthralled by the many ideas and many life times he pictures between the two of them. I researched Greek mythology, time zones between Italy and France, different flowers and monuments in both countries and much more. This poem is dedicated to the LGBTQ+ community, my younger self, and the love that may be lost to us because historians were too scared to write about it.
The Taxidermic Angel: The Patriarchal use of the Female Voice in Poetry
Dinovitz, Jack—English, University of Oregon
Faculty Mentor(s): Lou Terlikowski
Session: KIDDs Get Creative
My project: Throughout history male poets have appropriated the voice of female characters to convey patriarchal ideologies to their readers. My LOI project helps to uncover the ways in which male poets have used these voices for their own gain and the voices of female poets in juxtaposition. To understand this further I created a thesis that would convey this research; Male poets have used the female voice, depicting the Madonna Whore complex, in narrative poetry to promote patriarchal ideologies through three major lenses of women: biblical imagery, the cult of domesticity, and the death of women. Combining both the research of poetry across centuries and developing an understanding of the perception of female poets within the construct of a male dominated patriarchal literary field, I accumulated a vast variety of collections and essays to further understand the repercussions sexism has had on poetry. Through a understanding of male writers patriarchal ideologies we are able to understand the severity of the appropriation and silencing male poets have had on women in society. My research further shows the importance of teaching a variety of writers with diverse backgrounds and not just patriarchal white male poets. The research allows for a truth to be uncovered that has long been silenced in academia.

Queer Identity as the Litmus Test for Better Consent
Dodds, Gracia—Sociology, University of Oregon
Faculty Mentor(s): Jocelyn Hollander
Session: Sociology Honors Seminar Research on Gender to Present Day
Recent sociological research has begun to deconstruct the institutions that naturalize and gender and sexuality-based sexual violence. With the knowledge that multi-gender attracted women report the highest rates of sexual violence of any sexuality category, this research aims to understand how multi-gender attracted women conceptualize of consent, queerness, and violence. Data indicates that there are three significant indicators of consent consciousness-raising; consent and sexuality education, hearing other survivor stories, particularly from family and friends, and coming to terms with one’s queer identity.
Using Remote Sensing Data and a Convolutional Neural Network to Predict Wildfire Severity

Dorrell, Genevieve—Computer and Information Science, University of Oregon

Faculty Mentor(s): Thanh Nguyen, Lucas Silva

Session: Data Driven Crystal Ball

The danger of forest fires has significantly risen over the past decade due to climate change and improper forest management (Abatzoglou et. al. 2016). Wildfires have a severe effect on social and ecological systems. Being able to predict the severity of forest fires would be a valuable asset for forest management. In this work, I attempt to apply machine learning techniques to accomplish this task. Although machine learning algorithms have been shown to be powerful in many other fields, these methods have never been used for the severity prediction of forest fires in this way. My work provides the following main contributions. First, I built the wildfire dataset which consists of various domain features, ranging from land management and logging practices, including logging data, forest composition data, stream locations, and satellite imaging (Harold 2018). Second, I developed a neural network architecture to predict the severity a wildfire would have on an unburned forest using publicly available datasets and remote sensing data. My neural network predicts the severity class pixel by pixel of the satellite image which can be used to provide fire severity prediction maps. These results could offer a way to better control and reduce forest fires by predicting future fire severity so that we can target locations for better land management practices.

Oral Histories of the Oregon Holiday Farm Fire: Understanding Place, People, and Community

Dowling, Georgia—Environmental Studies, University of Oregon

Co-Author(s): Annie Williams. Myrthe Stalenhoef, Hana Francis, Eugene Davis, Alex Binder

Faculty Mentor(s): Katie Lynch, Bela Sanchez

Session: People and Place

This project is an exercise in collecting oral histories surrounding the Holiday Farm Fire in order to preserve the first hand experiences of individuals affected by the fires, while acknowledging trauma, resilience, and land management. This research will be conducted through in-person observations and virtual interviews with McKenzie River community members. Preliminary research relied on working closely with the McKenzie River Trust and the McKenzie Education Foundation to gather
more information about the community and area. A comprehensive interview guide was created that touches on people, place, and community. Due to the COVID-19 pandemic, interviews will be recorded using Zoom. The interview process will be followed by transcription, editing, and processing to produce a GIS story map, a multimedia storytelling presentation combining text and interactive maps of the Holiday Farm Fire. This project will provide a platform for the community to share events and experiences of the Holiday Farm Wildfire. It is our intention that these stories may serve as both a resiliency resource for other rural communities following natural disasters and as a healing process for those affected by the fire. This story map can also serve as a starting point for further research regarding the wildfire events of 2020.

Weight-Related Teasing Associated with Loneliness and Depressive Symptoms in Rural Oregon Children

Doyle, Caroline—Biology, University of Oregon

Faculty Mentor(s): Kelly Nichole, Claire Guidinger

Session: Health Considerations

Weight-related teasing (WRT) is a prevalent and pervasive consequence of weight stigma. Experiences with WRT in childhood contribute to adverse long-term physical and mental health outcomes. However, few studies have examined how WRT is associated with psychological well-being in youth, particularly those living in rural communities. The purpose of this study was to examine the link between WRT with depressive symptoms and loneliness in rural Oregon youth. It was hypothesized that higher composite scores including both frequency of and distress related to WRT would be significantly and positively associated with depressive symptoms and loneliness in children. Further, it was hypothesized that gender and body appreciation would moderate these associations, such that the association would be exacerbated among girls and buffered among those with high levels of appreciation for their body. 75 children living in rural Oregon completed fasting anthropometric measurements and surveys measuring demographic information, WRT frequency and distress, depressive symptoms, loneliness, and body appreciation. WRT was significantly and positively associated with loneliness but not with depressive symptoms. Neither gender nor body appreciation moderated these associations. Independently, body appreciation was significantly and inversely related with both depressive and loneliness. These data support ongoing efforts to intervene with and reduce WRT, and promote youth body appreciation.
The Representation of Black Womanhood in Paul Marshall’s /Daughters/

Duru, Emily—English, University of Oregon
Faculty Mentor(s): Courtney Thorsson
Session: Powerful Voices

The inaccurate portrayal of Black women in literature works to further perpetuate stereotypes of Black women as caretakers, burden-carries, and “mammies”, without consideration of our individuality. It is especially important to keep these portrayals in mind when discussing the antebellum construction of race and gender. By examining the novel Daughters by author Paule Marshall, we can see how diverse representation is not only important, but vital when telling the stories of Black women. The presentation will explore the themes of sexuality, motherhood, the construction of body, and learned gender-dynamics. Theoretical texts on intersectionality and Black feminism, from activists and authors, such as Hazel V. Carby and Toni Morrison, will further contextualize the novel and provide insight into how Marshall manages to challenge stereotypes and reframe the role of Black women in American literature—and more largely, in the eyes of American readers as well.

Unusual Tranquility: A Screen Dance Filmed With Horses

Ealy, Tabitha—Dance, Lane Community College
Faculty Mentor(s): Bonnie Simoa
Session: Pre-Recorded Creative Work

Unusual Tranquility is a screen dance that explores the beautiful and spacious love between horses and humans. Working within the limits set by the worldwide pandemic, I decided to use my phone to film myself at my home, dancing with my horses, as well as capturing their own natural movement. As I’ve entered the world of choreography as a student of dance, I’ve learned that when we are confined to create within specific boundaries, that is when we push the edges of our creativity to explore new paths. Though my avenue began and concluded through this specific art form, everyone has the potential to look deeper, not into what their limitations may be, but instead into what is now possible.
Oral Histories of the Oregon Holiday Farm Fire: Understanding Place, People, and Community

Eden, Erika—Environmental Studies, University of Oregon

Co-Author(s): Annie Williams, Myrthe Stalenhoef, Hana Francis, Eugene Davis, Alex Binder

Faculty Mentor(s): Katie Lynch, Bela Sanchez

Session: People and Place

This project is an exercise in collecting oral histories surrounding the Holiday Farm Fire in order to preserve the first hand experiences of individuals affected by the fires, while acknowledging trauma, resilience, and land management. This research will be conducted through in-person observations and virtual interviews with McKenzie River community members. Preliminary research relied on working closely with the McKenzie River Trust and the McKenzie Education Foundation to gather more information about the community and area. A comprehensive interview guide was created that touches on people, place, and community. Due to the COVID-19 pandemic, interviews will be recorded using Zoom. The interview process will be followed by transcription, editing, and processing to produce a GIS story map, a multimedia storytelling presentation combining text and interactive maps of the Holiday Farm Fire. This project will provide a platform for the community to share events and experiences of the Holiday Farm Wildfire. It is our intention that these stories may serve as both a resiliency resource for other rural communities following natural disasters and as a healing process for those affected by the fire. This story map can also serve as a starting point for further research regarding the wildfire events of 2020.

The Taiwanese Perspective on China Through Various Lenses

Evans, Sidney—Global Studies, University of Oregon

Co-Author(s): Holly Werts

Faculty Mentor(s): Matthias Vogel

Session: Pre-Recorded Poster Presentation

After World War II the Chinese mainland fell into civil war between the Chinese Communist Party (CCP) and the Republic of China (ROC). The leaders of the ROC fell back to Taiwan and formed, essentially, a new nation. This research project explores Chinese and Taiwanese relations, specifically from a Taiwanese perspective. Through the study of various branches of connection between the U.S, China, and Taiwan, this research demonstrates a unique complexity. This research, also, examines the
relationship through different stages of political ties between the U.S and Taiwan. First, the target was to understand Chinese politics and popular culture from a Taiwanese perspective. Then, this research analyzed the differences between Taiwanese and Chinese perspectives on global issues from previous polls as well as informal discussions with Taiwanese locals. Having extrapolated this information, we are able to demonstrate the distinct intricacies and tenuous relationship between the three nations.

Hunting for Prions: Propagating Putative Prion States in Budding Yeast
Evarts, Jacob—Computer and Information Science, University of Oregon
Faculty Mentor(s): David Garcia
Session: Pre-Recorded Poster Presentation

Prion proteins, although commonly associated with neurodegenerative diseases, are not universally harmful to cells. Instead, prions may allow cells to alter their phenotype in response to adverse environmental conditions by acting as an epigenetic mechanism. Importantly, prions are not dependent on chromosomal segregation and have inheritance patterns distinct from traits caused by genetic mutations. The Garcia Lab recently screened RNA modifying enzymes for their potential to induce prion conformations. From this screen, six enzymes, Abd1, Cet1, Ppm2, Pus4, Pus6, and Trm5, exhibited higher maximum growth rates than control strains when exposed to adverse chemical stressors. It is now necessary to confirm that the heritable growth states are truly caused by a prion-based conformation of an RNA modifying enzyme. Here, patterns of mitotic, diploid, and meiotic inheritance were determined for each strain by using central methods in yeast genetics, including a tetrad sporulation and dissection protocol and growth assays. Taken together, these results are key in attributing the previously identified growth states to a prion conformation of each of the six RNA modifying enzyme. The Garcia lab will continue to investigate these putative prions in future experiments. This research represents an important contribution to our understanding of epigenetic mechanisms and their effects on key cell processes.
Immigrants and Foreigners in Japan: Their Role in Society and How They are Perceived

Facer, Eugene—Economics and Japanese, University of Oregon

Faculty Mentor(s): Matthias Vogel

Session: Pre-Recorded Poster Presentation

Our project is called The Role of Immigrants and Foreigners in Japanese Society and How they are Perceived. We research attitudes towards immigration in Japan and explore why people have a negative view of immigrants even though immigrants coming to Japan would benefit the country. We explore the many factors that surround immigration to Japan, such as Japan's low birth rate, aging population, competitive workforce, and history of strict immigration policy. We also explore the challenges of foreigners assimilating into Japanese society, from its complex language and writing system to its many complicated societal rules, as well as racism experienced by foreigners. We use primary and secondary sources including statistical data to support our research on how negative attitudes towards foreigners and immigrants in Japan affect people living there who are not Japanese. The homogenous nature of Japanese society and the importance placed on collectivist culture has resulted in an emphasis on people living in Japan feeling like they have to conform to cultural standards. This can make living in Japan as a non-Japanese person difficult, because immigrants often feel like perpetual foreigners. We conclude that immigrants have a tremendously important role in Japanese society and that Japan must consider easing immigration restrictions to remain competitive in an ever globalizing economy.

Compounding Precarity: COVID-19 and the New Hazards of Low-Wage Work in the University Setting

Farnham, Olivia—Sociology, University of Oregon

Faculty Mentor(s): Ellen Scott

Session: Policies, Impact, and Response

As the coronavirus spread in the early months of 2020, low-wage workers on college campuses experienced an unprecedented transformation of work conditions that has resulted in continual uncertainty and increased risk. During the first three months of 2021, I conducted 20 semi-structured interviews with classified staff and student-workers employed through four different universities in the United States to ask: What does it mean to be a low-wage worker on a college campus in
the context of a global health crisis? Based on this data, I find that COVID-19 has heightened the preexistent precarity of low-wage workers who are experiencing this in three key ways: 1) confusion surrounding paid sick leave options, 2) anxiety as a background condition of work, and 3) the conversion of these conditions into the new normal. To conclude, I center workers’ voices in appeals for the future, including the need for transparent dissemination of COVID-related information, the recognition of their lived experiences and inclusion of their voices in the production of workplace policy, and a return to normalcy. Even under normal circumstances these workers are forced into impossible choices, and a year into the pandemic this position has only been intensified. In order to mitigate the vulnerability of low-wage workers, we need to recognize that these circumstances go beyond the scope of the current moment and will endure if the structural inequalities of low-wage work are not addressed.

**Environmental Analysis of Trail Development at Thurston Hills Natural Area**

Feagins, Camerin—Environmental Science, University of Oregon  
Co-Author(s): Gabe Kesich. Grant Leiphart, Emily, Huckstead  
Faculty Mentor(s): Peg Boulay  
**Session: Pre-Recorded Poster Presentation**

Thurston Hills Natural Area in Springfield, Oregon, consists of 665 acres of conifer forest, mixed forest, mixed woodland, oak woodland, upland prairie, wetland prairie, and oak savannah, designated for both recreation and habitat restoration. Much of these habitats are in decline in Western Oregon, especially prairie, which currently covers less than 1% of its original area in Western Oregon. Willamalane Parks and Recreation District’s 20-year plan for the site includes the development of a cost-effective baseline monitoring criteria for the impacts of trails on vegetation, wildlife, and hydrology. We implemented wildlife cameras, plant surveys, bird surveys, and clinometers to document wildlife use, vegetation, and slope, and to predict the impacts of current and future trails on habitat. Using GPS we determined assemblages of native and invasive plant populations and used GIS to map those locations. We determined areas of ecological sensitivity to be considered by Willamalane when implementing their site management plan. Additionally, we gave baseline feedback on areas where trail plan modifications would benefit target species and promote the advancement of management goals. Our research, in concert with future ecological monitoring, will help develop valuable adaptive management strategies at Thurston Hills Natural Area for decades to come.
Computational Modeling of BMP-2 Affibodies

Fear, Karly—Biology, University of Oregon
Faculty Mentor(s): Parisa Hosseinzadeh
Session: Inside Out

Bone fractures present an active research problem in regenerative medicine. As many as 10% of fractures will result in non-union—in which the bone does not bridge completely—or delayed fracture healing. These conditions require further medical intervention, which increasingly uses biologics to promote local regeneration. The family of growth factors known as bone morphogenic proteins (BMPs) is one such example, members of which enhance fracture regeneration. However, current treatments involving BMP-2, a member of the BMP family, are susceptible to the formation of abnormal bone growths due to the rapid release of BMP-2 from the collagen sponge that is used to deliver it directly to the fracture site. To enable controlled release, thereby preventing this problem, researchers developed a novel approach to design hydrogels that contain BMP-2 binding proteins. The success of this approach relies heavily on obtaining binders with certain binding dynamics. However, these binders are typically generated using directed evolution on affibodies, which requires further downstream characterization and optimization to reach the desired binding affinity. To enable rational engineering of these binders, four affibodies and their bound orientation to BMP-2 were modeled using computational methods, providing insight into the design of competitive inhibitors to control BMP-2 delivery in its therapeutic use.

Mechanically Active Bone Fixation Device for Fracture Regeneration: Design and Characterization

Fear, Karly—Biology, University of Oregon
Faculty Mentor(s): Salil Karipott
Session: Pre-Recorded Poster Presentation

Mechanical stimulus in the form of exercise is known to improve bone formation during fracture healing. At a scale orders of magnitude smaller than this functional loading, mechanical stimulus delivered at high frequency (~30 Hz) can also enhance bone regeneration. External delivery of mechanical stimulus is used in many of the studies that demonstrate the positive effects of this low magnitude, high frequency (LMHF) stimulus, but these modes of delivery are challenging to translate into clinical settings. In this study, we fabricated and tested an internal delivery system
comprised of a bone fixation device embedded with a magnetoelastic actuator which will change physical dimension in response to an applied magnetic field. Load transferred from the mechanically active device to a rodent femoral fracture provides local LMHF stimulus. The bone fixation device was characterized by off-axis compressive and torsional stiffness tests and accelerated fatigue tests. Iterative design produced a fixation device with the required stiffness parameters for in vivo validation.

To the girl I saw in my dreams last night
Fehlman, Madeline—Psychology, University of Oregon
Faculty Mentor(s): Lou Terlikowski
Session: KIDDs Get Creative
This poem captures the magical quality of dreams. The speaker is longing to reunite with the illusive girl from her dreams and wonders about her existence.

Trauma As Elegy
Fehlman, Madeline—Psychology, University of Oregon
Faculty Mentor(s): Lou Terlikowski
Session: Creative KIDDs
Elegy is a form of poetry that traditionally serves as a lament for the dead. This project investigates how poets across time use elegy to tell their stories of loss and personal trauma. I will examine elegies from different time periods, from traditional elegies to those from the modern and contemporary eras. I have found that while some common characteristics persist, elegies have evolved from serving as a tribute to lost loved ones into an expression of all forms of grief. Poets may use a variety of methods to tell their stories, but they all share the same goal: evoking universal emotions while writing about personal experiences. Achieving this goal turns poetry into a cathartic experience for both writers and readers alike.
Rebound and Resurgent Malaria Globally: Explanations and Underestimations via a Meta-Review

Fellman, Dimitra—Biology, University of Oregon

Faculty Mentor(s): Melissa Graboyes

Session: Health Considerations

Over the past century considerable efforts have been put forth to eliminate malaria. Such attempts have proved fragile, with many gains and successes followed by a resurgence of malaria cases. In 2012, Cohen et al. published the first systematic review of malaria resurgence events globally, and concluded that most failures were the result of pull-backs in funding for elimination programs. While this publication was an excellent first step, it provides a narrow scope and definition of resurgence that fails to capture potential events or address the ethical implications of resurgence. This research both replicates and expands on Cohen et al.’s work by providing a more nuanced investigation of the concepts, causes and consequences of resurgence. This meta-review added social science and primary archival sources, broadened Cohen et al.’s definition of resurgence, including events reported for only one year, and discuss ethical implications of resurgence. Our preliminary results captured 117 resurgences over 160 years. Our work also found that terms used to describe resurgence are not clearly delineated in malaria literature, descriptions of resurgences are often vague, and causes of resurgence are not as straight-forward or categorical as they appear in the work of Cohen et al. These findings call for expanded research into resurgence, as well as how it is conceptualized and reported.

Testing Oregon’s COVID-19 Response: Approaches and Outcomes to Diagnostic Testing

Fellman, Dimitra—Biology, University of Oregon

Faculty Mentor(s): Melissa Graboyes

Session: Pandemic Responses

When the SARS-CoV-2 virus first emerged in December 2019, diagnostic testing was the foremost public health tool for combating viral transmission. The United States’ decentralized response meant state and sub-state level entities took divergent approaches to collecting and reporting testing data; distributing testing supplies; and determining who should receive available tests. This thesis assesses how appropriately Oregon and its public health department, the Oregon Health Authority, approached COVID-19 testing. Since key roles of public health include promoting health equity and
generating data for political decision-making and public consumption, assessing Oregon’s response involves investigating whether the state suitably generated and communicated testing-related data and responded ethically—addressing disparities. The thesis argues that Oregon made arbitrary and unsupported choices regarding how to collect and present testing data, which had implications for perceptions of testing and government mandates. Decisions surrounding where diagnostic testing supplies would go and who would be tested were decentralized and unsystematic, engendering differences in access to supplies. Without a systematic approach, distribution was unethical because certain medical providers and county-level public health departments were disadvantaged when accessing supplies; and racial and ethnic minorities and lower socioeconomic status Oregonians and faced greater barriers to accessing tests.

**Witness: Stories of Survival From the American Acquired Immunodeficiency Syndrome (AIDS) Epidemic**

Foreman, Kit—Post Baccalaureate, Central Oregon Community College

Faculty Mentor(s): Andria Woodell

Session: People and Place

This research examines the ongoing impacts of the American AIDS epidemic on LGBTQ+ elders (“elders” here denoting subjects old enough to have lived through the American AIDS epidemic). Through a series of oral histories obtained from LGBTQ+ elders, this research examines whether they feel that stories from the epidemic have been told enough and appropriately. Additionally, this project examines whether LGBTQ+ elders feel these stories are sufficient to educate today’s queer youth, whether they have felt heard in the years since, and how they feel in retrospect about the way the United States federal government handled the American AIDS crisis. This series of interviews was conducted between myself and seven self-identified LGBTQ+ people born prior to 1979 regarding their experiences during the AIDS crisis and in the years since. This research finds that, for the most part, LGBTQ+ elders do not feel that stories from the epidemic have been told enough, they do not feel that the stories told are sufficient for the education of queer youth, and they feel that the US government mishandled the crisis by failing to respond in a timely or appropriate manner. Overwhelmingly, subjects reported ongoing feelings of anger and sadness directly connected to the AIDS crisis. Subjects do, however, feel that for the most part they have been welcome to tell their own stories—though most subjects qualified that they selectively told their stories to those they knew would listen.
Environmental Analysis of Trail Development at Thurston Hills Natural Area
Forsberg, Shannon—Environmental Science, University of Oregon
Co-Author(s): Grant Leiphart, Gabe Kesich
Faculty Mentor(s): Peg Boulay
Session: Pre-Recorded Poster Presentation
Thurston Hills Natural Area in Springfield, OR consists of 665 acres of conifer forest, mixed forest, mixed woodland, oak woodland, upland prairie, wetland prairie, and oak savannah, designated for both recreation and habitat restoration. Much of these habitats are in decline in Western Oregon, especially prairie, which currently covers less than 1% of its original area in Western Oregon. Willamalane Parks and Recreation District’s 20-year plan for the site includes the development of a cost-effective baseline monitoring criteria for the impacts of trails on vegetation, wildlife, and hydrology. We implemented wildlife cameras, plant surveys, bird surveys, and clinometers to document wildlife use, vegetation, and slope, and to predict the impacts of current and future trails on habitat. Using GPS we determined assemblages of native and invasive plant populations and used GIS to map those locations. We determined areas of ecological sensitivity to be considered by Willamalane when implementing their site management plan. Additionally, we gave baseline feedback on areas where trail plan modifications would benefit target species and promote the advancement of management goals. Our research, in concert with future ecological monitoring, will help develop valuable adaptive management strategies at Thurston Hills Natural Area for decades to come.

Environmental Analysis of Trail Development at Thurston Hills Natural Area
Fossum, Delaney—Environmental Science, University of Oregon
Co-Author(s): Grant Leiphart, Gabe Kesich
Faculty Mentor(s): Peg Boulay
Session: Pre-Recorded Poster Presentation
Thurston Hills Natural Area in Springfield, Oregon, consists of 665 acres of conifer forest, mixed forest, mixed woodland, oak woodland, upland prairie, wetland prairie, and oak savannah, designated for both recreation and habitat restoration. Much of these habitats are in decline in Western Oregon, especially prairie, which currently covers less than 1% of its original area in Western Oregon. Willamalane Parks and Recreation District’s 20-year plan for the site includes the development of a cost-effective baseline monitoring criteria for the impacts of trails on vegetation, wildlife,
and hydrology. We implemented wildlife cameras, plant surveys, bird surveys, and clinometers to document wildlife use, vegetation, and slope, and to predict the impacts of current and future trails on habitat. Using GPS we determined assemblages of native and invasive plant populations and used GIS to map those locations. We determined areas of ecological sensitivity to be considered by Willamalane when implementing their site management plan. Additionally, we gave baseline feedback on areas where trail plan modifications would benefit target species and promote the advancement of management goals. Our research, in concert with future ecological monitoring, will help develop valuable adaptive management strategies at Thurston Hills Natural Area for decades to come.

The Effects of Imprisonment on Previously-Incarcerated Fathers and the Family Unit

Francis, Claire—Sociology, University of Oregon

Faculty Mentor(s): Claire Herbert, Vanessa Vasquez-Tokos

Session: Sociology Honors Seminar Research on Gender to Present Day

Incarceration deeply affects fathers ability to parent both during and after incarceration. The relationship between fatherhood and incarceration is a much overlooked topic of research within social science. Few studies have explored how the confinements of prison alter parenting for fathers. The present study examines the question, “How does prison impact previously-incarcerated fathers and their ability to parent both during and after incarceration?” To assess this topic, ten men were interviewed for approximately one hour each using a semi-structured interview format. Using data from these interviews, the author found how several themes emerged surrounding the relationship between fatherhood and incarceration. The fathers who were interviewed faced community barriers which made it more likely for them to go to prison in the first place and more likely for them to have a disadvantaged relationship with their children even before beginning their prison sentence. Prison itself provided significant negative barriers to the parent-child relationship, namely the geographic barriers toward visitation. Upon leaving prison, fathers were faced with not only the harsh reality of re-socialization within society but also re-socialization within the family unit. Upon release, fathers had to determine how to best shift their parenting style in order to facilitate closer relationships with their children. Findings suggest the continued need further research within this area of study.
The Relationship Between Cholinergic and Noradrenergic Activity and Behavioral State
Francis, John—Biology, University of Oregon
Faculty Mentor(s): David McCormick, Lindsay Collins
Session: Pre-Recorded Poster Presentation
Animal behaviors result from complex network activity in the brain. Precise excitation and inhibition within these networks are partially regulated by neuromodulatory systems that regulate the behavior of other neurons. This regulation is accomplished by the neuromodulators acetylcholine (ACh) and noradrenaline (NA). This project investigates the relationship between ACh and NA neuromodulatory activity and behavioral state with respect to arousal and behavior-dependent modes of neuromodulation. Using systems neuroscience techniques, such as intracranial viral injections and 2-photon microscopy, this project offers novel insights into the dynamic relationship between ACh and NA activity and behavioral state in mice. First, I confirm the relationship between neuromodulatory activity and arousal state in relation to walking velocity, whisking, and pupil dilation/constriction. Second, I demonstrate that increases in both ACh and NA axonal activity reliably precede the onset and offset of walking bouts, and closely track whisking activity. Last, I show that ACh axonal activity across the cortex is significantly less correlated during whisking and walking compared to stationary periods. This project furthers our current knowledge of the relationship between neuromodulatory activity and observable patterns of behavior by offering new evidence of more localized, state-dependent modes of neuromodulation.

Promoting Pollinators at Whitewater Ranch
Franke, Isabella—Environmental Science, University of Oregon
Faculty Mentor(s): Peg Boulay, Dara Craig
Session: Pre-Recorded Poster Presentation
Promoting Pollinators Team is a subdivision of the Environmental Leadership Program at the University of Oregon. This year, we are working on a continuation of the long-term “Riparian Restoration” project with a greater emphasis on increasing native pollinators while reducing commercial hive dependency. Our mission is to improve pollinator count and restore pollinator habitat and riparian ecosystem health along Goose Creek at Whitewater Ranch, home to the largest organic blueberry farm in the Mckenzie River Valley. For 2021, we will continue tracking local pollinators,
replanting native plants, controlling invasive plant species, monitoring water temperatures, and
surveying the general health and quality of wildlife species at Goose Creek. These aspects will serve
to accurately compare the project site to survey reports of 2019 and identify changes in trends seen
in previous years. Due to the Holiday Farm fires in September of 2020, the ecology of Whitewater
Ranch and surrounding lands have drastically changed. It is difficult to predict the number of native
pollinators active and the conditions of restored riparian habitat due to these unprecedented
circumstances. The team anticipates changing trends in pollinator counts and environmental quality
which could influence the application of further restoration projects in the future. Whitewater Ranch
will benefit from this project with decreased reliance on commercial pollinators and increased local
plant and crop health.

A Juvenile Aplodontid (Rodentia) Jaw From The John Day Formation of Oregon
Froehlich, Eleanor—Earth Sciences, University of Oregon
Faculty Mentor(s): Samantha Hopkins
Session: Pre-Recorded Poster Presentation
Family Aplodontidae is made of a number of extant and extinct species that include the modern
mountain beaver and show a wide range of morphological diversity. I identified a fossil aplodontid jaw
from the John Day Formation of Oregon for the final project of the ERTH 434: Vertebrate Paleontology
course. The fossil, designated as JODA 2942, is a partial left mandible containing a broken incisor,
a deciduous fourth premolar, and both the first and second molars. The specimen is from the Turtle
Cove Member of the John Day Formation and comes from a locality north of Dayville, Oregon. This
specimen dates to approximately 26 to 24 million years in age. Through comparisons to fossil rodents
I was able to determine that this specimen is a juvenile Rudiomys mcgrewi. This is significant as the
type specimen of R. mcgrewi is very fragmentary and the only published occurrence of this genus,
making each additional specimen valuable. Additionally, individuals from subfamily Meniscomyinae
have wear patterns that change throughout the animal’s life. As this specimen is very young we are
able to see the practically unworn morphology. This identification increases the known diversity of
aplodontids in the Turtle Cove Member and extends the known temporal range of R. mcgrewi.
The Laboratory for Architecture and Building—Uniting academics, ecological design, and community
Fucigna, Gemma—Architecture, University of Oregon
Faculty Mentor(s): Tom Hahn
Session: The Virtual and Physical Space We Live In

With the increasing rate of climate change, it is critical to recognize and combat the fact that buildings account for close to 50% of CO2 emissions in the United States. Architectural design plays a crucial role in reducing carbon impacts. The Laboratory for Architecture and Building (LAB) is a proposed architectural research school in Eugene, Oregon that will focus on teaching and advancing building science research. The LAB provides an educational research hub for ecological building practices, while serving as an example for sustainability, that fosters engagement with the community. Researchers conducted systems research, site studies, and calculations for an urban site located at the base of Skinner’s Butte just north of downtown. This comprehensive design process resulted in a building proposal that is net-zero energy, cultivates food, harvests and recycles wastewater, engages with the community, and provides design research facilities, all on the 1.1 acre lot. The LAB stands as a learning opportunity to be implemented in communities beyond Eugene. The innovative design strategies unite education, research, and community in a building that showcases cutting edge ecological design.

Comparison of V1 Activity Between Mice Raised In Enriched Versus Standard Housing Conditions
Fuentez, Alyssa—Human Physiology, University of Oregon
Faculty Mentor(s): Denise Piscopo
Session: Synaptic Connections

Vision is a vital sense required for us to understand and interact with the world around us. It has been demonstrated that the environment with which we interact may have a profound impact on neural development and processing and that an absence of sensory input may lead to deficits in visual circuitry and function. The use of the mouse as a model organism for vision studies is now widely accepted due to the tremendous range of methods and technology available for use, yet standard housing conditions for the mouse remain fairly absent of sensory stimuli. It has yet to be determined how standard housing conditions during development affect cortical activity in the visual...
system when compared to that of enriched housing. This project aims to determine the differences in V1 cortical activity between the two conditions. Transgenic mice expressing a fluorescent indicator for neuronal activity were imaged via widefield imaging to compare the cortical activity of mice from opposing housing conditions. We hypothesized that mice housed in enriched environments have a larger magnitude of differences in fluorescence compared to those of standard housing, thus suggesting more cortical activity. With this information, future studies may need to adapt housing conditions for mice to obtain results that may reflect more accurately to that human vision.

**Promoting Pollinators at Whitewater Ranch**

Galli, Delilah—Global Studies, University of Oregon  
Co-Author(s): Will Baldwin, Yalin Li  
Faculty Mentor(s): Peg Boulay, Dara Craig  
Session: Pre-Recorded Poster Presentation

Promoting Pollinators Team is a subdivision of the Environmental Leadership Program at the University of Oregon. This year, we are working on a continuation of the long-term “Riparian Restoration” project with a greater emphasis on increasing native pollinators while reducing commercial hive dependency. Our mission is to improve pollinator count and restore pollinator habitat and riparian ecosystem health along Goose Creek at Whitewater Ranch, home to the largest organic blueberry farm in the Mckenzie River Valley. For 2021, we will continue tracking local pollinators, replanting native plants, controlling invasive plant species, monitoring water temperatures, and surveying the general health and quality of wildlife species at Goose Creek. These aspects will serve to accurately compare the project site to survey reports of 2019 and identify changes in trends seen in previous years. Due to the Holiday Farm fires in September of 2020, the ecology of Whitewater Ranch and surrounding lands have drastically changed. It is difficult to predict the number of native pollinators active and the conditions of restored riparian habitat due to these unprecedented circumstances. The team anticipates changing trends in pollinator counts and environmental quality which could influence the application of further restoration projects in the future. Whitewater Ranch will benefit from this project with decreased reliance on commercial pollinators and increased local plant and crop health.
The Reproductive Investment of Native Versus Invasive Cane Toads (Rhinella marina)

Garcia, Isabella—Biology, Visiting McNair Scholar, Sul Ross State University

Faculty Mentor(s): Crystal Kelehear-Graham

Session: It’s a BIO thing

Invasive species have profound impacts in four main areas: competition, hybridization, predation, and the spread of parasites and diseases. This research investigated the life history of native versus invasive cane toads (Rhinella marina, formerly Bufo marinus), to determine whether invasive populations invest more in reproduction so that they can effectively spread and colonize faster. Comparisons between native versus invasive clutch sizes and egg sizes were conducted to investigate whether invasive cane toads alter their resource allocations to invest in more significant numbers of smaller eggs, allowing the species to colonize and spread more rapidly. Results showed significantly higher numbers of eggs in invasive (Australia, Bermuda, and Hawaii) versus native (Guyana and French Guiana) female cane toads; however, there was no difference in egg size between populations. Findings from this research showed varied outcomes from the hypothesis, as results correlated to show significantly higher numbers of eggs in invasive ranges. However, there was a significant finding that differed from what was proposed in comparison in egg size between populations, suggesting that there is less focus on egg size than egg number in exchange for increased fitness in stressful conditions.

[n+1]CPPs and their Potential as Bioorthogonal Imaging Reagents

Garrison, Anna—Biochemistry, University of Oregon

Faculty Mentor(s): Julia Fehr

Session: Pre-Recorded Poster Presentation

Macrocyclic angle-strained alkynes with unique size-dependent fluorescence have the potential to be used as bioorthogonal reagents for innovative biological imaging purposes. Previous analyses of [n+1]cycloparaphenylenes ([n+1]CPPs) have characterized the size-dependent fluorescence and reactivity of these structures; these properties give rise to their potential use as bioorthogonal reagents. Our current goal is to explore the extent to which [n+1]CPPs can be used as bioorthogonal probes in various proof-of-concept experiments. Our first study focused on the stability of [9+1]CPP, a representative structure, by incubating it in DMSO at 37 °C over the course of seven days. In addition,
the probe was incubated at 37 °C in solution with a biological nucleophile, GSH, over the course of 24 hours. The stabilities were assessed periodically via NMR analysis over the specified time frame. With no nucleophile present, [9+1]CPP has shown minimal degradation over the course of 72 hours. This is a promising sign that [n+1]CPPs will be successful as stable probes in solution. Future analyses will include exploring different variations of [n+1]CPPs and how they translate in their use as bioorthogonal probes. This new class of biorthogonal reagents may lead to innovative advances in medical imaging that can in theory image biomolecules to detect countless diseases and disorders. These stability studies will be accompanied by current and future efforts to perform bioconjugations reactions.

Duck Buddy Program App to be Proposed to Physical Education and Recreation

Giakoumis, Dino—Psychology, University of Oregon

Faculty Mentor(s): Chantelle Russell

Session: Academic Residential Communities: Emerging Researchers

For this project, we designed an app idea to propose to the Department of Physical Education and Recreation, for people to find workout buddies. Incoming students at the University of Oregon who participated in the Student Wellbeing and Success Initiative survey, conducted by the Office of Student Life Assessment and Research, can be identified as having low wellbeing indicators. The creation of the Duck Buddy app is to encourage first year students with low wellbeing indicators to use the Student Recreation Center more. We developed an app concept for students to join and find workout buddies. Students can create a profile to make sure that they are paired with someone who also has similar workout goals and is also at the same athletic ability. This app also includes tutorials on how to use the equipment in the REC. This is a proposal for an app that we would present to the Department of Physical Education and Recreation (PE & Rec). If this app were created and implemented, future research could explore its effectiveness and determine if it positively impacted students with low wellbeing indicators to take advantage of the programs and resources in the PE & REC. We believe that this app will be beneficial to students because going to the gym without prior experience or a friend can be intimidating. This app would help inform students on the resources and opportunities available at the PE & REC and help the PE & REC connect with students.
**Science/Comics Interdisciplinary Research Program**  
Gibian, Rose—Art and Technology, University of Oregon  
Faculty Mentor(s): Katherine Kelp-Stebbins, Tien-Tien Yu  
Session: Excelsior! Science in the Panels

The Science/Comics Interdisciplinary Research Program unites two growing areas at the University of Oregon: Comics & Cartoon Studies and STEM (science, technology, engineering, and mathematics). As comics artists, undergraduate students work with science faculty to produce scholarship that utilizes both humanistic and scientific research practices. Our roundtable will bring together the student artists to discuss the challenges and benefits that we encountered in this program. We will also feature our science faculty partners, who will discuss their role in our work. The panel will showcase all of the science comics that we have made (see website here) and feature our insights on how to use comics for interdisciplinary research purposes. Learning how to communicate complex ideas to individuals outside of specific fields of study is an essential skill, particularly when it comes to engaging a broader public in our research; Science/Comics brings together diverse research approaches and skills in order to make scientific research more accessible and inclusive. Our panel will allow for urgent conversations on how to use art and comics to communicate scientific research to everyone.

**Geopolitical, Domestic, or Humanitarian? Theory-Testing for United States' 1995 Bosnia Intervention**  
Ginieczki, Taylor—Political Science, University of Oregon  
Faculty Mentor(s): Jane Cramer  
Session: Pre-Recorded Poster Presentation

The multilateral, US-led intervention in Bosnia in 1995 is often upheld as a quintessential example of humanitarian intervention. However, essential questions remain about the precise reasons for US involvement, and this paper hence investigates three different explanatory theories that seek to provide answers. The first theory, that the US acted on geopolitical interests, is discussed across three dimensions—achieving relative gains over Europe, enforcing vestiges of Bush’s New World Order, and mitigating the threat of war spreading. The second theory involves domestic influences that prompted President Clinton to intervene: public opinion, the upcoming election, and the media’s “CNN effect.” The third theory, humanitarianism, uses measurements of popular opinion and
Finnemore’s (2003) norms of intervention to test whether alleviation of suffering was the dominant motivation. Ultimately, this article determines the geopolitical rationale to be an intriguing exposition of realpolitik but holistically the least compelling. However, the latter two theories—domestic factors and humanitarian motives—both provide substantial and evidence-based rationales for contextualizing US decision-making. Through evaluating these theories across a wide range of evidence and utilizing elements of process-tracing methodology, this article strives to illuminate the rationale behind this instance of intervention and underline the power of analytical tools in understanding US foreign policy.

The Alaska Mental Health Enabling Act: The Treatment of Alaskan Natives in Mental Health Policy
Glaunert, Emma—Human Physiology, University of Oregon
Faculty Mentor(s): Kristin Yarris, Jon Runyeon
Session: Pre-Recorded Poster Presentation

In the 21st century, racial and ethnic disparities have been at the forefront of social justice movements, and yet, it is important to interrogate these disparities across US history. American Indians and Alaskan Native people have historically been treated differently in health care. The Alaska Mental Health Enabling Act (AMHEA) of 1956 serves as a case study for addressing access to mental health care services, especially for Native Alaskans. Prior to the passage of the AMHEA, Morningside Psychiatric Hospital in Portland, Oregon, offered inpatient mental health services for Alaskan Natives and other residents of the Pacific Northwest. In the first half of the 20th century, few psychiatric services were available in the then-territory of Alaska. In my thesis research, I analyze the AMHEA as a historical case study for mental health care for Native Alaskans, and for other racial/ethnic groups in the US. The primary research for my thesis comes from archival sources, including from UO Special Collections, and from interviews with key informants involved in the AMHEA legislation. Using these sources, my thesis assesses the impact of the AMHEA on the Alaskan Natives from the bill’s passage to the present. I use this case study to reflect on the types of mental health policies that could be used to remedy racial and ethnic disparities in mental health care in the US.
Femicide In El Salvador: The Deadly Ambush of Sexism, War, and Political Corruption

Godek, Aurora—Journalism, University of Oregon
Faculty Mentor(s): Matthias Vogel
Session: Pre-Recorded Poster Presentation

El Salvador’s issue of femicide is unique because the statistics show an intense contrast between the total number of instances and the rate in which they occur, especially compared to other, more populated countries. Wondering why El Salvador experiences such high rates, this project looked at social impacts and gathered information from several articles concerning femicide in El Salvador, South America, and around the world. To fully grasp the problem of femicide in El Salvador, the foundation to such an issue needs to be examined. Such is made up of gang culture, the social constructs of Catholicism and sexism, the effects on children and their future’s, and the country’s civil war. A grossly small number of women have the resources to report instances of abuse which in turn leads to under representation within legal courts and convictions. This leads to a toxic cycle of mistreatment of abuse cases which ultimately can lead to attempts at crossing into the United States, murder, or suicide. The lack of action from the government has triggered protests in the country and international attention and outrage, on a small scale. Protests in El Salvador have incited social media movements that expose vague information regarding the issue. With so many cases of femicide, the examples for killed women are endless and continue to fuel the movement. Our intention with this project is to explore and further conceptualize the reasoning for the continuation of this issue.

Comparison and Analysis of Spanish Translations of COVID-19 Public Health Resources

Graack, Anika—Human Physiology, University of Oregon
Faculty Mentor(s): Melissa Graboyes
Session: Pandemic Responses

COVID-19 research shows both racial and economic disparities. This thesis project focuses on the possibility of a language barrier contributing to the Latinx community’s disproportionate COVID-19 morbidity and mortality rates. The project analyzed resources from the Oregon Health Authority and the Centers for Disease Control and Prevention. Through close textual and visual analysis, this
thesis examines language use and form in disease communication. The project compares English and Spanish versions to one another, as well as Spanish translations to best practice guidelines. The research found disparities in information available in Spanish and differences between the organizations. In its conclusion it emphasizes the importance of accurate medical translations as a form of mitigating health disparities.

A Woman's Secret Language of Horror in The Tale of Genji
Green, Mary—Japanese, University of Oregon
Faculty Mentor(s): Glynne Walley
Session: Powerful Voices

While most may not think of horror when they conjure images of Japanese women of the Heian court, Mursaki Shikibu’s iconic novel from the early 11th century, The Tale of Genji, contains threads of horror woven through both the original plot as well as in the numerous adaptations throughout the ages. Some such elements of horror include confinement, spirit possession, and an oedipal complex of the titular character which leads to the misfortune of a number of female characters. In this presentation of my Japanese Honors Thesis I argue that these elements of horror resonate in such a way with a female audience that it becomes like a secret language in which to communicate and commiserate. To do so, I have conducted close readings of both the Royal Tyler translation of the original text as well as the well-known manga adaption Asakiyumemishi by Waki Yamato. I also engage with previously published scholarly discourse surrounding this topic, such as a feminist re-reading of the original text by Komashaku Kimi and Tomiko Yoda, an interesting take on an infamous spirit possession scene as a means to female empowerment by Doris G. Bargen, and a look into a possibly intentional reference to Japanese horror already lying within the original text as explored by Takehiko Noguchi. In making my argument, I hope to expose and embrace the ways that women’s voices have been shared over time through the surprising mode of horror in The Tale of Genji.
Anemia, poor health, and socioeconomic status in the Study on global AGEing and adult health (SAGE)

Greenblum, Georgia—Anthropology, University of Oregon

Co-Author(s): Alicia DeLouize, Josh Snodgrass

Faculty Mentor(s): Alicia DeLouize, Josh Snodgrass

Session: Pre-Recorded Poster Presentation

Anemia is a serious global public health problem and researchers have typically been focused on young children and pregnant women. However, there are also serious health-related concerns for older adults. In the wealthy world, this condition is generally easily identified and treated yet it is frequently overlooked by physicians. In contrast, it is a health problem that affects major portions of the population in many low- and middle-income countries. The purpose of the current study is to use Wave 1 data from the World Health Organization’s Study on global AGEing and adult health (SAGE) to: 1) describe the anemia rates for 14,659 adults 50 years and older in three countries—South Africa, China and Mexico; and 2) investigate associations among anemia, poor health across, and socioeconomic status in the three countries. The rates of anemia were 28%, 24%, and 91% in China, Mexico, and South Africa, respectively; this indicates a moderate to high public health significance as indicated by the WHO.

Funding: Support for SAGE was provided by the US National Institute on Aging through interagency agreements (OGHA 04034785, YA1323-08-CN-0020, and Y1-AG-1005-01) and through research grants (R01-AG034479 and R21-AG034263)

A Descriptive Analysis of the Impact of COVID-19 on Student Performance at the University of Oregon

Grimm, Matthew—Economics, University of Oregon

Faculty Mentor(s): William Harbaugh

Session: Pre-Recorded Poster Presentation

The COVID-19 pandemic has caused immense loss and disturbance in all aspects of society. College students had to rapidly adapt to an online learning environment while dealing with personal disruptions caused by the pandemic in order to maintain their college and future career path. We hypothesize that grades have increased—despite previous literature finding decreased student outcomes in online courses—due to universities implementing more lenient grading policies. In this
paper, we descriptively analyze administrative data from the University of Oregon to investigate the impact of COVID-19 on student performance, retention, and graduation in Spring and Fall terms of 2020. Additionally, we examine variations of these effects across course and instructor characteristics. Preliminary comparison of average grades in pre-COVID and post-COVID terms show an increase of 0.278 GPA points on a 4-point scale. Our purpose is to describe newly emerging trends in higher education caused by the pandemic and offer insight into the effect of administrative policy on student outcomes at the University of Oregon.

**The Representation of Middle Eastern Women Novelists in High School Curricula**

Habashi, Bita—English, University of Oregon

Faculty Mentor(s): Kara Clevinger

**Session: The Fate of Humanities: Humanities Undergraduate Research Fellowship**

For the purpose of my research, I am positing the question— which woman writers of Middle Eastern descent can be added to and taught in high school Language Arts curriculums? As preliminary review of local curricula reveals no such authors, I will focus on who they are, where we can find them, looking into what novels will be introduced to make the curriculum more inclusive, and questioning why this is significant to students in the school system as well. I will be conducting research to identify, analyze, and amplify women writers of color and narrow down those who come from Middle Eastern descent. From here, my hope is to compile a reading list of 10 novels by women writers of Middle Eastern descent and do a close reading of 3-4 of them using popular genres and themes already common in high schools curricula, such as the dystopian novel, the coming of age novel, and novels including religious or spiritual themes. My goal is to identify the struggles and significance of women of color in the Language Arts curriculum, and to work to incorporate women of Middle Eastern descent into a curriculum that avoids them.

**Idle Load: Reducing Energy Wasted by Non-Active Devices**

Haffner, Dalton—Architecture, University of Oregon

Co-Author(s): Honour Colby

Faculty Mentor(s): Tom Hahn, Maria Coronado Cabrera

**Session: Pre-Recorded Poster Presentation**

This case study measured the difference in energy usage in a single bedroom to examine if unplugging appliances, when not being used, will significantly affect the energy bill. Appliances
consume energy even when they are turned off, which is unnecessary energy use and will increase costs as well. It was hypothesized that unplugging all appliances in a bedroom when not in use would decrease energy usage in the room by 25%. It would also decrease monthly energy costs for the room. A digital power monitor meter was used to measure the active and idle energy consumption of each appliance in order to calculate total energy usage for conditions in which they are left plugged in for 24 hours. This was then repeated on a day when the appliances were only plugged in for active use. In comparing results from the different days it was found that energy can be reduced by about 30% when appliances are only plugged in during active use.

Keywords: Energy, Audit, Idle, Power, Appliance / Device

The Benefits of Alternative Education Curriculum in Preparing Individuals for Self-Development

Halpren, Alexander—Philosophy, University of Oregon

Faculty Mentor(s): Matthias Vogel

Session: Pre-Recorded Poster Presentation

With the COVID-19 pandemic still in full swing, the student and teacher alike across the world have experienced the pitfalls and positives of online learning. With feelings such as zoom fatigue, along with the issue of maintaining student engagement and facilitating personal growth in schooling, these are not new problems with the current education model. What is a viable alternative to the status quo which gives way to an environment of self-improvement, growth, and engagement?

Experiential education is a term used for a hands-on type of learning for students with the goal of personalizing the student experience in a direct and active manner. With the end goal of preparing them for participation within the greater society. The aim of this research paper is to define some of the recognizable and old issues that are still present within the system and to define the benefits of experiential education as a viable alternative to the status quo.

Hamburg, i love you but you deserve better: a poem by Amelia Hamerlynck

Hamerlynck, Amelia—Anthropology, University of Oregon

Faculty Mentor(s): Lou Terlikowski

Session: KIDDs These Days

“Hamburg, i love you but you deserve better” is a poem I wrote mostly in English but with occasional German words, cultural references, and grammatical constructions. I stylize an aspect of German
grammar by only capitalizing nouns on the page. I almost didn’t submit this piece for workshop because I was convinced it is far too personal for anyone to understand but me; however, I received a lot of positive feedback from my peers who felt as though the poem’s singularity and strangeness is a strength, and that its emotional power transcends the need for literal understanding. The question of how and why one incorporates foreign language into English poetry is complex; I hardly think I have answered it here, and consequently I often wonder about this poem’s chance of publication. However, the web of idiosyncrasies makes this poem one of my favorites to unpack and explain, which suits the cerebral context of a research symposium quite well. It is also designed to be read out loud, more so than any other piece I have written thus far. It has the wild energy of a free-verse poem but is written in verse. This is meant to produce a manic or hysterical quality in honor of the heartbreak and pain from which I wrote the piece, although the details of that heartbreak and pain remain somewhat vague in order to allow room for imagination.

**Her body was a new and ancient rite': Contemporary Queer and Woman+ Poets Rewriting Ancient Greece**

Hamerlynck, Amelia—Anthropology, University of Oregon

Faculty Mentor(s): Lou Terlikowski

Session: The KIDDs Are Alright

Thousands of years after the end of its civilizations, Ancient Greek culture maintains a hold on the Western world’s imagination. Classics, the study of Ancient Greece and Rome, has contributed so much historically and contemporarily to white supremacy and colonialism that the entire field has been in a state of crisis lately, with some scholars suggesting dissolving the field altogether and reabsorbing ancient Greek and Roman studies into other academic disciplines. Women and queer people also have complex relationships with cultural Grecophilia. Classics canonizes art, poetry, and philosophy which almost entirely excludes the voices of women due to Ancient Greek civilizations’ disturbing patriarchal practices. On the other hand, many strong female characters like Medusa, Antigone, and Athena have been reframed as feminist icons. Additionally, gender fluidity and queer sexualities were more normalized in many Ancient Greek civilizations than many other prevalent historical and contemporary societies. With its ambivalent mixture of attitudes on gender and sexuality and its undeniable cultural power, Ancient Greece draws the attention of many queer and woman+ poets. Rewriting canonized texts allows authors to deconstruct the literature which a society has deemed to be important, foundational, or even sacred. Ambivalently, any time an author selects a work from the canon to rewrite, they are in a sense reaffirming the power and significance of that piece.
Language as Cultural Longevity and Resistance: Learning from and Supporting Mam Migrants in Oregon

Han, Alexis—Global Studies, University of Oregon
Faculty Mentor(s): Derrick Hindery
Session: Pre-Recorded Poster Presentation

In 2013, the Oregon Judicial Department reported that the second most requested language for interpretation services was Mam, a language spoken by the Mam indigenous people of Guatemala. Despite their growing presence in Oregon over the past decades, Mam migrants are underserved and isolated because many are of undocumented status and have limited English and Spanish speaking ability. Informed by my internship with the Integrated Health Team of the Refugee Resettlement Coalition of Lane County, this research project presents how to best support Mam migrants and sheds light on how Mam migrants advocate for themselves. My research project asks how do Guatemalan Mam migrants residing in Oregon use their native language as a form of resilience? Along with pulling from studies on Mayan language revitalization, I conducted qualitative research through interviews with community members who are involved in providing social and interpretation services for Mam migrants. My findings show that Mam migrants in Oregon use the Mam language as a means of cultural longevity, social support, and communal education. My research findings suggest that to best support Mam migrants, social institutions and community members must embrace multilingualism and invest into indigenous language interpretation services. Additionally, for my internship, I created a repository of resources of intercultural health tools to be shared with immigrant activist organizations that support Mam migrants in Oregon.

Physical Education & Recreation student incentive program to increase well-being

Hanna, Tristan—Human Physiology, University of Oregon
Faculty Mentor(s): Chantelle Russell
Session: Academic Residential Communities: Emerging Researchers

The incorporation of an incentive program, “Breadcrumbs—Feed Your Flight”, is to be implemented by the Department of Physical Education and Recreation to improve the well-being of incoming freshmen. We are exploring the question of what can the University of Oregon’s recreation center do to improve the well-being of incoming freshmen who indicate low well-being. With the implementation of an incentive system, we can encourage students to build healthy life practices and improve their

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overall well-being. We specifically want to increase the well-being of students who scored low on the Student Wellbeing and Success Initiative surveys. This incentive program will encourage students to utilize the student recreation center and work on the physical aspect of well-being. After the introduction to the department of physical education and recreation, we could analyze the secondary Student Wellbeing and Success Initiative surveys to interpret the results of an incentive program. The primary implication of our work shows that students are establishing healthy habits and show an improvement in overall well-being. Based on statistical data, the University of Oregon has discovered that students who take PE and Recreation courses are more likely to have a more enjoyable college experience than students who do not. Students will be more likely to be involved if they know there is an opportunity for incentives, leading to more motivation.

**Justifying the Written Word: Medium Specific Techniques that can’t be Adapted and What they Are**

Hardwick, Conner—English, University of Oregon

Faculty Mentor(s): Jennie Li

Session: KIDDs Speak

The book, or rather, writing in general, has long been considered the most fundamental storytelling medium in a post oral tradition culture. Every other medium—the younger, more modern ones like film and comics and video games—is defined by enthusiasts in the way they each differ from the base form of a written novel. They are all afforded storytelling possibilities beyond the common prose-filled page. A book is ‘standard’, and consequently boring to many, understood as, in a sense, the most limited medium. As a fan of these other mediums, and medium-specific features, I decided to approach written stories with the same mindset to find what a novel can deliver as an experience that can't be imitated in another form. In this essay, I will draw upon the techniques used in several texts, from Jabberwocky to Benito Cereno to House of Leaves, in an effort to explore the capabilities of and minutiae distinct to the medium of the written word. The intent is to demonstrate experimental forms of writing and reexamine overlooked dynamics of reading to ascertain what is special about the particular, unique form of writing as a storytelling medium. There are experiences unique to this medium that simply cannot be done justice in another, and I intend show you what exactly those are.
Predictable vowel intrusion in Jilim: A preliminary phonetic study
Haupt, Zoë—Linguistics, University of Oregon
Faculty Mentor(s): Don Daniels, Melissa Baese-Berk
Session: The Words We Choose

This study presents a preliminary phonetic analysis of a certain type of vowel in Jilim, a language of Papua New Guinea. These vowels are different from full, lexical vowels as they are much shorter and optional within a word. The current study examines the quality of these vowels by performing an acoustic analysis. Specifically, do optional vowels differ from lexical vowels in terms of duration, loudness, and tongue position? Do the surrounding consonants and vowels affect the quality of optional vowels?

The data features seven different Jilim speakers, who were recorded telling stories in Jilim village. Seven audio recordings were labelled in a broadly phonemic manner in a phonetic analysis software for a total of 23.5 minutes of speech. Scripts were run on the labeled recordings to extract the formants, loudness, duration, and surrounding phonological context of both lexical and optional vowels for a comparative analysis. This study found that optional vowels do differ from lexical vowels in terms of duration and tongue position, and optional vowels are pronounced differently depending on the surrounding consonants and following vowels in the word. This study contributes to ongoing cross-linguistic research on these optional vowels. Future research will examine the phonological characteristics of these vowels to better understand their occurrence and function within the phonological system of Jilim.

The effect of production when learning to perceive and produce a novel sound contrast
Haupt, Zoë—Linguistics and Communication Disorders & Sciences, University of Oregon
Faculty Mentor(s): Melissa Baese-Berk, Zachary Jaggers
Session: Pre-Recorded Poster Presentation

Previous research demonstrates that during simultaneous training of novel sound contrasts in both perception and production can disrupt rather than enhance perceptual learning. This indicates that although perception and production are assumed to be closely connected, these modalities may have a competitive relationship. In spite of this perceptual disruption, subjects trained in perception and
production show gains in producing the distinction they were trained on, compared to perception-only training.

The current study examines how subjects learn to produce a new sound contrast after training in only perception or in perception and production. 30 native Spanish speakers were trained on an unfamiliar Basque sound contrast. The analysis of the post-test productions explored many phonetic dimensions of these tokens to determine how participants distinguished the sound categories. This analysis was compared across the two conditions to examine the relationship between production learning and perceptual learning.

The results are similar to previous studies in indicating a competitive relationship between production and perception. Additionally, the results indicate a generalizable improvement in the produced tokens for the production, but not a significant increase in the trained sound contrast, suggesting a more complex relationship between perception and production. These findings contribute to a better understanding of effective language learning practices.

Stories & Spaces: Updating Classic Plays for Modern Audiences Through Research-Based Ideas in Scenic
Henney, Amanda—Theater Arts, University of Oregon
Faculty Mentor(s): Jerry Hooker
Session: Pre-Recorded Creative Work
A crucial ingredient to the long-term success of classic stories is their ability to remain relevant over time. Retelling stories allows us to illuminate and explore lessons from iconic narratives that have been overlooked. Using extensive research, we created scenic designs for updated versions of the classic plays, Iphigenia in Aulis and Hedda Gabler. Hedda Gabler, written by Henrik Ibsen in 1890, finds new relevance when placed in America in the 1950s; Hedda’s boredom and frustration at her limiting life match the stifling expectations for conformity of the women of that time. Additionally, Iphigenia at Aulis written in 410 BCE by Euripides finds new relevance when placed around the time of D-day, Normandy in the 1940s. Agamemnon’s ardent drive to find a solution to the seemingly unsolvable and immense problem of the direction of the winds parallels the soldiers’ drive to complete their unpredictable campaign and immeasurable task: to storm Normandy. In regards to methods, the writings of Sylvia Plath, Emily Dickinson, and Virginia Woolf were utilized in the Hedda project as supplemental research; the Iphigenia project included images and literary references from the 1940s and specifically D-day. Theatre is an inherently dynamic art form because it gives breathing room for
artists and creators to adapt the classics in new and exciting ways. The restoration of classic plays provides a valuable basis with which to view the evolving and dynamic society which surrounds us.

**Immune Dysregulation During the Progression of Osteoarthritis**

Hernandez, Michelle—Biology, University of Oregon

Co-Author(s): Kelly E. Hyland, Angela S.P Lin, Dr. Robert E Guldberg

Faculty Mentor(s): Kelly Leguineche, Angela Lin

Session: Pre-Recorded Poster Presentation

Osteoarthritis (OA) is a chronic and progressive degenerative joint disease. OA is characterized by the progressive loss of articular cartilage, changes in the subchondral bone, and inflammation of the synovium tissue. Currently, there are no curative therapeutics available for the disease, only ones to help manage the pain. According to the CDC, OA is the most common joint disorder, with millions of adults in the United States suffering. To understand the immune response during the progression of OA, our research focuses on identifying systemic inflammatory biomarkers concurrent with the progression of the disease in a rat model of OA. In this study, we surgically destabilized the knee via medial meniscal transection (MMT), which ultimately resulted in a degeneration of the cartilage and other tissues of the knee. We measured circulating levels of inflammatory cytokines and immune cells via longitudinal blood draws and characterized joint degeneration metrics via microcomputed tomography. We employed linear and nonlinear multivariate regression techniques to identify immune biomarkers that were correlated with the surface roughness of the articular cartilage at the end point. Early pilot studies demonstrated feasibility of longitudinal monitoring of immune responses in the MMT model of OA. By correlating joint degeneration with systemic immune responses, we hope to identify early immune biomarkers that may be indicative of disease status.

**Reducing Recidivism Through Design: A Proposal for Improved and Effective Supportive Housing**

Hill, Sarah—Interior Architecture, University of Oregon

Faculty Mentor(s): Kelsey Buzzell, Linda Zimmer

Session: Pre-Recorded Poster Presentation

The United States has a history of incarcerating more people per capita than any other country in the world. While there are many factors contributing to these exceedingly high prison populations, the
key contributing factor to the consistency of these rates is the notion of recidivism. The significantly
deficient amount of effective and well-designed transitional and supportive housing facilities in the
US largely contributes to these high rates of recidivism, rather than prevents them. With research
conducted through interviews, case studies, and design critiques, this prototypical design proposal
will explore how transitional housing facilities can be improved by placing an emphasis on trauma-
informed design, residential design, dynamic security, communal living spaces, adequate supportive
facilities, welcoming familial environments, and plenty of access to the outdoors. This particular
proposal will focus on rehabilitating women and their children, but can and should be replicated to
serve male facilities, as well. Strategically located in the state of California, this prototypical design
is given a platform to succeed upon. The success of one properly designed supportive housing facility
has the potential to reduce the rates of recidivism at a local level. However, purposefully designed to
be easily replicated, the success of thousands of properly designed supportive housing facilities have
the potential to reduce the rates of recidivism at a national level, as well.

Mission Trips in Mexico: Exploring the Ethics of Foreign Aid
Hodges, Riley—Exploring (undeclared), University of Oregon
Faculty Mentor(s): Matthias Vogel
Session: Pre-Recorded Poster Presentation
This study seeks to explore the ethics of US foreign aid and the White Savior Complex by evaluating
mission trips to Mexico. It seeks to address whether the majority of mission trips to Mexico provide
the promised long-term solutions that benefit the community. In order to address this aim, our
research focused on key features of successful foreign aid models and compared them to those
of current mission trips to Mexico. We also explored the effects of current mission trips on local
communities. Overall, this research pointed to the reality that the Mexico-based mission trips this
study examined are often harmful to local communities. It illustrates the importance of improving
the current mission trip structure and suggests concrete changes such increasing collaboration
more with local communities, redirecting funds into the community, and properly educating mission
leaders and participants. Our findings strongly suggest that there is a need to reevaluate the current
foreign aid models in a way that focuses on creating long-term, community-based solutions. Even
with good intentions, unethical foreign aid can be disempowering and detrimental to communities.
Improving the existing approach to mission trips can support communities in need while effectively
combatting and dismantling White Saviorism. This new model will provide for productive foreign
aid, incorporate local communities in a dignified way, while allowing missionaries to reflect on internalized societal racism.

**Promoting Pollinators at Whitewater Ranch**

Huber, Angelina—Environmental Science, University of Oregon

Co-Author(s): Yalin Li, Will Baldwin

Faculty Mentor(s): Peg Boulay, Dara Craig

Session: Pre-Recorded Poster Presentation

Promoting Pollinators Team is a subdivision of the Environmental Leadership Program at the University of Oregon. This year, we are working on a continuation of the long-term “Riparian Restoration” project with a greater emphasis on increasing native pollinators while reducing commercial hive dependency. Our mission is to improve pollinator count and restore pollinator habitat and riparian ecosystem health along Goose Creek at Whitewater Ranch, home to the largest organic blueberry farm in the Mckenzie River Valley. For 2021, we will continue tracking local pollinators, replanting native plants, controlling invasive plant species, monitoring water temperatures, and surveying the general health and quality of wildlife species at Goose Creek. These aspects will serve to accurately compare the project site to survey reports of 2019 and identify changes in trends seen in previous years. Due to the Holiday Farm fires in September of 2020, the ecology of Whitewater Ranch and surrounding lands have drastically changed. It is difficult to predict the number of native pollinators active and the conditions of restored riparian habitat due to these unprecedented circumstances. The team anticipates changing trends in pollinator counts and environmental quality which could influence the application of further restoration projects in the future. Whitewater Ranch will benefit from this project with decreased reliance on commercial pollinators and increased local plant and crop health.

**Media Framing of Second-Wave Feminist & Civil Rights Protest Groups at the 1968 Miss America Pageant**

Hudler, Mackenzie—Journalism, University of Oregon

Faculty Mentor(s): Dean Mundy

Session: Fact or Fiction?

This study analyzes various media framing techniques and information biases used within mass media coverage of two protests that occurred at the 1968 Miss America Pageant: The Miss Black
America Pageant and the women’s liberation protest led by the New York Radical Women. A qualitative content analysis of 10 news articles from American mass media outlets such as the New York Times and LIFE Magazine will be conducted to critically analyze how framing techniques were used to strategically position these protest groups and their respective movements within public opinion, as well as how these portrayals differed from reality and other media depictions, such as the Up Against the Wall, Ms. America documentary. Ultimately, journalists from mass media publications used three main information biases and specific framing techniques to not only portray a victim-based narrative in which Miss America symbolized a “victim” being “attacked” by angry/radical protest groups, but also to diffuse and purposefully ignore any kind of overlap between the two protest groups, thus portraying a narrative surrounding the events that transpired in September of 1968 that also lacks intersectionality.

Wellbeing Resources on Campus: Thrive ARC’s Knowledge of UO Wellness Resources Compared to First-year Students Living on Campus.

Hudson, Spencer—Psychology, University of Oregon
Faculty Mentor(s): Chantelle Russell
Session: Academic Residential Communities: Emerging Researchers

The goal of this research project is to compare the knowledge of Thrive students to first-year students when it comes to the awareness of wellness resources on campus. Thrive: Healthy Living is an Academic Residential Community centered around personal wellbeing, wellness resources on campus, peer education, and community influence. We hypothesize that due to the nature of the ARC, being a wellness-based community, these students will have more exposure and knowledge of UO wellness resources than the average first-year student. We will come to our conclusion using classroom experience with presenters, our own research on the UO website, and the future use of a student-wide survey to understand the breadth of knowledge possessed by the first-year student population. This will be paired with our own research of wellness resources across campus and whether or not we knew of them. Our primary results will support our hypothesis that students in the Thrive ARC have more knowledge of wellbeing resources than the average UO freshman. The findings of this project highlight the wellness information that our team gained through the ARC experience. This will lead us to the conclusion that there is an abundance of resources that UO students outside of the Thrive ARC are unaware of, which may benefit their personal wellbeing as well as other aspects of their lives.
Whiteness on Mission (trips): Analyzing Voluntourism as a Racial Project
Hunt, Emily—Global Studies, University of Oregon
Faculty Mentor(s): Lesley Jo Weaver, Sharon Luk
Session: Rights, Race, and Justice
While research increasingly takes a critical approach to voluntourism, short-term Christian mission trips remain understudied even though they represent a large share of the industry. Similarly understudied is the expression and reproduction of racial ideology in voluntourism and the positioning of volunteer tourists within systems of domination like white supremacy, neoliberalism, and neocolonialism. Utilizing post-colonialism and whiteness studies as my theoretical framework, I look at the intersection of whiteness and mission trips and ask: How do young white Christian mission trip participants express and reproduce racial and colonial logics? What motivates them to participate? What opportunities, if any, do mission trips offer for individual and collective resistance to systems of domination? What alternative models might interrupt harm? Research data consists of 33 semi-structured interviews with primarily white people who participated in a mission trip, along with a literature review. Drawing on Sylvia Wynter's framework of the 'We'/'West' centered as the norm through the production of the 'Other'/'non-West,' I pursue a critical analysis of the racialized underpinning of mission trips. The live presentation will extrapolate on key findings.

Inferring Binary Black Hole Merger Properties from Contaminated Gravitational Waves Signals
Hur, Rachel—Physics, University of Oregon
Faculty Mentor(s): Ben Farr
Session: Time Space Continuum
Gravitational waves, which stretch and squeeze space-time as they travel through the cosmos, have been known to be theoretically possible for over a century through Einstein’s theory of relativity. On September 14, 2015, the Laser Interferometer Gravitational Wave Observatory (LIGO) made the first direct detection of both gravitational waves and the merging of two black holes, a feat that requires measuring a space-time strain on the order of one ten-thousandth the width of a proton. With the improving sensitivities of gravitational wave (GW) detectors such as LIGO, more GW and longer portions of their signal will be observable. Meanwhile, the source of many instrumental "glitches" is still unknown; occurring at a rate of 10-100 times per day in a single detector, it becomes
increasingly likely that incoming astrophysical signals will coincide with an instrumental glitch. In the analysis of the most recent observing run, 8 out of the 39 GW events coincided with a glitch. Currently, the point estimate of the glitch is subtracted from the data before applying the statistical tools which infer the physical properties of the merger (such as mass and location). My research focuses on building a parallel workflow that accounts for the uncertainty in the glitch estimate and the degeneracies that may exist between the signal and noise. This tool will give us a more robust inference of the astrophysical properties of past and future GW events contaminated with a glitch.

The US Immigration System Fails to Protect Latin American Women from Domestic Violence

Jeffery, Brittany—Political Science, University of Oregon

Faculty Mentor(s): Thea Chroman

Session: Pre-Recorded Poster Presentation

Latin American women who seek asylum in the United States often leave their homes to escape domestic violence. According to the United States Department of Justice, domestic violence is defined as violence committed by a current or former spouse or intimate partner whom the victim and perpetrator share a child. Because many Latin American countries lack sufficient resources to intervene effectively, the United States government becomes a key player in protecting Latin American women from domestic violence. As reported by the UN Refugee Agency, domestic violence can be a basis for refugee protection. The United States Immigration Courts are in a position to help Latin American women who suffer from domestic abuse; they can do so by granting asylum. This project examines the policies that could be implemented to support and protect women who seek asylum on the basis of domestic abuse. I argue that specialized courts in the US that specifically address violence against women would increase the number of Latin American women granted asylum, thus, decrease the number of women killed by their partners.
Design and Biocompatibility of Hyaluronic Acid Hydrogels for Bone Regeneration

Johnson, Ireland—Biology, University of Oregon

Co-Author(s): Andres Guerrero, Veronica Spaulding, Dr. Marian Hettiaratchi

Faculty Mentor(s): Marian Hettiaratchi

Session: Pre-Recorded Poster Presentation

Large bone defects and fractures caused by trauma or disease remain a serious challenge for orthopedic surgeons, and there is a need for more effective treatment strategies to repair injured bone. Bone autografts, a tissue graft from the same patient, are the ideal material to promote a healing response due to low host rejection; however, they can lead to donor site morbidity and are expensive to extract. To combat this problem, biomaterials, composed of the natural polymer hyaluronic acid (HA) can be used to deliver osteogenic (bone-forming) proteins that repair injured bone. This study describes the development of HA-based hydrogels for protein delivery for bone regeneration. HA hydrogels were formed by dynamic, covalent bonds between aldehyde functional groups on oxidized HA and HA functionalized with adipic acid hydrazide or carbohydrazide groups. Hydrogels were seeded with 3T3 fibroblast cells expressing green fluorescent protein to evaluate cell compatibility. Live and dead cells were evaluated using green fluorescence from GFP and red fluorescence from ethidium homodimer, respectively. A combination of oxidized HA and HA-carbohydrazide at 2.5% (w/v) maintained high cell viability (>82.3% for all time points) and encouraged a rate of cell growth that surpassed all other conditions. Future expansions of this project could lead to the use of HA hydrogels as a biomaterial that rivals the healing response of bone autografts.

Quantifying Cranial Shape Change with Age in Adult Modern Humans

Johnson, Jyhreh—Anthropology, University of Oregon

Faculty Mentor(s): Stephen Frost

Session: Health Considerations

Skeletal ontogenetic changes in shape have been closely examined and researched in modern humans during the prenatal to subadult stages of development. However cranial shape changes during adulthood are less notable and studied. This thesis used 35 three-dimensional landmarks from 13 cranial specimens of known age to estimate shape changes associated with age. Since research on this topic is less well known I hypothesized that the human cranium does undergo shape
change during adulthood and that these changes will provide more information on cranial ontogeny. Three-dimensional surface models of the superior and inferior portions of crania were created by photogrammetry using Agisoft Photoscan. Geomagic Control was used to unite these parts into a single 3D model of each specimen. The 35 craniometric landmarks were digitized using Landmark Editor. The landmarks were superimposed through a Generalized Procrustes Analysis in MorphoJ. Variations due to size, position, and orientation were removed from the data leaving the variable of shape for each specimen. The resulting 13 configurations of Procrustes coordinates were regressed against chronological age. Results of the regression analysis demonstrated a correlation between cranial shape with age. Age has a subtle effect on cranial shape that accounts for approximately 5.7% of shape variance. Though minimal, as the cranium ages the position of the zygomaxillare anterior narrows resulting in a hollowed look to the facial region.

Quantifying Cranial Shape Change with Age in Adult Modern Humans
Judge, Tyra—Global Studies, University of Oregon
Co-Author(s): Alicia DeLouize, Josh Snodgrass
Faculty Mentor(s): Alicia DeLouize, Josh Snodgrass
Session: Pre-Recorded Poster Presentation

Worldwide, over 20% of older adults suffer from a mental health disorder. The most common mental health disorders are dementia and depression, affecting 5% and 7% of the world’s older adult population, respectively. It is sometimes difficult to distinguish between the two disorders, which leads to a misdiagnoses of early-stage dementia as depression. In our research, using the Study for global AGEing and adult health (SAGE), we found that poor memory predicted the presence of depression in every country except India. Poor self-rated memory predicted depression in China, Ghana, Mexico, and Russia (ORs = .42 to .62, ps 6lt; .001) and backward digit span or verbal recall predicted depression in China, Ghana, and South Africa (ORs = .43 to .49, ps 6lt; .01). Our results demonstrate a close association between poor memory and depression in low-to middle-income countries (LMICs). Here, we examine this and discuss its implications for the potential misdiagnosis of early-stage dementia globally.
Oral Histories of the Oregon Holiday Farm Fire: Understanding Place, People, and Community  
Kaltenbach, Courtney—Music, University of Oregon  
Co-Author(s): Annie Williams, Myrthe Stalenhoef, Hana, Francis, Eugene Davis, Alex Binder  
Faculty Mentor(s): Katie Lynch, Bela Sanchez  
Session: People and Place  
This project is an exercise in collecting oral histories surrounding the Holiday Farm Fire in order to preserve the first hand experiences of individuals affected by the fires, while acknowledging trauma, resilience, and land management. This research will be conducted through in-person observations and virtual interviews with McKenzie River community members. Preliminary research relied on working closely with the McKenzie River Trust and the McKenzie Education Foundation to gather more information about the community and area. A comprehensive interview guide was created that touches on people, place, and community. Due to the COVID-19 pandemic, interviews will be recorded using Zoom. The interview process will be followed by transcription, editing, and processing to produce a GIS story map, a multimedia storytelling presentation combining text and interactive maps of the Holiday Farm Fire. This project will provide a platform for the community to share events and experiences of the Holiday Farm Wildfire. It is our intention that these stories may serve as both a resiliency resource for other rural communities following natural disasters and as a healing process for those affected by the fire. This story map can also serve as a starting point for further research regarding the wildfire events of 2020.

Creating Equity—The Food Insecurity Crisis in Eugene, Oregon  
Kaplow, Sasha—Sociology, University of Oregon  
Faculty Mentor(s): Derek Brandow, Maggie Elias  
Session: Pre-Recorded Poster Presentation  
Creating Equity—The Food Insecurity Crisis in Eugene, Oregon, will work to educate University of Oregon students on the challenges of food insecurity on campus. Not only do these issues persist in regular times, but the COVID-19 pandemic has negatively enhanced the effects of this urgent crisis. This will be a space for students to learn about the inequalities that exist throughout their school in relation to food equity and learn how to get involved and help out. We have found that over 36% of UO students were food insecure before the pandemic, but many people do not know what being
insecure even looks like, so they are either too afraid to ask for resources or do not think they need them as much as other people. The knowledge of organizations on campus is also severely lacking, so individuals do not know where to turn or the next steps to take to get help. Through our presentation, we hope to make the available resources to students more clearly laid out and accessible, since accessibility is one of the driving factors that leads people to be food insecure. We will also be plugging an event on campus that will happen later in May that will work to further educate people, distribute fresh produce (fruits and vegetables), and collect non-perishable foods through a food drive, that will later be donated to the Student Sustainability Center.

Native American Water Rights Podcast; Environmental Racism Shall No Longer Be Tolerated on This Land
Karam, Lena—Environmental Studies, University of Oregon
Faculty Mentor(s): Marsha Weisiger
Session: Pre-Recorded Poster Presentation
As climate change continues to evolve one of the things that is coming to the forefront of people’s minds is the future of water scarcity. But this is a future that has been a present for Native Americans since the colonization of America. In an effort to increase awareness and accessibility to information of the history of water scarcity oppression that Native Americans have faced I have produced a podcast to share with my peers and call to action a movement to support Native American Water Rights. In an effort to understand the current state of Native American water rights I focused my research on discovering the history and legality of Native water injustice. By the end of my research I concluded that through colonial law and unjust water settlements set in place for white settlers to steal water sources from Native Americans to be the reason why still today Native Americans face water scarcity on the reservations they were forced to inhabit. Water scarcity is not an issue of the future, it is an issue of the past and the present, but due to ignorance and accessibility to information to environmental racism that Native Americans face daily is not addressed in popular media. I have produced this podcast in hopes to close the information gap and call for solidarity and demand the U.S government establishes just water rights for Native Americans.
A mutant microbial species alters interspecies interactions in the zebrafish gut
Kast, Jade—Biology, University of Oregon
Co-Author(s): Deepika Sundarraman, Raghuveer Parthasarathy
Faculty Mentor(s): Raghuveer Parthasarathy, Deepika Sundarraman
Session: Pre-Recorded Poster Presentation

Gut bacterial communities are important for host development and health. Knowledge of bacterial species interactions will aid in understanding gut community composition and the factors that affect it. Previous work in the larval zebrafish gut has shown that strong competitive interactions between two bacterial species are weakened in a community of five commensal species where higher-order interactions promote species coexistence. This raises the question of whether certain characteristics of the species present can affect higher-order interactions in multispecies communities to disrupt community stability. To address this, I replaced one bacterial species of the genus Aeromonas, which is native to zebrafish, from the previously studied group of five species with a mutant strain that aggregates less than the wild-type strain. Through dissection and plating experiments I found the mutant Aeromonas has a stronger negative interaction compared to the wild-type Aeromonas in two-species experiments with Enterobacter—another native species. The mutant Aeromonas' interaction persisted in the five species community. Further experiments where mutant Aeromonas is inoculated after successful gut colonization by Enterobacter indicated the strong competitive interaction is also present in established communities. The results suggest bacterial species characteristics influence higher-order interactions in multispecies communities, therefore influencing gut community composition.

Hendricks Forest Management Plan 2021
Kataoka, Natalie—Environmental Science, University of Oregon
Co-Author(s): Jessi Henderson
Faculty Mentor(s): Alex Renirie, Peg Boulay
Session: Pre-Recorded Poster Presentation

As climate change increases the frequency and intensity of natural disturbances, it is important that local forest management plans reflect the changing needs to meet public safety and ecological preservation. The Hendricks Forest Team of the Environmental Leadership Program is currently using forest monitoring methods to gather data on the health and abundance of Douglas Fir trees to help
inform a sustainable management plan for the City of Eugene Parks and Open Space. Tree monitoring methods and protocols utilized during this project were adopted from the Forest Inventory and Analysis (FIA) Program of the US Forest Service at the direction of Eugene Parks and Open Spaces. This includes: diameter, perimeter, and crown measurements. Research and data collection is still currently underway at the time of the writing of this abstract. The Hendricks Forest team contends that climate change will play a significant role in the future of Hendricks Park, and considerations of species succession and maintaining biodiversity will be crucial to the new management plan. Data collected will be used to inform the Forest Management Plan and the final conclusions will not be determined until the plan is finalized. The research conducted by the Hendricks Forest team provides necessary data for the City of Eugene Parks and Open Space to utilize in updating their Forest Management Plan in order to build resiliency and ensure that the park may be utilized by future generations.

Decoding the Role of the Auditory Cortex During Prey Capture Behavior In Laboratory Mice

Kaylegian, Katherine—Physics, University of Oregon
Faculty Mentor(s): Mike Wehr
Session: Synaptic Connections

Mice are natural predators that are able to hunt in complete darkness. They are able to detect, pursue, and capture crickets using only their auditory system. This prey capture behavior between mice and crickets is a multifaceted interplay between participants that involves the primary sensory cortex and the superior colliculus. Many of the natural behaviors present during prey capture can be mediated solely through the superior colliculus and little is known about the role that the primary sensory cortex plays. Here we are concerned only with the auditory cortex, and we ask what computational role it plays in mediating natural prey capture behavior in laboratory mice and crickets. To do this we used a mixture of drug and optogenetic suppression of the auditory cortex and recorded videos during prey capture trials in a closed arena. We used a single chain Hidden Markov Model (HMM) to analyze the videos and extract neuronal states and the transition probabilities between states. We found in doing this that there are quantifiable differences between trials where the auditory cortex is suppressed and trials where it is not.

As we continue to collect data by increasing the complexity of the prey capture trials by adding natural sounds we expect to see a greater dependence on the auditory cortex that will manifest
through the states and state transitions. Gaining more knowledge about the role that the auditory cortex plays in prey capture behavior will help to give us a more complete picture of how the auditory cortex, and by conjunction the primary sensory cortex, function in other natural behaviors.

An orthogonal system for the continuous directed evolution of genes in vivo

Kearns, Nora—Biology, University of Oregon

Faculty Mentor(s): Calin Plesa

Session: Inside Out

Proteins are the molecular machinery which enable the vast functional diversity across life forms. A significant barrier to repurposing proteins for applications in medicine and industry is that proteins have evolved to function best in a living cell from their native organism, and frequently lose function in a different context. This necessitates innovative techniques to modify natural proteins for novel functions and conditions.

Directed evolution allows scientists to guide and accelerate the mutational path of DNA, the genetic material which encodes proteins, towards a desired function. Current approaches to directed evolution require cycles of manual DNA mutation in vitro followed by expression of a mutant library in vivo to assess functional outcomes. This process is time-consuming and labor intensive, limiting our ability to evolve many proteins quickly in parallel.

Continuous approaches to directed evolution bypass cyclic in vitro mutation, instead allowing mutation to take place within cells over several generations without manual interference. Here, we repurpose the transcriptional machinery of bacteriophage $\Phi 29$ to develop an orthogonal replication system, DiversiPhi29, for the continuous directed evolution of large gene libraries in vivo. DiversiPhi29 will enable the rapid evolution and study of complex proteins over hundreds of generations.

American Women Driving Classical Music and Environmentalism Forward in the Twenty-First Century

Kellems, Abigail—Music Composition, University of Oregon

Faculty Mentor(s): Robert Kyr

Session: The Fate of Humanities: Humanities Undergraduate Research Fellowship

In America today, women are dramatically underrepresented in the field of music composition. The barriers and biases that prevent them from attaining the same opportunities as their male peers also
put them at higher risk of physical harm and loss of income when a climate-change related disaster strikes. The purpose of this paper is to identify how six modern female composers of classical music in America are combating both of these issues, by innovating classical spaces and creating music that is rooted in environmentalism. I gathered information for this project from articles, interviews, composers’ personal websites, and analyses of their works. I discovered that while many of these women write music on environmental themes, others focus on sustainable composition and performance practices. Some use their talents and platforms to raise funds for environmental organizations, and to amplify the voices of climate change experts. Each of these women has a unique way of protecting the planet, so that all the progress that they have made working in the classical music industry will still be there for the women who succeed them. Their work is inspiring audiences and the next generation of composers into activism, and shows the world that women have an integral place in classical music and in creating a more sustainable future.

**Capitol Hill Arts Alliance: A Center for Visual and Performing Artists in the Wake of the Pandemic**

*Kellett, Jillian—Interior Architecture, University of Oregon*

*Faculty Mentor(s): Linda Zimmer*

*Session: The Virtual and Physical Space We Live In*

Countless industries have been negatively affected during the COVID-19 pandemic, but one that has yet to make a comeback is the arts industry. The arts industry is one of America’s three key economic sectors, but COVID-19 lockdowns in 2020 laid off 2.7 million arts workers (Washington Post). Since large museums and performance venues are unable to adapt for social distancing, many professionals including singers, actors, dancers, fine artists, and musicians are out of work and face uncertainty about their futures. This project offers a building program that promotes cross-pollination between disciplines and flexible exhibition spaces that accommodate social distancing. Through precedent studies and primary research, a building site was chosen and redesigned to implement solutions that addressed key research questions.

The Capitol Hill Arts Alliance is a proposed adaptive reuse project in Seattle, WA that provides safe spaces for visual and performing artists to continue creating, exhibiting, collaborating during the pandemic. The program and design address three main issues: the financial impact on artists as the industry remains closed, the closure’s effects on the local community and culture, and the need to integrate flexible architectural elements to transform space for social distancing. Though the future
is still uncertain for many arts workers, this project explores design principles that address specific obstacles people in the arts industry face during the pandemic.

**Designing a Daily Ritual: A Nightstand in Red Alder**

*Kellett, Jillian—Interior Architecture, University of Oregon*

*Faculty Mentor(s): Cory Olsen*

*Session: Pre-Recorded Poster Presentation*

As a routine-oriented person, my morning and bedtime routines are sacred parts of the day. This furniture design studio required students to design a casegood that improved upon a daily ritual in our personal lives. In analyzing my bedside routines, there were three important issues to address: unorganized cords, lack of concealed storage, and preventing spills during sleep. Through the use of precedent studies, material analysis, and full scale prototypes, the final design was driven by the dimensions of my personal belongings and my anatomic dimensions. The product features intuitive design solutions that address the main issues, including hidden compartments and channels for cords to hide, multi-tiered storage alternating between open and concealed compartments, and high round sides that prevent spills. The final piece came together in solid red alder wood, assembled using glued panels connected with dado joints to accommodate material swelling. The drawer carefully considers seasonal material movement by using enlarged dado tracks that allow for smooth wood-on-wood operation. The design process yielded a successful furniture piece that found elegant solutions to enhance user experience over other commercially manufactured designs. This project demonstrates the importance of detail oriented, ergonomic, and intuitive design. It provides a precedent that shows how aspects of daily life can be improved through successful design that meets a user’s specific needs.

**Burkinabè President Kaboré’s Approach to Counterterrorism: Peace in the Land of Upright People?**

*Khalife-Hamdan, Raimy—Global Studies, University of Oregon*

*Faculty Mentor(s): A.B. Assensoh*

*Session: Rights, Race, and Justice*

Burkina Faso has long been celebrated for its peaceful environment, epitomizing ethnic and religious coexistence. But since 2011, Burkina Faso has been sucked into the security crises plaguing the
Sahel and has now become one of the most unstable countries of Sub-Saharan Africa. Drawing from Burkinabè government documents, interviews with Burkinabè experts, and country reports from various INGOs, this research questions the efficacy of President Kaboré’s counterterrorism and reconciliation initiatives since his election in 2015. The researcher contemplates the historical and sociopolitical contexts of ethnoreligious coexistence in Burkina Faso, referring to the late President Sankara’s efforts to foster national unity. The researcher analyzes the roots of present-time extremism, which is contextualized against a backdrop of widespread violence in the Sahel. As a whole, President Kaboré’s bellicose counterterrorism approach, which includes massive military-led operations and strategies of outsourcing tasks to civilians in informal policing groups, has been largely unsuccessful. While Burkina Faso’s peaceful past raises hope for future ethnoreligious coexistence, President Kaboré must immediately abandon his aggressive, military-centric counterterrorism strategy that has only aggravated violent extremism and exacerbated his people’s distrust in the state. This is a call for President Kaboré to envision softer and more inclusionary reconciliation initiatives.

**Women Without Walls: Countering Violent Extremism in Nigeria**

**Khalife-Hamdan, Raimy—Global Studies, University of Oregon**

**Faculty Mentor(s): Yvonne Braun**

**Session: Rights, Race, and Justice**

In the fight against terrorism, experts have denied women’s agency by making two mistakes: first, overlooking women’s roles in terrorism, and second, neglecting to invest in women’s peacemaking efforts. Since 2009, Nigerian-based group Boko Haram has contributed to the deaths of over 37,500 individuals and the internal displacement of over 2 million Nigerians. Astonishingly, two-thirds of Boko Haram’s suicide attackers are women. To challenge the mainstream narrative that women are passive vessels in the face of conflict, this research uses a gendered lens to explore the factors pushing women to join Boko Haram. In overlooking women’s participation, Nigerian counterterrorism officials invisibilize and exasperate the motivations of a significant number of terrorist supporters and fighters. In Nigeria, just as women are capable of mobilizing support for terrorist movements, they are effective at forming peaceful environments because of their unique social positions as transmitters of values in the home space. Considering the perspectives of Nigerian women whom the researcher personally interviews, this research surveys preventative, grassroots-level counterterrorism tactics used by women-led movements, which include organizing “Mother Schools.”
As Nigeria today faces persistent terrorist attacks and abductions, state officials must recognize and invest in women as peacemaking actors to truly attain sustainable results.

**Ecological Design: Designing a Pollinator-Supportive Native Garden on Campus**

**Kinser, Isabella—Marine Biology, University of Oregon**

**Faculty Mentor(s): Peg Boulay**

**Session: Academic Residential Communities: Emerging Researchers**

The recent decline of pollinator populations, including bees and other species, has been largely due to parasites, diseases, increased pesticide use, and habitat loss. Pollinator pocket gardens are urban habitats which support pollinators by offering them space to build hives, collect nectar and pollen, wash off in water, and rest as they move between other pollinator habitats. In partnership with UO Campus Planning & Facilities Management staff, our team compiled and implemented a comprehensive plan for a native pollinator pocket garden near the Urban Farm. This garden will primarily support pollinators and secondarily educate and serve as a pastime space for University of Oregon students, staff, and campus visitors. First, we chose an unused garden plot by considering two plots’ attributes as prospective spaces serving both humans and pollinators. Next, we used our plot’s characteristics among other criteria to select appropriate plants for our garden. We compiled guidelines for our garden’s implementation and maintenance, which Environmental Leaders ARC students implemented during spring term by planting native plants in our plot. The garden we designed will support pollinators’ critical ecological role and serve as an entry point for pollinator conservation conversations at the University of Oregon among university students, faculty, and staff, as well as the larger Eugene community.

**Understanding potential sources of zinc contamination in Eugene-Springfield waterways**

**Klein, Charlotte—Spatial Data Science and Technology, University of Oregon**

**Faculty Mentor(s): Matt Polizzotto**

**Session: Pre-Recorded Poster Presentation**

Data from Amazon Creek, Willow Creek, Spring Creek and the Willamette River through Eugene, Oregon indicate that concentrations of zinc in stormwater runoff and in receiving streams have been increasing over the past 20 years. As such, the causes and extent of elevated zinc levels within the
Eugene-Springfield Metro Area are the focus of this study. Preliminary research identified zinc-based moss control products, tire and brake wear, industrial discharges, and more, as likely sources of zinc to the environment. Further efforts, including spatial and temporal analysis through the construction of a series of maps is ongoing. Results aim to make clearer primary sources of zinc contamination within the study area, add to our understanding of the extent of zinc contamination within the area, define future water sampling strategies, and identify potential strategies for minimizing zinc loading to the environment.

**The Green Kingdom**: A Short Story by Sarah Kline

Kline, Sarah—Philosophy, University of Oregon

Faculty Mentor(s): Jennie Li

Session: KIDDs These Days

“The Green Kingdom” tells the story of a family of three—the daughter Amara, Mother Francis, and Grandmother Betha—in their struggles to love and connect with one another through their fundamental lifestyle differences. Amara, the daughter and narrator, reunites her estranged mother with her grandmother again, forcing them both to face their disagreements and stare forgiveness and understanding straight in the eyes. Through this, they are asked to confront their own demons and anger. Amara stands her ground to provide a center of balance between these two characters, commentating on lessons that nature provides around us specifically as taught by trees. “The Green Kingdom” asks questions of love, what it means to live and care for one another, while addressing the cycles of life and the way nature seeks to connect us all.

**Evaluating the Success of Oregon’s Norwegian-Inspired Prison Reform**

Klocke, Aysa—Global Studies, University of Oregon

Faculty Mentor(s): Cheyney Ryan

Session: Rights, Race, and Justice

This thesis aims to understand Oregon’s progress towards prison reform through the Amend program. Inspired by the Norwegian prison model, the Amend program provides trainings and support to correctional officers and staff with the goal of increasing wellness for the staff as well as the adults in custody. Since 2016, Oregon correctional staff and policymakers have been on two Amend-led trips to Norway. According to the chief program officer, Oregon is the state that has embraced the
Norwegian model the most. I will evaluate the success of the Norwegian model for Oregon’s prison reform. This thesis focuses on the Oregon Department of Corrections because they are directly enrolled in the Amend program. Through interviews, I have gathered information on specific changes several prisons have made. Overall, the Norwegian model has been successful at shifting the perspectives of officers and improving conditions for officers and adults in custody. On the other hand, local non-profits suggest prison reform in Oregon needs to be more radical. I will conclude that the Norwegian model in and of itself is not enough to address root causes of incarceration in Oregon.

A Multi-Task Weak Supervision Framework for Internet Measurements

Knofczynski, Jared—Mathematics and Computer Science, University of Oregon

Faculty Mentor(s): Ram Durairajan

Session: Pre-Recorded Poster Presentation

The ability of machine learning (ML) systems to identify patterns in data is of growing importance to researchers in all fields, especially in the domain of Internet measurements. As our reliance on the Internet continues to grow, ML solutions to networking problems continue to be invaluable in ensuring the sustained performance of networked systems around the globe. One key issue network researchers face is a lack of labeled training data, particularly at scale. Traditional labeling strategies are less effective in this domain, as labeling network data often requires significant domain expertise that crowdsourced labeling resources do not possess, and the vast quantities of data make large-scale manual annotation infeasible. Additionally, many ML applications require multiple tasks to operate effectively, resulting in the multiplicative growth of training times as the number of tasks increases, but the lack of information sharing between tasks means that potentially useful information may be discarded if deemed irrelevant for the task at hand, when it could be useful to another model training on the same dataset. Given these challenges, we propose ARISE, a multi-task framework capable of leveraging weak supervision strategies in the form of labeling functions to label vast quantities of network data while sharing information between tasks to decrease training times, improve classification accuracy, and reduce the influence of hidden biases found within sets of training data.
Old Elastin Haploinsufficient Mice Have Impaired Memory, Motor Coordination and Endothelial Function

Krishna Kumaran, Sahana—Human Physiology, University of Oregon

Faculty Mentor(s): Ashley Walker

Session: Pre-Recorded Poster Presentation

Large arteries stiffen due to advancing age and they are associated with cognitive impairment. However, the direct effects of long-term large artery stiffness require further investigation. Therefore, we studied cognitive and cerebral artery function in a model of greater large artery stiffness, the elastin haploinsufficient (Eln+/−) mouse, at old age.

We examined old wildtype (Eln+/+, n=8, 25 mo), old Eln+/−(n=8, 25 mo), and young wildtype (YC, n=9, 7 mo) mice. Memory was tested through the Morris Water Maze (MWM) test and motor coordination was measured through the accelerating Rotarod test. Endothelial function was measured in ex vivo pressurized posterior cerebral arteries (PCAs) by dilation to acetylcholine (ACh).

In the MWM test, old Eln+/−mice crossed the target area fewer times than old Eln+/+ mice (p<0.05), indicating impaired spatial memory. In the accelerating Rotarod test, old Eln+/−mice stayed on the rod for less time than the old Eln+/+ and young mice (p<0.05), suggesting poor motor coordination. Maximal PCA dilation to ACh was lower in old Eln+/−mice compared to old Eln+/+ and young mice (p<0.01), indicating impaired endothelial function.

These results indicate that long-term exposure to large artery stiffness leads to impaired spatial memory, motor coordination, and cerebral artery endothelial function. Future research is needed to study the cellular mechanisms resulting from large artery stiffness.

Managing Anxiety with evidence-based methods

Kriska,Nolan—Business Administration, University of Oregon

Faculty Mentor(s): Jordan Pennefather, Shoshana Kerewsky

Session: Always On My Mind

I plan to write my Clark Honors College (CHC) thesis on treating anxiety with free, evidence based methods that will eventually become a curriculum, and I would like to present phase one of my project at this year’s spring Undergraduate Research Symposium. If people avoid their anxiety now, they put themselves at serious risk for mental and financial damage. A 2013 meta analysis deduced the effects of anxiety on cognitive function from over 200 studies that involved thousands of
participants. They found anxiety decreased productivity and quality of life, “The impacts of anxiety on cognition [are as follows]. Both threat of shock—a translational anxiety induction—and pathological anxiety disorders promote the detection of potentially harmful stimuli at multiple levels of cognition from perception to attention to memory and executive function” (Robinson 7). One proven method that helps people control their anxiety is Cognitive Behavioral Therapy (CBT), a psychotherapy that creates new paths of thought in order to challenge unwanted behaviors and mood disorders. Using CBT now rather than later gives people a chance to continue to contribute to society and maintain a quality of life. I plan to teach CBT and its affiliated counterparts (habituation, inhibitory learning model, yuck diagram, dialectics and some existential thought).

Evading instabilities in spring-mass chains with time-modulated stiffnesses

Kruss, Noah—Physics, University of Oregon

Faculty Mentor(s): Jason Paulose

Session: Time Space Continuum

Standing waves moving through a one-dimensional static spring-mass-chain is a well-studied and solved problem. Less widely known are how such systems respond when the global stiffness or tension of the springs is sinusoidally varied in time. In such systems, standing waves still exist, but their motion over time is described by Mathieu functions which become unstable at certain wavelengths. In my research I investigate the vibrations of a periodic spring-mass chain with time-modulated spring stiffnesses, using classical dynamics simulations implemented in HOOMD-Blue software. Upon initializing the system with standing waves of different wavelengths and tracking the subsequent evolution, I obtain quantitative agreement of trajectories with predicted Mathieu functions. By analyzing the relationships between system properties and stability of standing waves, I find parameter combinations for which the discrete system has no unstable modes, in contrast to the continuous equivalents which generically harbor instabilities. My results show that discrete time-modulated systems can be dynamically stable without requiring losses or damping. This findings encourage further study and can be used to design systems in which wave packet information is preserved over time despite naturally occurring damping.
JSMA Addition and Adaptation: responding to the pandemic, current demands, and land acknowledgement
Kumala, Rheata—Interior Architecture, University of Oregon
Faculty Mentor(s): Javier Bonnin
Session: Pre-Recorded Poster Presentation

Located in the heart of the University of Oregon (UO), the Jordan Schnitzer Museum of Art (JSMA) has been the premier art institution for the Eugene-Springfield community since 1933. Despite its ever-growing collections and program demands, the JSMA has only undergone one major renovation in 2005. Its main entrance is historical and monumental yet inaccessible to certain users. A separate entry and exit way is needed and another renovation is inevitable to ensure an effective and safe visitor experience. In staying faithful to the original design entailed by architect Ellis Lawrence, this project proposed a North addition that preserves the existing historical trees, keeps the repetition of courtyards and the building’s symmetry. The design development considers precedent studies, site visits, structural analysis, COVID-19 protocols, and daylighting strategies within JSMA. Looking deeper into the site’s historical context, JSMA settled in the land of the Indigenous people of Eugene-Springfield who were relocated after signing a treaty with the USA in 1855. As a vessel of history, it only makes sense that the new expansion recognizes the earliest stories of the land. Featuring an exterior brick facade and interior tiles designed to represent Native American arts, the new addition aims to foster dialogues and learning on the topic. More than providing safe operation, ample area for storage and activities, the new expansion honors the original stories and owner of the land.

Museum of Stolen Land: Problematising American Colonialism Though Architectural Design
Kumala, Rheata—Interior Architecture, University of Oregon
Faculty Mentor(s): Solmaz Kive
Session: People and Place

Architecture can be used for war and oppression or to tell the story of the oppressed. This project, the Alaei’k-ae Museum, is a redesign of the Fort Vancouver Artillery Barracks that problematizes the colonialist nature of Fort Vancouver and offers a platform for contemporary members of the Chinook Nation to speak and connect with one another. The project title honors the site’s indigenous name: Alaei’k-ae, or Turtle Place. Before becoming a military base, Alaei’k-ae was a Native American
hunting grounds, trading post, and seasonal village. The project development considered statistics, historic data, insights from Native communities, and existing projects that challenge American Colonialism. The U-shaped footprint was redesigned around a Chinook Wawa phrase: ankati, alta, alki (formerly, presently, eventually). The museum’s spatial sequence follows the chronology of American Colonization’s impact on Native peoples. The galleries begin with the massive death toll from plagues and war, continue into forced relocation, then reach shattered identities and cultural appropriation. After the galleries, visitors can go into the eastern wing, which includes a market for local Native artists and a Chinook cultural center to encourage learning and preserve the Chinook Nation’s tribal knowledge. By redesigning an existing colonial military building, the Alaei’k-ae Museum works to educate people about the dark truth and persistent effects of American Colonialism.

**Behavioral Assay for Evaluating Sound Change Detection in Mice**

Kyne, Sean—Biology, University of Oregon  
Co-Author(s): Beth McCarry, Santiago Jaramillo  
Faculty Mentor(s): Santiago Jaramillo, Beth McCarry  
Session: Pre-Recorded Poster Presentation

Brain will rely on what it has heard in the past in order to make predictions about what it will hear next to improve behavioral responses. To investigate the neural basis of this process, we designed a training regimen teaching mice to detect when a sound changed. In this change detection task, mice were taught that a changing sound was associated with one lick port and an unchanging sound with another. To obtain the reward, mice needed to lick after the sound change or when the sound ended for sounds that didn’t change. Initially, we focused on teaching animals to lick at the appropriate time then they learned the association between changing and unchanging sounds. Data from this showed that animals developed a strong bias toward the port associated with changing sounds, presumably because animals could obtain rewards earlier on these trials compared to when the sound did not change. To address this issue, we used a buzzer to act as a negative reinforcement and indicate when the mouse licked the wrong port or at the wrong time. The buzzer was effective at eliminating port bias, allowing the animals to learn the correct associations. These results indicate that mice are capable of learning the task when appropriate training stages and reinforcements are used. This task will enable the investigation of the neural basis of change detection and predictions in the auditory system.
What Killed Red Protein Genes in White Blooded Antarctic Icefish?
Landes, Audrey—Human Physiology, University of Oregon
Faculty Mentor(s): Thomas Desvignes, John Postlethwait
Session: It's a BIO thing
Within the frigid oxidative stress-inducing waters of the Southern Ocean inhabits a group of fish called notothenioids. Among them, a family of fish, the icefishes, lack the red oxygen-carrying protein Hemoglobin and the red muscle oxygen-binding protein Myoglobin making their blood and muscles appear white. Notothenioids also possess the globin-like genes neuroglobin, globin-x, cytoglobin-1, and cytoglobin-2. We hypothesized that as notothenioids evolved to adapt to the oxidative Antarctic waters, these globin genes evolved functions protecting against oxidative stress. Potentially, in icefish, these genes might have evolved functions in oxygen transport. The full-length sequences of each gene in 38 Notothenioids and five outgroup species were retrieved. Phylogenetic trees were reconstructed and tested for accelerated evolution. The analyses revealed no major changes in rates of evolution but identified several amino-acid sites that underwent episodic diversifying selection between Antarctic and non-Antarctic species. Next, expression patterns of each gene were observed using semi-quantitative RT-PCR in four notothenioids. Ongoing analyses revealed significant expression of neuroglobin and globin-x in the brain of all species analyzed and expression of cytoglobin-1 in all organs analyzed. These results may provide information about the adaptation of notothenioids especially in response to decreasing levels of dissolved oxygen due to climate change.

Prehistoric Mountain Beaver Identification from Eastern Oregon
Lawson, Amelia—Environmental Science, University of Oregon
Faculty Mentor(s): Samantha Hopkins, Amanda Peng
Session: Pre-Recorded Poster Presentation
Aplodontid fossils from the Turtle Cove Member of the John Day Formation, located in eastern Oregon, are relatively abundant. The Turtle Cove Member includes fossils from the mid Oligocene, and in the case of the aplodontid fossil of interest, the late Oligocene, and North American Land Mammal stage the Arikareean. Today there is only one remaining species of the Aplodontidae family of mountain beavers, Aplodontia rufa, which can be found in western regions of North America. Unlike the American beaver, Castor canadensis, Aplodontia rufa is a ground dwelling mammal that primarily feeds on small shrubs and ferns. The Aplodontidae family is closely related to the Sciuridae family,
which includes modern squirrels, and led to the Mylagaulidae, a prehistoric rodent family of horned gophers. Overall, the Aplodontidae subfamily that this paper will be focusing on is Prosciurinae. This subfamily branched off of the main Aplodontidae family’s evolutionary tree long ago, making dental morphology similar to that of squirrels. Prehistoric lower classifications of Aplodontidae can be identified based on their detention and time period in which they were found. Similarly, other information such as diet, terrain, and environment can be examined through dentition. This paper analyzes the dentition and habitat of Haplomys liolophus, an aplodontid from Logan Butte, Oregon, that dates back to the Arikareean.

A Cultural Memory Tour and Workshop of Alton Baker Park: Race, History, and Power in Public Spaces
Leavitt, Mason—Geography, University of Oregon
Faculty Mentor(s): Laura Pulido
Session: People and Place
In recent decades critical race scholarship continued to proliferate in higher education as scientists began to treat race and white supremacy as socially reproduced phenomena rather than an explanatory factor for discrimination. However, knowledge produced in academia rarely bridges the gulf between formal education and popular education. Disseminating antiracist understandings of reality in a society that has powerful, active resistance to reconciling its espoused multiculturalism with its white supremacist institutions continues to be an enormous barrier to social justice. This project fuses critical race concepts produced in scholarship with a workshop and guided tour of Eugene’s Alton Baker Park, in order to pilot techniques that could educate lay-audiences about the complex, obscured nuances of race, space, and power. Participants work alongside an academic to dissect the differentiation between history and cultural memory, and address the influence of power in selecting what stories are represented in public spaces. Throughout the tour, folks are encouraged to confront, interpret, and reconcile discrepancies between the way formal signs address past events and different ways those events might be understood from underrepresented perspectives. Through a welcoming academic environment and a collaborative process, participants can enhance and formulate their own ideas of just representation in communal, often inconspicuous environments.
Bird Nerds: Uniting Elementary School Students in Oregon and Mexico through Shared Migratory Birds

Lehrbach, Natalie—International Studies, University of Oregon

Co-Author(s): Arielle Names, Madi Scanlan, Bella Campino, Miranda Roso, Devin Vandergriff

Faculty Mentor(s): Katie Russell, Katie Lynch

Session: Migratory Stories: Sea, Land and Air

Our team of Environmental Leadership Program students partnered with the Willamette-Laja Twinning Project to bring the “Aves Compartidas” (shared birds) program to River Road Elementary School. With birds as our focus, this project aims to unite students in Oregon and Guanajuato, Mexico using shared species and language to foster deep ecological and cultural connections. Under a remote framework, our team created a bilingual curriculum for third through fifth grade students, centered around our shared migratory birds and their habitats. We hypothesize that students will become more familiar with migratory birds shared between Oregon and Mexico, along with their respective watersheds. In the initial lessons, we established baseline evaluations of the students’ prior knowledge about birds and continued to monitor their knowledge and enthusiasm, utilizing written and discussion-based activities. To gauge student understanding of the material, our team has measured attendance and engagement through student participation in class as well as their involvement in a weekly ecological themed bingo activity. Student teaching teams discussed, evaluated, and recorded the results of the reflection activities after each lesson. We will compile and analyze data from weekly lessons and the final assessment to determine the effectiveness of our team’s curriculum. The curriculum created provides a framework for future Environmental Leadership Program cohorts and seeks to cultivate civic engagement, uplift young environmental stewards, and engage global residents.

Exploring the neural basis of visual processing in the freely-moving mouse

Leonard, Emmalyn—Biochemistry, University of Oregon

Faculty Mentor(s): Cristopher Niell, Philip Parker

Session: Pre-Recorded Poster Presentation

Historically, the sensory regions of the brain have been characterized as processing centers for single modalities—for example, visual cortex processes vision. It has since been found that sensory regions are not truly segregated in function, however, and signals related to other aspects of perception, including movement, are also integrated into these areas. Due to the challenge of recording from
single neurons in freely-moving animals and maintaining control over sensory input, the mechanisms underlying this integration have yet to be characterized, and the extent to which non-visual signals impact visual processing is unknown. We developed a technique to record electrophysiology data while simultaneously recording visual input and motor actions in a naturalistic setting for the freely-moving mouse. We chronically implant multisite silicon electrodes in primary visual cortex (V1), which can record up to 64 neurons at once, and attach a 3D-printed device containing two cameras for recording eye position and the animal’s visual scene as well as an inertial measurement unit to track head orientation and movements. By aligning these data into an analysis pipeline, we found that V1 neurons show response tuning for specific motor actions—such as head orientation movements and compensatory and saccadic eye movements—as well as for specific visual stimuli, revealing the nuanced interplay of visual and non-visual signals in visual cortex that allows for successful perception.

**Brain oscillations may represent a continuum from healthy to impaired movement speed**

Leriche, Ryan—Biology, University of Oregon

Faculty Mentor(s): Nicole Swann

Session: Pre-Recorded Poster Presentation

Our motor nervous system allows us to engage seamlessly with our environment. However, Parkinson’s Disease (PD) patients often struggle to walk, eat, and even dress themselves due to their slowed and rigid movements. Electrical brain waves in the “beta band” (frequencies between 13-30 Hz) fluctuate throughout movement, but PD patients have elevated beta band synchrony across brain regions (thalamo-cortical-basal ganglia networks). Currently, it is unclear if beta synchrony causes impaired movement in PD or slowed movement in general.

My project addresses how the beta band modulates with movement speed in healthy people. Our behavioral paradigm gave participants more time to respond in slow blocks than fast blocks (the so-called slowfast task). This led to longer reaction times in slow blocks than fast blocks. As they completed the slowfast task, electroencephalography was recorded by placing electrodes on their scalp. This allowed us to see how these movement speed blocks affected beta oscillations. Slow blocks had elevated beta activity prior to movement, but less beta activity after movement compared to fast blocks.

Since the beta band was modulated less in slow blocks, like some studies of PD patients, this
could mean that participants were in an experimentally induced slowed/inflexible movement state. We conclude that beta oscillations may influence motor speed on a continuum with PD patients as an extreme example of impaired movement and elevated beta synchrony.

**Fifteen Minutes of Flame: History of Wildfire Portrayal in the Media 1990-Present**

Levy, Sarah—Environmental Studies, University of Oregon

Faculty Mentor(s): Marsha Weisiger

Session: Pre-Recorded Creative Work

This project explores how wildfires in the western United States have increased in both frequency and intensity since the 1990s, and the ecological crisis that is developing alongside this rise in forest fires. As the human perception of wildfires has shifted, people have transitioned from understanding fires as an integral part of society to fearing their potentially detrimental effects; Consequently, humans have begun to politicize mother nature, placing vast amounts of blame for the increase in wildfires on climate change and failing to realize that the increase actually stems from anthropocentric causes. I tested my thesis by examining several articles pertaining to wildfires that were published by High Country News over the past thirty years. I also relied upon other sources to see how they were reporting on forest fires during this same time period, as well as previously conducted research which elaborated on human influence within the fire regime. My findings reveal that humans primarily impact the spread of wildfires by shifting the seasonality of burning and impacting the amount of available fuel to sustain the burns once sparked. As a result of a heightened push for fire suppression management tactics, increased fire frequency and size has been found to be directly linked to anthropogenic climate change. National policies against fire suppression can influence remediation in current fire trends, but will need widespread public support in order to be effective.

**Does the nutritional state of jellyfish vary with season along the Pacific Northwest coast?**

Li, Yalin—Environmental Science, University of Oregon

Faculty Mentor(s): Marco Corrales-Ugalde, Kelly Sutherland

Session: Migratory Stories: Sea, Land and Air

Cnidarian jellyfish are ubiquitous predators of pelagic communities, but little is known about their phenology and how food availability affects their nutritional status. Research shows that starved
jellyfish tend to decrease somatic growth to allocate resources towards gonad development, thus a ratio of gonad to bell size might help determine the nutritional state of jellyfish. Starvation experiments conducted gave us real-time observations of bell diameter and gonad area varying with food availability. We hypothesize that when food is scarce, C. gregaria and E. indicans will have larger gonads relative to their body size. The observed jellyfish species were collected in a period of low primary productivity (winter) and high primary productivity (summer) along the North California Current System. ImageJ was used to analyze photos of the preserved specimens to obtain morphological measurements to create a gonadal index (gonad area/bell area). The data shows a slightly higher gonadal index in the medusae during winter than summer indicating an increased effort towards reproduction when resources are depleted. The preservation method caused a loss in biomass of the collected jellyfish, therefore we made a correction factor to convert the measurements of the preserved organisms to live ones. Understanding the links between oceanographic conditions and population dynamics of gelatinous predators will allow us to better predict their effects on zooplankton community dynamics.

Development of a Nanohoop Rotaxane for Sensing Reactive Oxygen Species

Liao, Phyllis—Chemistry, University of Oregon

Faculty Mentor(s): Claire Otteson

Session: Pre-Recorded Poster Presentation

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 boronic ester 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.
Wellbeing Resources on Campus: Thrive ARC’s Knowledge of UO Wellness Resources Compared to First-year Students Living on Campus.

Lieberman, Maya—Business Administration, University of Oregon

Faculty Mentor(s): Chantelle Russell

Session: Academic Residential Communities: Emerging Researchers

The goal of this research project is to compare the knowledge of Thrive students to first-year students when it comes to the awareness of wellness resources on campus. Thrive: Healthy Living is an Academic Residential Community centered around personal wellbeing, wellness resources on campus, peer education, and community influence. We hypothesize that due to the nature of the ARC, being a wellness-based community, these students will have more exposure and knowledge of UO wellness resources than the average first-year student. We will come to our conclusion using classroom experience with presenters, our own research on the UO website, and the future use of a student-wide survey to understand the breadth of knowledge possessed by the first-year student population. This will be paired with our own research of wellness resources across campus and whether or not we knew of them. Our primary results will support our hypothesis that students in the Thrive ARC have more knowledge of wellbeing resources than the average UO freshman. The findings of this project highlight the wellness information that our team gained through the ARC experience. This will lead us to the conclusion that there is an abundance of resources that UO students outside of the Thrive ARC are unaware of, which may benefit their personal wellbeing as well as other aspects of their lives.

Femicide In El Salvador: The Deadly Ambush of Sexism, War, and Political Corruption

Lillis, Neva—Exploring (undeclared), University of Oregon

Faculty Mentor(s): Matthias Vogel

Session: Pre-Recorded Poster Presentation

El Salvador’s issue of femicide is unique because the statistics show an intense contrast between the total number of instances and the rate in which they occur, especially compared to other, more populated countries. Wondering why El Salvador experiences such high rates, this project looked at social impacts and gathered information from several articles concerning femicide in El Salvador, South America, and around the world. To fully grasp the problem of femicide in El Salvador, the
foundation to such an issue needs to be examined. Such is made up of gang culture, the social constructs of Catholicism and sexism, the effects on children and their future’s, and the country’s civil war. A grossly small number of women have the resources to report instances of abuse which in turn leads to under representation within legal courts and convictions. This leads to a toxic cycle of mistreatment of abuse cases which ultimately can lead to attempts at crossing into the United States, murder, or suicide. The lack of action from the government has triggered protests in the country and international attention and outrage, on a small scale. Protests in El Salvador have incited social media movements that expose vague information regarding the issue. With so many cases of femicide, the examples for killed women are endless and continue to fuel the movement. Our intention with this project is to explore and further conceptualize the reasoning for the continuation of this issue.

**Molecular Origins of the Pair1 and Moonwalker Descending Neuron’s Neural Circuitry in Drosophila**

Linskens, Amanda—Biochemistry, University of Oregon  
Faculty Mentor(s): Kristen Lee, Chris Doe  
Session: Synaptic Connections and Pre-Recorded Poster Presentation

During Drosophila development, neuroblasts produce neurons that acquire their identity based on the temporal transcription factor (tTF) present during birth. Although research shows that tTFs generate diversity, few have looked at how tTFs establish neuronal circuits. My study focuses on Moonwalker Descending Neurons (MDNs), which induce backward locomotion, and Pair1 neurons, which initiate pausing. Prior research in our laboratory showed that MDNs synapse onto Pair1s in larvae and adults. Therefore, I hypothesized that both derive from a common tTF. To investigate this, I expressed green fluorescent protein (GFP) in MDN or Pair1s, immunolabeled for tTFs, and quantified tTF-GFP colocalization. Interestingly, both expressed Hunchback (Hb). I hypothesized that Hb is important for MDN-Pair1 circuit function and establishment. To determine whether Hb is important for MDN-Pair1 circuit function, I increased and decreased Hb levels in Pair1s and assayed behavior. To determine whether Hb is important for MDN-Pair1 circuit establishment, I analyzed morphological differences when Hb levels were increased or decreased in Pair1. Thus far, I found that Hb overexpression resulted in an extra Pair1, showing Hb is sufficient to produce individual Pair1s. However, Hb knockdown resulted in Pair1 axons failing to descend into the ventral nerve cord, affecting behavior. My research supports that neurons born from similar developmental origins may preferentially connect for functional purposes.
Identification and Morphology of Mountain Beaver Fossil from John Day Formation in Central Oregon

Lisle, Rachel—Earth Sciences, University of Oregon

Faculty Mentor(s): Samantha Hopkins, Kellum Tate-Jones

Session: Pre-Recorded Poster Presentation

Aplodontiidae (mountain beavers) are common fossils found within the John Day formation of central Oregon. This paper diagnoses and identifies the species Meniscomys hippodus from a fossil jaw found at the Turtle Cove Member within the John Day formation and describes its morphology. This is done by paying particular attention to the presence of a third premolar, as well as the tribosphenic morphology of the molars. Further analysis is done on the ecology of the species. Tooth morphology can aid in identifying diet, habitat, and other forms of ecology of a specimen. Coming from the Oligocene and Miocene, evidence suggests Meniscomys hippodus to be an herbivorous and forest-dwelling rodent, which provides an insight as to the ecology and types of ecosystems that were present while this specimen was alive.

Associations between Parental Apology Characteristics and Parenting Practices

Liu, Grace—Biology, University of Oregon

Faculty Mentor(s): Angela Lee, Maureen Zalewski

Session: Pre-Recorded Poster Presentation

While parenting interventions often focus on optimal parenting strategies, there is limited evidence on how parents apologize when they are wrong. It is also unclear how characteristics of parent apology are related to other parenting practices. This study examines the relationship between parenting practices and characteristics of parent apology, including proclivity to apologize to their child, and the presence of expressions of gratitude and love within the apology. Participants were 200 mothers with a child between the ages of 7 and 12. Proclivity to apologize was assessed by using the Proclivity to Apologize Measure for Parents questionnaire. Parenting behaviors were assessed using the Egna Minnen Betriiffande Upp-fostran questionnaire, which includes subscales of warmth, overprotection, rejection, and anxious rearing. Specific components of the apology (expressions of gratitude and love) were coded by giving participants a vignette in which they were asked to coach a fictional mother who yelled at her child by writing an apology example. Results showed that anxious rearing was negatively correlated to proclivity to apologize (r=-0.228, p=0.002), such that mothers who demonstrated anxious
parenting were less willing to apologize to their child. Remaining parenting subscales were not related to proclivity to apologize or the presence of expressions of love and gratitude. Further discussion will consider the implications of these findings for parenting interventions

**Investigating the mechanisms of DNA repair in C. elegans**

Lo, Julia—Biology, University of Oregon  
Faculty Mentor(s): Diana Libuda, Zac Bush  
Session: Pre-Recorded Poster Presentation

Meiosis is a specialized cell division that separates homologous chromosomes to generate haploid sperm and egg cells. During meiosis, segregation of homologous chromosomes requires induction and repair of DNA double strand breaks (DSBs) via recombination. Without DSBs, improper segregation can lead to genetic disorders, cancers, and infertility. Methylation of histones, proteins organizing DNA as dense heterochromatin or loose euchromatin, change aspects of chromosome function during meiosis. Notably, it is not understood how histone modifications and changes in chromatin state affect fidelity of DSB induction and repair. One hypothesis is the open nature of euchromatin promotes DSB induction and repair with higher fidelity. MET-2 histone methyltransferase causes accumulation of H3K9 dimethylation (H3K9me2), a heterochromatic mark, in the C. elegans germline. I explore how global changes in histone methylation affect quantity of DSBs in the C. elegans germline using immunofluorescence for this mark and DSBs in met-2 null mutants lacking H3K9me2. I showed how the presence of a specific chromatin mark affects the DSB repair program in early and late meiosis. My experiments indicate met-2 mutants induce fewer DSBs in early meiosis than wild type. Yet, in late meiosis, when breaks are repaired, met-2 and wild type have the same average number of DSBs per nucleus. This suggests that H3K9 dimethylation is playing a greater role in regulating the efficient induction of DSBs.

**Matt and Diederik—White Saviors of the Gobi Desert**

Lommers, Payton—Planning, Public Policy and Management, University of Oregon  
Faculty Mentor(s): Bob Choquette  
Session: Fact or Fiction?

NAADAM’s advertisements claim that their cashmere is sourced sustainably and ethically. When I first saw these advertisements I thought the worst thing they were doing was virtue signaling. However,
after investigating the claims made in their videos, I discovered that in reality NAADAM has been and continues to engage in misleading and problematic business practices. The founders of NAADAM Cashmere—Matthew Scanlan and Diederik Rijsemus—are exploiting the people of Bayangovi Soum in Mongolia for their own personal gain, illustrating a larger problem within the clothing and textile industry. In order to either prove or refute the claims made by NAADAM in these advertisements, I consulted sources including documentation provided by NAADAM, interviews with individuals linked to NAADAM’s business, the Instagram account of the current CEO and co-owner Matt Scanlan, the Foreign Trade Association, various statistical analysis websites, Oxford dictionaries, documentaries about the relevant regions in Mongolia, National reports produced by Mongolia, the CFDA, and even a Senior Manager at Patagonia. The conclusion I came to is that NAADAM is overstating their commitment to social and environmental integrity. By extension, my findings also imply a wider issue with the fashion industry and the global manufacturing industry. Many American and European companies outsource labour to countries in Asia where lab

Using Kinetics to Study the Stabilization of Reactive Hydrosulfide by Supramolecular Receptors

Longnight, Faith—Chemistry and Sociology, University of Oregon

Faculty Mentor(s): Hazel Fargher, Thaís de Faria

Session: Pre-Recorded Poster Presentation

Hydrosulfide (HS-) has numerous biological and physiological implications given its roles as the third endogenously produced gasotransmitter. However, HS–is extremely reactive making it difficult to study. In this work, we aim to analyze how the presence of stabilizing forces from a supramolecular receptor influences the kinetics of HS–in a nucleophilic aromatic substitution (SnAr) reaction within organic media. We hypothesize that the non-covalent interactions from the supramolecular receptor will stabilize and reduce the reactivity of HS-. We will use UV-Vis to monitor the reaction over time and create non-linearized plots to obtain kinetic information. This study can provide insight into how our bodies might stabilize HS–through non-covalent interactions and give us a better understanding of the behavior of this species in biological systems.
Science/Comics Interdisciplinary Research Program
Lopez, Isabel—Chemistry, University of Oregon
Co-Author(s): Scott Fisher
Faculty Mentor(s): Katherine Kelp-Stebbins, Tien-Tien Yu
Session: Excelsior! Science in the Panels

The Science/Comics Interdisciplinary Research Program unites two growing areas at the University of Oregon: Comics & Cartoon Studies and STEM (science, technology, engineering, and mathematics). As comics artists, undergraduate students work with science faculty to produce scholarship that utilizes both humanistic and scientific research practices. Our roundtable will bring together the student artists to discuss the challenges and benefits that we encountered in this program. We will also feature our science faculty partners, who will discuss their role in our work. The panel will showcase all of the science comics that we have made (see website here) and feature our insights on how to use comics for interdisciplinary research purposes. Learning how to communicate complex ideas to individuals outside of specific fields of study is an essential skill, particularly when it comes to engaging a broader public in our research; Science/Comics brings together diverse research approaches and skills in order to make scientific research more accessible and inclusive. Our panel will allow for urgent conversations on how to use art and comics to communicate scientific research to everyone.

Does Teaching Amortization Tables Affect Student Loan Repayment Choices?
Lugtu, Alma—English, Central Oregon Community College
Faculty Mentor(s): Matthew Novak, Andria Woodell
Session: Pre-Recorded Poster Presentation

In the United States, student loan debt has increased to approximately $1.6 trillion by 2020. Private companies, non-profits, and governmental agencies have created different programs to reduce these debt burdens. Personal finance education from many different entities is a key component to combat this problem. Teaching amortization tables is an effective and critical aspect of personal finance education, yet few programs use this teaching tool. This study shows that teaching amortization tables can be an effective method for encouraging consumers to make more financially prudent choices regarding student loans.
Does Teaching Amortization Tables Online or Face-To-Face Make A Difference?
Lugtu, Alma—English, Central Oregon Community College
Faculty Mentor(s): Matthew Novak, Andria Woodell
Session: Pre-Recorded Poster Presentation

According to a 2015 survey by the American Psychological Association (APA), money is the top cause of stress in the United States. The APA found that 72% of Americans experienced stress about money at least once during the month before taking the survey, and 77% of respondents reported “considerable anxiety about finances.” In 2020, consumer debt in the United States is approximately $14.56 trillion. One way to combat this problem is to educate consumers about how money, specifically debt, works. With the onset of COVID-19, teaching personal finance face-to-face is greatly limited. But technology has advanced so that online education can be used while face-to-face instruction is limited. Is online personal finance education as effective as face-to-face? This study shows that one specific personal finance tool, amortization tables, can be used as effectively in an online environment when compared to face-to-face personal finance education.

Pick Me Up—A Study on Time Management in Nontraditional Students with Children During COVID-19
Luna, Cat—Psychology, University of Oregon
Faculty Mentor(s): Christabelle Dragoo
Session: Always On My Mind

The purpose of this research is to assess how the COVID-19 pandemic has impacted University of Oregon undergraduate students' time management behavior and examine the differences in time management behaviors between these student populations. Participants completed the Time Management Behaviors Scale as well as basic demographic questions to determine if they were traditional, nontraditional, or a student with children. We expect to see significant differences between these student populations and their time management behaviors during Covid-19, specifically on the subscale measuring the ability to prioritize and set goals. We also expect to find significant differences between student populations on another subscale of the Time Management Behaviors Scale measuring the mechanics of time management. The results that we expect to find suggest that students who manage multiple responsibilities and life-roles while attending college have increased abilities in undertaking additional time management responsibilities outside of
their role as a student. In addition, these expected results could also indicate that nontraditional students and students with children are better at recognizing and establishing goals as well as putting mechanisms into place to better accomplish goals such as creating to-do lists or making and maintaining schedules. This study contributes to the literature, offering insight into the overall academic experience of nontraditional undergraduate students.

**The Relation between Parent Competence and Parent-Child Interactions: A Consideration of Culture**

Luna, Jacqueline—Psychology, University of Oregon

Faculty Mentor(s): Andrea Imhof

**Session: Pre-Recorded Poster Presentation**

In the majority of research, parenting interventions have been conducted with a focus on Western populations. We aim to address this cultural gap by examining the relationship between parent-centered variables (parent stress, nurturance, limit-setting) and parent-child interactions.

A sample of 116 caregiver-infant dyads (0-3 years) were recruited from a larger intervention study. Free play interactions between parent and child were recorded during home visits to observe “serve” and “return” behaviors. In this sample: 67% (n=78) films contained interactions in Spanish, and 33% (n=38) were recorded in English. Parents completed measures including the SEPTI, PSI, and PSOC.

Films were coded using a detailed glossary and flowchart. Correlation analyses were used to evaluate associations between parenting scores on the parenting measures and parenting behaviors.

We found differences in baseline associations between parent self-rated scores and observed behavioral interactions for English and Spanish-speaking families. In only Spanish speaking families, PSI was correlated with low reciprocity (r(78) = 0.272, p =0.016), and negatively correlated with higher reciprocity (r(78) =−0.255, p =0.24). In only English speaking families, SEPTI nurturance (r(38) = 0.336, p =0.039) and Discipline Limit setting (r(38) = 0.343, p =0.035) are significantly correlated with a lack of engagement between parent and child. Implications of these linguistic differences will be further discussed.
Continuing My Academic Journey; an e-Portfolio
Lundy, Norma "Noni"—Art, Lane Community College
Faculty Mentor(s): Ce Rosenow
Session: Pre-Recorded Creative Work
This creative work is a Google e-Portfolio created for Technical Writing 227H at Lane Community College by Noni Lundy. Noni is a mom, an artist and a non-tradition student, returning to academia after more than 20 years.

This e-Portfolio explores some of her history, artwork and her current academic goals. It features her work from several LCC classes and contains her reflections about how the Core Learning Outcomes and developing a growth mindset that LCC instructors and students strive for, are found in each class. An e-Portfolio is one way to, safely and easily, share work with others, particularly during the Covid-19 epidemic, while art shows and gatherings are limited or nonexistent.

The Core Learning Outcomes at LCC are:
1. Think critically.
2. Engage diverse values with civic and ethical awareness.
3. Create ideas and solutions.
4. Communicate effectively.
5. Apply learning.

Returning to school after a long break takes a growth mindset and the experience of time away from academia makes it easy to appreciate the Core Learning Values taught at LCC.

This is an ongoing e-Portfolio, and Noni hopes to continue to update it during her academic career at Lane and the UO.

Condition Dependent Recombination in Drosophila melanogaster: Assays & Implications
MacMillen, Lukas—Biology, University of Oregon
Faculty Mentor(s): Nadia Singh
Session: It’s a BIO thing
Crossover frequency is phenotypically plastic. That is, even in the context of a single genotype, crossover frequency can change in response to environmental conditions. In Drosophila, crossover frequency has been shown to plastically respond to many cues including age, temperature, and
infection. An interesting trend is that many of these cues appear to be stressful; however, in most cases organismal condition is not directly assayed, making it unclear whether a given cue is indeed stressful from an organismal perspective. In addition, a theoretical model for the evolution of plastic recombination suggests that it can evolve when the frequency of recombination is negatively correlated with fitness. Evidence for the fitness-associated recombination (FAR) model is limited to date, and many studies suffer from a critical lack of assessing organismal condition. Here we argue that environmental cues are too generously termed ‘stressful’, and that the implementation and standardization of fitness assays is necessary to test the applicability of the FAR model. I review assays used in empirical reports on plastic recombination to date, closing with a critique and emphasis on the need for standardized methodology. The conclusions made by this review aim to clarify the environmental cues known to be stressful, and enhance our fields understanding of recombination’s plastic nature.

The social cost of reproduction to female Lemur catta

Male, Riley—Anthropology, University of Oregon

Co-Author(s): Colin Brand, Alexana Hickmott, Frances, White

Faculty Mentor(s): Frances White, Colin Brand

Session: Pre-Recorded Poster Presentation

Though large variations of social dominance systems exist across primate species, ring-tailed lemurs (L. catta) exhibit a strong hierarchy with females ranking higher than males. Studies suggest this is due to the high cost of reproduction in a seasonal resource availability environment. Typically viewed as a species-level adaptation, these same evolutionary principles should hold on the individual level. As such, females with infants should experience higher reproduction-related costs than do females without infants, and therefore may show different behavioral strategies that reflect this cost differential. Data on affiliative and aggressive social behavior were collected during focal sampling in 1996 from two semi-free ranging L. catta groups at the Duke Lemur Center in Durham, NC. We compared interactions involving females with infants (N=5) to interactions that involve females without infants (N=4). We calculated rates based on the observation time (28.25 hrs). Females were more aggressive with an infant (0.74/hr) compared to those without (0.25/hr). In contrast, females without infants (3.58/hr) were more affiliative than those with infants (1.10/hr). These findings point to different behavioral strategies based on reproductive status in this taxon, depicting that females
with infants suffer higher costs and have less ability to invest in sociality. L. catta’s sociality and behavior may explain these patterns, offering insight into how they compare to other primates.

**An Introduction to Political Polarization Through Human Biases and Game Theory**

Malone, Alexie—Political Science, University of Oregon  
Faculty Mentor(s): Mikhail Myagkov  
Session: Understanding US Justice

This paper considers the practical question of why society has become so politically polarized and what people at the individual level have to do with contributing to it in lieu of collective action. There are various topics explored in this essay including proven theory of the two systems of thought which are rational and emotional, and these other concepts that intersect within this paper topic being tribalism, dehumanization, infrahumanization, game theory, and political philosophy. These topics were chosen specifically to support the answer to the research question, the question being: What has caused the level of polarity that exists in politics today, and how can we evaluate these changes to create more cooperative action in the future?; and the answer being that it is because we have become individuals operating on a societal basis through emotion. Rational decision making is best when making choices for large groups, but through media and human rights issues, we have been pushed into reacting emotionally rather than rationally, and that has caused the level of political polarization that exists today.

**Session: Migratory Stories: Sea, Land and Air**

Maloney, Rachael—Environmental Studies, University of Oregon  
Co-Author(s): Arielle Names, Madi Scanlan, Bella Campino, Miranda Roso, Devin Vandergriff  
Faculty Mentor(s): Katie Russell, Katie Lynch

Bird Nerds: Uniting Elementary School Students in Oregon and Mexico through Shared Migratory Birds

Our team of Environmental Leadership Program students partnered with the Willamette-Laja Twinning Project to bring the “Aves Compartidas” (shared birds) program to River Road Elementary School. With birds as our focus, this project aims to unite students in Oregon and Guanajuato, Mexico using shared species and language to foster deep ecological and cultural connections. Under a remote framework, our team created a bilingual curriculum for third through fifth grade students, centered around our shared migratory birds and their habitats. We hypothesize that students will become more familiar
with migratory birds shared between Oregon and Mexico, along with their respective watersheds. In the initial lessons, we established baseline evaluations of the students’ prior knowledge about birds and continued to monitor their knowledge and enthusiasm, utilizing written and discussion-based activities. To gauge student understanding of the material, our team has measured attendance and engagement through student participation in class as well as their involvement in a weekly ecological themed bingo activity. Student teaching teams discussed, evaluated, and recorded the results of the reflection activities after each lesson. We will compile and analyze data from weekly lessons and the final assessment to determine the effectiveness of our team’s curriculum. The curriculum created provides a framework for future Environmental Leadership Program cohorts and seeks to cultivate civic engagement, uplift young environmental stewards, and engage global residents.

**Duck Buddy Program App to be Proposed to Physical Education and Recreation**

Manson, Michaela–Art, University of Oregon  
Faculty Mentor(s): Chantelle Russell  
Session: Academic Residential Communities: Emerging Researchers

For this project, we designed an app idea to propose to the Department of Physical Education and Recreation, for people to find workout buddies. Incoming students at the University of Oregon who participated in the Student Wellbeing and Success Initiative survey, conducted by the Office of Student Life Assessment and Research, can be identified as having low wellbeing indicators. The creation of the Duck Buddy app is to encourage first year students with low wellbeing indicators to use the Student Recreation Center more. We developed an app concept for students to join and find workout buddies. Students can create a profile to make sure that they are paired with someone who also has similar workout goals and is also at the same athletic ability. This app also includes tutorials on how to use the equipment in the REC. This is a proposal for an app that we would present to the Department of Physical Education and Recreation (PE & Rec). If this app were created and implemented, future research could explore its effectiveness and determine if it positively impacted students with low wellbeing indicators to take advantage of the programs and resources in the PE & REC. We believe that this app will be beneficial to students because going to the gym without prior experience or a friend can be intimidating. This app would help inform students on the resources and opportunities available at the PE & REC and help the PE & REC connect with students.
Magnetic Moments of Baryons in Theories of Strongly Interacting Dark Matter

Mantel, Chester—Physics, University of Oregon

Faculty Mentor(s): Graham Kribs

Session: Dark Matters

The Standard Model fails to explain mounting evidence of dark matter, and likewise fails to explain how dark matter should interact. We seek to devise theoretical constraints on dark sectors of particles that can interact with Standard Model particles via the strong force. To approximate the behavior of strongly-coupled dark matter we treat $1/N_c$ as a parameter, where $N_c$ is the number of colors in quantum chromodynamics, which is the strong force analogue of electric charge. We specifically consider the magnetic moments of baryons in $1/N_c$ calculations. Our work thus far is to determine exactly where and how new physics can be found, informing later development of models for high precision calculations and dark matter theories. As an approximation technique, calculations with $1/N_c$ thus far have been successful in predicting and explaining many properties of baryons and mesons, which can be experimentally measured and is a promising domain for discovering new physics. Furthermore, the calculations with $1/N_c$ illuminates how dark quarks and hadrons should behave, giving insight into properties of dark matter and the early universe.

Restoring Connections: Reconnecting Young Minds to Place in a Virtual Setting

Markey, Mollie—Environmental Science, University of Oregon

Faculty Mentor(s): Katie Lynch, Nick Sky

Session: Always On My Mind

Children today are more plugged into technological devices and less connected to the natural world than ever before which rings even more true in the midst of a pandemic. The Restoring Connections Project, in collaboration with Mount Pisgah Arboretum, Adams Elementary, and the University of Oregon’s Environmental Leadership Program, aims to help elementary students form personal bonds to natural places by introducing children to local nature elements. Utilizing the standards set by the North American Association for Environmental Education, our team created 15, 30-minute lessons filled with story-telling and participatory activities. Over the course of five weeks, we have joined 14 hybrid and remote classrooms visiting once a week, varying from 8-25 kindergarteners, first, and second graders. Students have developed scientific literacy, greater ecological awareness, and personal investment in our community’s conservation efforts by the end of the lesson. Throughout
the last five years, Restoring Connections has found that integrating a transdisciplinary, place-based, and equitable learning environment into the classroom nurtured lasting connections with local nature, fostered stewardship, and redefined the wonders of nature for students. In an era where technology is prevalent, restoring students’ connection to the land through environmental education encourages them to become stewards and create strong and beneficial relationships with their local environment.

**Bird Nerds: Uniting Elementary School Students in Oregon and Mexico through Shared Migratory Birds**

McAllister, Wally—Environmental Studies, University of Oregon  
Co-Author(s): Arielle Names, Madi Scanlan, Bella Campino, Miranda Roso, Devin Vandergriff  
Faculty Mentor(s): Katie Russell, Katie Lynch  
**Session: Migratory Stories: Sea, Land and Air**

Our team of Environmental Leadership Program students partnered with the Willamette-Laja Twinning Project to bring the “Aves Compartidas” (shared birds) program to River Road Elementary School. With birds as our focus, this project aims to unite students in Oregon and Guanajuato, Mexico using shared species and language to foster deep ecological and cultural connections. Under a remote framework, our team created a bilingual curriculum for third through fifth grade students, centered around our shared migratory birds and their habitats. We hypothesize that students will become more familiar with migratory birds shared between Oregon and Mexico, along with their respective watersheds. In the initial lessons, we established baseline evaluations of the students’ prior knowledge about birds and continued to monitor their knowledge and enthusiasm, utilizing written and discussion-based activities. To gauge student understanding of the material, our team has measured attendance and engagement through student participation in class as well as their involvement in a weekly ecological themed bingo activity. Student teaching teams discussed, evaluated, and recorded the results of the reflection activities after each lesson. We will compile and analyze data from weekly lessons and the final assessment to determine the effectiveness of our team’s curriculum. The curriculum created provides a framework for future Environmental Leadership Program cohorts and seeks to cultivate civic engagement, uplift young environmental stewards, and engage global residents.
The Blue Zones and their importance in our future

McAlpine, Hamish—Business Administration, University of Oregon

Faculty Mentor(s): Matthias Vogel

Session: Pre-Recorded Poster Presentation

How do I live forever? A google search that trended back in 2010 and is still being searched till this day. It’s an idea which has caught the eye of many people and will most likely still be a conversation piece for the coming years. With the fear of Covid-19 at our doors and in our homes, many people today are re-assessing their lifestyle options to better ensure their safety and hope of a long and happy life, however there are already many places around the world where this has been happening for some time. Introducing the Blue Zones. These are little bubbles around the world in which are some of the healthiest and longest living people. Due to this, these blue zones offer a vast amount of knowledge on the topic of longevity. My topic for this presentation attempts to define what aspect of their reserved lifestyles that leads to their longevity in life. Through the use and analysis of articles, essays and other technological and social media forms, I researched these blue zones and drew my conclusions. The primary idea found was that the way that these people are living their lives by using everything at their disposal and and not just focusing on one thing in their lives to make them happy and healthy, led to them having higher life expectancy rates and much healthier lives overall. These are important because with the national life expectancy so lower than most and with the world only becoming more unhealthy, we as humans need to find a way to ensure long and happy lives.

Spatial Relations in Southern Californian English vs. Pacific Northwestern English

McLean, Jaidan—Linguistics, University of Oregon

Faculty Mentor(s): Gabriela Pérez Báez

Session: The Words We Choose

Looking at linguistic research on American English dialects there is no ignoring that the West is an under-researched region. In an effort to compensate for the lack of research, this pilot-sized empirical study will analyze semantic differences using figure-ground relations from Southern Californian English and Pacific Northwestern English. A figure-ground (FG) relation is where one entity, the figure, is being located in relation to another entity, the ground (e.g. “the apple is on the table” apple is the figure being located in relation to table, the ground) (Bowerman and Pederson, 1992). FG relations have been discussed extensively across languages, but not across dialects. Following
the cross-linguistic approaches of Levinson and Meira (2003), this study uses FG relations to further the distinction between these two English dialects. The project used the BowPed (Bowerman and Pederson, 1992) pictures series that was created to elicit FG relation responses to gather data. Responses were collected from 10 speakers, five born and raised in the Los Angeles area, and five in the Seattle area. The results found 10 instances of split variation between the two regional dialects, falling on the locative used in the FG relations (e.g. the boat is in the water vs. the boat is on the water). The 10 differing locatives make an important addition to the discussion of West Coast English, and pose the need for more research.

Covid-19 Shed Light on Conditions Faced by Unhoused Communities

McMullen, Remi—General Science, University of Oregon
Co-Author(s): Josh Snodgrass
Faculty Mentor(s): Josh Snodgrass
Session: Pandemic Responses and Pre-Recorded Poster Presentation

Unhoused populations have significantly higher rates of chronic conditions such as COPD, asthma, diabetes, and hypertension. An unhoused individual who contracts the virus has a higher likelihood of having a chronic condition, and on top of that they are less likely to have access to healthcare. These factors make the chance of severe infection or death higher. This phenomenon was observed throughout the pandemic, as the unhoused community was shuffled around by the Eugene PD, disregarding Oregon Health Authority’s guidelines. In May of 2020, Lane County reached out to the volunteer-based organization Occupy Medical and proposed the opening of River Avenue Alternative Care Site (referred to as RAACS) which was to be funded by FEMA (Federal Emergency Management Agency). The facility is a quarantine site for individuals who have been exposed to or infected by covid-19 and are in need of a safe place to self isolate. FEMA funding allows the Occupy Medical Board of Directors to employ doctors, nurses, medical assistants, and a janitorial staff. I was hired as a medical assistant at this facility in June of 2020. After 11 months of working with the local unhoused population, hearing personal anecdotes from patients, and seeing how the county interacts with the unhoused population, I was inspired to write this paper. Our community could save money spent on drug related arrests, police management of urban camping and medical bills for the unhoused by allocating funds toward a medical respite center run by Occupy Medical.
Rhetoric in the Creation of a New Major at the University of Oregon
McNamara, Liam—Rhetoric, University of Oregon
Faculty Mentor(s): James Crosswhite
Session: The Words We Choose

Every human interaction can be defined as a form of rhetorical influence on each other. Therefore, the creation of a new undergraduate major at the University of Oregon is a feat of rhetorical activity. This study looked into the rhetoric behind the creation of the newly established Neuroscience major. Most of the materials used in the analysis came from Dr. Dudukovic, who headed the team to create the new major. First, this study analyzed the various audiences formed of the different committees that must be convinced that a new major is reasonable. Then, using the information from understanding the audiences, this study extrapolated the rhetorical strategies used throughout the works. Altogether, this gives a deeper understanding of the workings of the University of Oregon and can be applied to other larger bureaucratic organizations. Significantly, the methods of presenting and persuading are very applicable to real-world issues including interactions with committees that fill the modern world.

The Taiwanese Perspective on China Through Various Lenses
McNamara, Liam—Mathematics and Computer Science, University of Oregon
Co-Author(s): Holly Wertz
Faculty Mentor(s): Matthias Vogel
Session: Pre-Recorded Poster Presentation

After World War II the Chinese mainland fell into civil war between the Chinese Communist Party (CCP) and the Republic of China (ROC). The leaders of the ROC fell back to Taiwan and formed, essentially, a new nation. This research project explores Chinese and Taiwanese relations, specifically from a Taiwanese perspective. Through the study of various branches of connection between the U.S, China, and Taiwan, this research demonstrates a unique complexity. This research, also, examines the relationship through different stages of political ties between the U.S and Taiwan. First, the target was to understand Chinese politics and popular culture from a Taiwanese perspective. Then, this research analyzed the differences between Taiwanese and Chinese perspectives on global issues from previous polls as well as informal discussions with Taiwanese locals. Having extrapolated this information, we are able to demonstrate the distinct intricacies and tenuous relationship between the three nations.
Science/Comics Interdisciplinary Research Program
McNamee, Audra—Mathematics and Computer Science, University of Oregon
Faculty Mentor(s): Katherine Kelp-Stebbins, Tien-Tien Yu
Session: Excelsior! Science in the Panels
The Science/Comics Interdisciplinary Research Program unites two growing areas at the University of Oregon: Comics & Cartoon Studies and STEM (science, technology, engineering, and mathematics). As comics artists, undergraduate students work with science faculty to produce scholarship that utilizes both humanistic and scientific research practices. Our roundtable will bring together the student artists to discuss the challenges and benefits that we encountered in this program. We will also feature our science faculty partners, who will discuss their role in our work. The panel will showcase all of the science comics that we have made (see website here) and feature our insights on how to use comics for interdisciplinary research purposes. Learning how to communicate complex ideas to individuals outside of specific fields of study is an essential skill, particularly when it comes to engaging a broader public in our research; Science/Comics brings together diverse research approaches and skills in order to make scientific research more accessible and inclusive. Our panel will allow for urgent conversations on how to use art and comics to communicate scientific research to everyone.

Neural Basis of Speech Sound Discrimination
Mejia, Angelica—Biology, University of Oregon
Co-Author(s): Santiago Jaramillo, Isabella Salinas
Faculty Mentor(s): Santiago Jaramillo, Isabella Salinas
Session: Pre-Recorded Poster Presentation
Previous linguistic research has revealed that both people and animals can learn to discriminate sounds through both active training and passive exposure. However, the training regimens that result in optimal learning are still unexplored. Using mice as a model, we sought to first characterize the sound discrimination learning process—specifically, which sounds could mice discriminate best, and what the best approaches for instructional methods are. In this study, mice underwent daily sound discrimination training using simple sounds that differed in either spectral or temporal features. We found that mice are easily able to discriminate between high and low frequencies, but never improved in the middle frequency discrimination task. We also found that mice were unable to discriminate
sounds differing in amplitude modulation (AM), until implementing a listening period in the training protocol. In conclusion, mice show promise in discrimination of high vs. low frequencies and sounds differing in AM. Protocols will need to be continually readjusted to optimize learning. Knowing which simple sounds mice can discriminate will serve as control paradigms for the next step—exploring the efficacy of combining active training with passive exposure.

COVID-19 Vaccine Distribution Inequality: Local Partnership for Global Change

Melz, Issabell—Human Physiology, University of Oregon

Co-Author(s): Sarah Peasley, Giovanni Ricci, Bailey, McGinnis, Jacqueline Romero, Ana Melder

Faculty Mentor(s): Kristin Yarris

Session: Pandemic Responses

As of March 30, 2021, 86 percent of COVID-19 vaccines have been administered in high and upper-middle-income countries, while only 0.1 percent of doses have been administered in low-income countries. To mend the gap of unequal COVID-19 vaccine distribution, our research aims to quantify the socioeconomic disparities of global vaccine distribution and identify contributing factors that have led to this inequality. Our findings indicate that the clear disparities are heavily influenced by socioeconomic factors. For instance, low-income countries often lack resources to provide healthcare to their populations. Furthermore, political and economic policies and practices, such as the monopoly power of pharmaceutical companies, shape current vaccine inequities. Within this paper, we argue that the US government should and pharmaceutical companies must temporarily lift intellectual property rights on the vaccine so that more companies and generic producers can join the global COVAX initiative. We propose cultivating a more equitable vaccination distribution through partnering with Lane County-based organizations to distribute information and gather support with the prospect of bringing precedence to patent lifting to the Biden administration, the Bill & Melinda Gates Foundation, GAVI, CEPI, and the WHO in order to expedite the delivery of immunization to all countries.
The Power of Voice and Reclaiming Your Own
Mills, Anna—Journalism, University of Oregon
Faculty Mentor(s): Michael Wilson
Session: Creative KIDDs
The analysis of literature and representation of identities for marginalized folk and the certain
tropes, stereotypes, notions of minstrelsy, and inauthentic voices that have curated over history from
dominant social groups raises importance to the creative writing spaces and platform for poets with
underrepresented and misrepresented identities to find their voice and create their own narrative.
The form of persona in poetry functions by means of allowing the poet to “write what they know,” and
by looking at the various ways these poets shape their narrative and voice through this poetic form,
we can see the disruption of harmfully imposed perceptions placed upon themselves because of
their identities and see how poetry carries and amplifies their voices through accurate and authentic
representation. This form of expression will not only illuminate the self-empowerment or self-
reclamation end result of these poets’ work but also tend to the need for creative writing expression
as a way to understand ourselves and build perception amongst one another from different identity
groups.

Content Overload And Its Effects On Learning
Moe, Erika—Human Physiology, University of Oregon
Faculty Mentor(s): Sarah DuBrow
Session: Pre-Recorded Poster Presentation
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 will complete two scenarios: one with a condensed,
structured workload (2-topic condition) and another with a larger workload (8-topic condition). It is
hypothesized that increasing workload (creating a “content overload”) will have detrimental effects
on all students. Furthermore, individuals who prefer remote learning will perform best with larger
presented workloads. Individuals who prefer in-person learning will perform best with a structured,
condensed presented workload. Subjects will read passages on a variety of academic topics and they
will be tested the next day in a SAT-like format. Additionally, pre— and post-test questionnaires will be
completed for correlations between learning preference and differences between conditions. 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.

**Immigrants and Foreigners in Japan: Their Role in Society and How They are Perceived**

Moehling, Chloe—Educational Foundations, University of Oregon  
Faculty Mentor(s): Matthias Vogel  
Session: Pre-Recorded Poster Presentation

Our project is called The Role of Immigrants and Foreigners in Japanese Society and How they are Perceived. We research attitudes towards immigration in Japan and explore why people have a negative view of immigrants even though immigrants coming to Japan would benefit the country. We explore the many factors that surround immigration to Japan, such as Japan's low birth rate, aging population, competitive workforce, and history of strict immigration policy. We also explore the challenges of foreigners assimilating into Japanese society, from its complex language and writing system to its many complicated societal rules, as well as racism experienced by foreigners. We use primary and secondary sources including statistical data to support our research on how negative attitudes towards foreigners and immigrants in Japan affect people living there who are not Japanese. The homogenous nature of Japanese society and the importance placed on collectivist culture has resulted in an emphasis on people living in Japan feeling like they have to conform to cultural standards. This can make living in Japan as a non-Japanese person difficult, because immigrants often feel like perpetual foreigners. We conclude that immigrants have a tremendously important role in Japanese society and that Japan must consider easing immigration restrictions to remain competitive in an ever globalizing economy.
War and Peace: The Influence of WWII on Noir Films’ Femme Fatale

Moghaddami, Maryam—Cinema Studies, University of Oregon

Faculty Mentor(s): Ulrick Casimir

Session: Pre-Recorded Poster Presentation

Noir films have frequently been understood to reflect a societal malaise and as the femme fatale remains one of noir’s defining elements, this research project puts forth the argument that the femme fatale is the reaction of the film industry to the changing gender dynamic in society. This project utilizes information from the post-war era to make a case for the condition and discontent of women then. The hypothesis that the femme fatale’s character and death is a result of male anxiety primarily builds on Alfred Adler’s theory of the inferiority complex and Laura Mulvey’s theory of female sexualization and male control. “Double Indemnity” (1944), “The Blue Dahlia” (1946), and “Out of the Past” (1947) are used to illustrate this argument.

WWII saw women stepping into traditionally male jobs which gave women more freedom outside of the domestic sphere, something they were hesitant to give up. Male concerns about the role of women gave rise to an inferiority complex that made its way to the big screen in the form of the femme fatale. In this manner, male filmmakers were able to project their fears and overcome them through the femme fatale’s death or subjugation.

This research presents an analysis of film as a product of a male-dominated film industry which reflects an androcentric perspective. Understanding films as being products of their makers can be used both to explain the prevalence of male narratives and make the case for more diversity within the industry as a whole.

Determining Physical Characteristics of the Asteroid 572 Rebekka through Analysis of its Lightcurve

Monsrud, Riley—Physics, University of Oregon

Co-Author(s): Sara Tosi, Genevieve Wages, Chloe Montague, Kate Luerken, Sara Holeman

Faculty Mentor(s): Scott Fisher, James Imamura

Session: Pre-Recorded Poster Presentation

Here we present observations of the asteroid 572 Rebekka that were obtained in August 2020 at Pine Mountain Observatory (PMO). The target was observed with the 0.35m Robbins telescope at PMO, using a Sloan g’ filter, for a total of 6 hours over two nights. The observations produced 436
images of the target which were then analyzed to produce a “lightcurve” of the asteroid. Through photometric analysis of the lightcurve, we have produced a 3-dimensional model of the asteroid which is presented here. Using the programs MPO Canopus (MPO) and Aperture Photometry Tool (APT), photometric estimates of the asteroid’s brightness over time are plotted in order to extract the rotation period as well as the shape of the target. To calibrate this data, we compare the asteroid to multiple stars of constant brightness within the same image. This process, known as “relative photometry”, allows us to remove atmospheric effects due to air quality, light pollution, and changing air mass. An estimate for the change in magnitude due to air mass, commonly known as the extinction coefficient, is also made. These findings give confidence in PMO’s ability to provide research-grade data and serves as an exercise in analyzing and reducing large sets of data. As a collaboration with Kobe University in Japan, this is a continuing project that looks to familiarize students with data analysis, calibration, and astronomical concepts.

**Designer Catalysts: The Role of Sterics on Nickel Catalyzed Allylbenzene Isomerization**

**Morris, Parker—Chemistry, University of Oregon**

**Co-Author(s): Kiana Kawamura**

**Faculty Mentor(s): Amanda Cook-Sneathen, Kiana Kawamura**

**Session: Up and ATOM**

Synthetic chemistry is vital to manufacturing daily household products such as perfumes, food additives, and synthetic materials. The chemical industry manufactures chemical products on the million tons scale yearly and developing energy efficient ways to create these materials is an important area of study for organic and inorganic chemists. One approach to increasing reaction efficiency is through the use of a metal catalyst. Unfortunately, some of the most successful metal catalysts are derived from precious metals such as platinum, palladium, iridium, or ruthenium. Nickel is a cheap, earth abundant alternative to the precious metal counterparts. This project saw the synthesis of four nickel-based n-heterocyclic carbene complexes to be used in catalytic isomerization reactions. The primary goal of the study was to determine the role of ligand sterics on product distribution and kinetics in the isomerization of allylbenzene via nickel catalysis. Contrary to hypotheses, it was determined that with larger steric incumbrance, the rate of reaction increased as did overall yield. Additionally, synthetic routes to reach these complexes were established starting from cheap and available starting materials.
The effect of optogenetic suppression of gap detection in mice
Morris, Tillie—General Science, University of Oregon
Faculty Mentor(s): Michael Wehr
Session: Pre-Recorded Poster Presentation

Brief gaps in sound are used to identify the boundaries between words in fluent speech. Without the perception of the timing of these gaps, we would not be able to distinguish between different phonemes. Gap detection, or the ability to quickly detect brief gaps in constant background white noise, is a simplified model for the processes used in speech processing. To understand the processes used to detect gaps, our research focused on gap detection ability in mice. In this experiment, we used a type of behavioral trial known as a 2-Alternative Forced Choice task to test the gap detection ability of mice. We then manipulated their gap detection ability with optogenetics, a genetic technology that allows light to influence the activity of specific neurons due to genetically engineered light-sensitive genes. In this case, the presence of light altered gap detection ability by silencing neurons to fool the mice into missing a gap that was really there. The successful suppression of gap detection ability with optogenetics will indicate that we have correctly identified the circuits involved with gap detection, opening the doors for future gap detection experiments. This research will give more insight into the neural circuits used to process human speech. This will lead to a deeper understanding of the deficits in speech processing that are often seen in normal aging or in diseases such as Alzheimer’s. Eventually, this could contribute to more effective remedies to hearing loss.

Mission Trips in Mexico: Exploring the Ethics of Foreign Aid
Mortland, Emma—Psychology, University of Oregon
Faculty Mentor(s): Matthias Vogel
Session: Pre-Recorded Poster Presentation

This study seeks to explore the ethics of US foreign aid and the White Savior Complex by evaluating mission trips to Mexico. It seeks to address whether the majority of mission trips to Mexico provide the promised long-term solutions that benefit the community. In order to address this aim, our research focused on key features of successful foreign aid models and compared them to those of current mission trips to Mexico. We also explored the effects of current mission trips on local communities. Overall, this research pointed to the reality that the Mexico-based mission trips this
study examined are often harmful to local communities. It illustrates the importance of improving the current mission trip structure and suggests concrete changes such as increasing collaboration more with local communities, redirecting funds into the community, and properly educating mission leaders and participants. Our findings strongly suggest that there is a need to reevaluate the current foreign aid models in a way that focuses on creating long-term, community-based solutions. Even with good intentions, unethical foreign aid can be disempowering and detrimental to communities. Improving the existing approach to mission trips can support communities in need while effectively combatting and dismantling White Saviorism. This new model will provide for productive foreign aid, incorporate local communities in a dignified way, while allowing missionaries to reflect on internalized societal racism.

**Ecological Design: Designing a Pollinator-Supportive Native Garden on Campus**

**Motta, Hannah—Environmental Science, University of Oregon**

**Co-Author(s): Peg Boulay, Jane Brubaker**

**Faculty Mentor(s): Peg Boulay**

**Session: Academic Residential Communities: Emerging Researchers**

The recent decline of pollinator populations, including bees and other species, has been largely due to parasites, diseases, increased pesticide use, and habitat loss. Pollinator pocket gardens are urban habitats which support pollinators by offering them space to build hives, collect nectar and pollen, wash off in water, and rest as they move between other pollinator habitats. In partnership with UO Campus Planning & Facilities Management staff, our team compiled and implemented a comprehensive plan for a native pollinator pocket garden near the Urban Farm. This garden will primarily support pollinators and secondarily educate and serve as a pastime space for University of Oregon students, staff, and campus visitors. First, we chose an unused garden plot by considering two plots’ attributes as prospective spaces serving both humans and pollinators. Next, we used our plot’s characteristics among other criteria to select appropriate plants for our garden. We compiled guidelines for our garden’s implementation and maintenance, which Environmental Leaders ARC students implemented during spring term by planting native plants in our plot. The garden we designed will support pollinators’ critical ecological role and serve as an entry point for pollinator conservation conversations at the University of Oregon among university students, faculty, and staff, as well as the larger Eugene community.
Investigating Role of Homeodomain Transcription Factors in Neuronal Circuit Function in Drosophila

Mullen, Nicole—Biology, University of Oregon
Faculty Mentor(s): Kristen Lee
Session: Pre-Recorded Poster Presentation

Transcription factors are proteins that control gene expression in cells. Three major classes of transcription factors, spatial, temporal, and homeodomain transcription factors (HDTF), are important for neuronal development, but the relationship between all three and their role in establishing neuronal circuits is not fully understood. Our research utilizes the well-characterized MDN-Pair1 neuronal circuit in Drosophila and focuses exclusively on identifying HDTFs important for circuit function. Research shows HDTFs are uniquely expressed in neurons to generate and maintain highly-specific neuronal types. Since neural circuits are also highly specific, we hypothesize that HDTFs are important for neural circuit establishment. To identify HDTFs important for MDN circuit function, we used the Gal4-UAS binary expression system to express the red-light gated cation channel, Chrimson, and RNAi transgenes for HDTFs in the MDN neurons, specifically. We performed a behavioral assay of backward locomotion. Our control experiment showed that when the Chrimson channel was exposed to red light, Drosophila exhibited backward locomotion. When analyzing the effect of 105 specific HDTF knockdowns by the RNAi transgenes, initial data obtained with FIMTrack software show that 7 HDTF known downs caused a significant change in locomotion. In the future, we will perform further experiments to determine if the change in locomotion is due to a disruption of the circuit as a result of HDTF knockdown.

P4wC as an Effective Educational Pedagogy for BLM and COVID-19 discussions in K-12 Education.

Mullen, Nicole—Biochemistry, University of Oregon
Faculty Mentor(s): Caroline Lundquist
Session: Pre-Recorded Poster Presentation

Recent major events like the BLM and COVID-19 catalyze a need for teaching methods that foster critical thinking, curiosity, and nuanced thinking in K-12 classrooms. Philosophy for and with Children (P4wC) emerges as an incredible educational tool to address this need. Contrary to popular belief, P4wC, is not about teaching children the history of philosophy. Interviews conducted with over 20
educators and P4wC instructors from around the world, current scholarship on P4wC, and Zoom demonstrations of P4wC teaching methods demonstrate P4wC is an effective and underutilized educational pedagogy. P4wC develops the tendency children already have to be inquisitive and curious about the world by interrupting traditional power dynamics between student and teacher. P4wC is defined by the creation of a community of inquiry that is intellectually safe, nurtures wonder, and allows for the discussion of sensitive topics. Instead of teaching children to be afraid or run away from difficult, ambiguous questions, engaging students at a young age in philosophical discussion and questioning teaches them to think critically throughout their lives. These critical thinking skills and willingness to thoughtfully consider complex ethical issues are even more pertinent in a world where the average citizen is increasingly forced to grapple with ethical issues.

**Exploring the Impacts of Biophilic Design on Occupants’ Behavior and Health**

Nagle, Marin—Architecture, University of Oregon  
Faculty Mentor(s): Siobhan Rockcastle, Anupam Satumane  
Session: The Virtual and Physical Space We Live In

The majority of human evolution has been spent in nature, gaining sustenance from the environment. Only recently in the timeline of human evolution have we shifted to spending most of our time indoors in an artificial environment. Nowadays, on average, people spend over 90% of their time indoors. This then can lead to diminished mental and physical health and well-being. As technology has advanced, we have gathered more quantifiable data showing that occupants have both a positive physiological and physiological response by introducing elements of biophilic design. This paper begins to take a closer look at visual connections to nature as well as biomorphic forms by instituting a novel approach brought on by the pandemic in collecting more quantifiable data through self-reported 360 image surveys as well as behavioral analysis software to see the effects of implementing these two different biophilic elements. In preliminary survey studies, in general, participants found scenes with multiple biophilic design elements at play more preferable than scenes with one or none. Participants also found the scenes with visual connections to nature and implemented nature more calming and restorative than those with biomorphic forms and patterns. Participants who viewed the control room with no biophilic design elements reported feeling the most anxious. Further studies are required to determine if participants’ self-reported responses will match their physiological responses.
Session: Migratory Stories: Sea, Land and Air
Navarro, Eloise—International Studies, University of Oregon
Co-Author(s): Arielle Names. Madi Scanlan, Bella, Campino, Miranda Roso, Devin Vandergriff
Faculty Mentor(s): Katie Russell, Katie Lynch

Bird Nerds: Uniting Elementary School Students in Oregon and Mexico through Shared Migratory Birds
Our team of Environmental Leadership Program students partnered with the Willamette-Laja Twinning Project to bring the “Aves Compartidas” (shared birds) program to River Road Elementary School. With birds as our focus, this project aims to unite students in Oregon and Guanajuato, Mexico using shared species and language to foster deep ecological and cultural connections. Under a remote framework, our team created a bilingual curriculum for third through fifth grade students, centered around our shared migratory birds and their habitats. We hypothesize that students will become more familiar with migratory birds shared between Oregon and Mexico, along with their respective watersheds. In the initial lessons, we established baseline evaluations of the students’ prior knowledge about birds and continued to monitor their knowledge and enthusiasm, utilizing written and discussion-based activities. To gauge student understanding of the material, our team has measured attendance and engagement through student participation in class as well as their involvement in a weekly ecological themed bingo activity. Student teaching teams discussed, evaluated, and recorded the results of the reflection activities after each lesson. We will compile and analyze data from weekly lessons and the final assessment to determine the effectiveness of our team’s curriculum. The curriculum created provides a framework for future Environmental Leadership Program cohorts and seeks to cultivate civic engagement, uplift young environmental stewards, and engage global residents.

Predicting the Metabolic Cost of Level-Ground Walking from Gait Speed and Prosthesis Stiffness
Nelson, Myles—Human Physiology, University of Oregon
Faculty Mentor(s): Mike Hahn
Session: Data Driven Crystal Ball

The number of individuals requiring the use of a prosthesis device continues to rise each year. With more users utilizing prosthesis devices, it is important to reduce the decrease in quality of life (QOL) associated with the use of a lower-limb prosthesis. Prior research has established an increase in metabolic demand while walking due to prosthesis stiffness and gait velocity, leading to decreased
QOL. However, few studies explore the effects of these variables while using a variable stiffness foot (VSF) prosthesis. Therefore, the purpose of this study was to use the novel VSF prosthesis to develop a regression model which predicts metabolic demand based on gait velocity and prosthesis stiffness settings. This could be used to better fit prosthesis devices to their users.

Five participants were recruited and three were analyzed for this study. Significant results were found when gait velocity changed (p<0.001) while changes in stiffness settings were not statistically significant (p=0.199). There were statistical differences in gait velocity settings in 4 of the 5 stiffness settings (α=0.013). The regression model had an adjusted R² value of 0.842 with a normalized root mean square error (NRMSE) of 7.02%. While these differences suggest prosthesis stiffness settings do not have a large effect on metabolic expenditure, subject-specific case studies show that prosthesis settings need to be considered when attempting to lower the metabolic demands of a lower-limb prosthesis.

The Laboratory for Architecture and Building—Uniting academics, ecological design, and community

Newbold, Andrew—Architecture, University of Oregon

Faculty Mentor(s): Tom Hahn

Session: The Virtual and Physical Space We Live In

With the increasing rate of climate change, it is critical to recognize and combat the fact that buildings account for close to 50% of CO₂ emissions in the United States. Architectural design plays a crucial role in reducing carbon impacts. The Laboratory for Architecture and Building (LAB) is a proposed architectural research school in Eugene, Oregon that will focus on teaching and advancing building science research. The LAB provides an educational research hub for ecological building practices, while serving as an example for sustainability, that fosters engagement with the community. Researchers conducted systems research, site studies, and calculations for an urban site located at the base of Skinner’s Butte just north of downtown. This comprehensive design process resulted in a building proposal that is net-zero energy, cultivates food, harvests and recycles wastewater, engages with the community, and provides design research facilities, all on the 1.1 acre lot. The LAB stands as a learning opportunity to be implemented in communities beyond Eugene. The innovative design strategies unite education, research, and community in a building that showcases cutting edge ecological design.
Exploring the Political and Cultural Underpinnings of Vietnamese American Conservatism

Nguyen, Anna—Political Science, University of Oregon
Faculty Mentor(s): Joseph Lowndes
Session: Pre-Recorded Poster Presentation

The rise of Vietnamese American conservatism is not a new phenomenon, nor is it an unprecedented one. Long-standing assumptions of Asian Americans as an ethnic and political monolith continue to exist and critically hinder analyses of this demographic as a powerful voting bloc. To those who are unfamiliar with the political and cultural complexities surrounding Vietnamese American immigration, it may seem like their support for conservative figureheads like Donald Trump is unfounded. To gain a deeper comprehension of this issue, I consulted a wide breadth of existing scholarship on right-wing conservatism and the Vietnamese Catholic experience. I also had the opportunity to connect with three prominent figures in the Vietnamese American community to understand how their lived experiences shaped the development of their political views. My first interviewee, who has chosen to be identified as John Pham, articulates how his robust conservative outlook stems from his devotion to South Vietnam as an anti-communist nation. I then spoke to Rep. My-Linh Thai and Rep. Khanh Pham, who shared their insights on the rise and future of Vietnamese conservatism in an American context. These conversations enhanced the strength of my findings, which ultimately illustrate how anti-communism, cultural stoicism, and the refugee experience impact the nascence of conservative values in generations of Vietnamese Americans today.

Racism as a Public Health Crisis

Nguyen, Vi—Human Physiology, University of Oregon
Faculty Mentor(s): Kristin Yarris
Session: Health Considerations

Health inequity, caused by systematic disparities between communities, results in poor health outcomes and decreased quality of life among certain groups of people within a population. It is accredited to social determinants of health, life stressors, or other social factors present in one’s environment such as transportation, housing, etc. In the US, BIPOC individuals report higher levels of negative experiences with health outcomes compared to other social groups. Contributing to these disparities in Oregon are the state’s historically deep-rooted racism and structural inequalities.
Our project investigates racial and ethnic health disparities in Oregon, including those that have impacted BIPOC communities during the Coronavirus pandemic. Using available secondary data sources (e.g., at Oregon Health Authority), and focusing on population-level health indictors (e.g., chronic disease morbidity, self-perceived health ratings, and COVID health outcomes), we document these racial and ethnic disparities in health. Additionally, we use qualitative data from primary data sources (interviews and questionnaires), with Lane County residents to further examine the impact of racial discrimination on lived experiences of health. Our study highlights how experiences with racism put the BIPOC community at a health disadvantage. We aim to publicize these disparities through shared infographics in hopes of alleviating this burden for BIPOC individuals by sharing ideas for public action.

The Oldest Known Piece of Notated Music: A Synthesis of Sumerian through Babylonian Music Theory
North, Natalie—Music Performance, University of Oregon
Faculty Mentor(s): Tim Pack
Session: Artistic Impressions

Western collegiate music history and theory courses rarely delve into the details of Ancient Sumerian, Akkadian, Hurrian, and Babylonian music theory, despite their immense impact in our modern understanding of modes, string tuning, and notation. Furthermore, this lack of appreciation and understanding for these early theorists raises the question of why is this information not readily discussed in music academia? In this project, I explore the oldest known piece of notated music. It is called Hurrian Hymn 6, but it is more commonly known by its abbreviation: “H.6.” As this is a piece of music from 1400 BCE, its notation features cuneiform script. However, the history of cuneiform script and the ever-changing national language of Ancient Mesopotamia affects the ease of translation with regards to a 3400-year-old clay tablet that is the size of one's palm.

Furthermore, within this piece of music, there are three different languages expressed. This results in a misunderstanding between the scholars of this field in their translations. Given their vast differences in translating cuneiform script, they disagree on every facet of this early music, but one. In scholarly journals and monographs, these scholars debate (rather heatedly) on whose interpretation of H.6 is the most accurate. My research objectively synthesizes all of the scholars’ translations, evidence, and interpretations to decide which scholar is the most accurate.
Sensitivity to Decays of Long-Lived Dark Photons at the International Linear Collider

Nosler, Laura—Physics, University of Oregon

Faculty Mentor(s): Laura Jeanty, Chris Potter

Session: Dark Matters

The standard model of particle physics provides an excellent description of the physical world, however, its constituents account for only a small percentage of the universe—the observable ordinary matter—with the identity of the remaining dark matter still a mystery. One potential explanation for dark matter is that it consists of particles similar to those in the standard model, but with different interactions that make it difficult for us to directly observe them. Our research considers a possible link to dark matter called the dark photon which could be produced via the Higgs boson and decay to standard model leptons. Depending on the dark photon's interactions with the standard model, it could have a long lifetime, producing a unique signature. The environment in which we’re studying dark photon production is the International Linear Collider (ILC) which is predicted to be a “Higgs factory”, producing a large number of Higgs bosons in a clean environment ideal for studying weakly interacting particles such as the dark photon. Our research studies the sensitivity to long-lived dark photons at the ILC, with the intent to motivate interest in long-lived particles at the ILC and to provide a benchmark for future studies. The results of our study are used to find the sensitivity to dark photons as a function of the branching ratio of higgs to dark photons and the detector performance, and are compared with similar results previously found at other detectors.

Investigating a role for HSF-1 in the formation of heat-induced DNA damage in developing sperm

Nosler, Philip—Biology, University of Oregon

Co-Author(s): Nicole Kurhanewicz, Devin Dinwiddie, Diana, Libuda

Faculty Mentor(s): Nicole Kurhanewicz, Diana Libuda

Session: Inside Out

Meiosis is a specialized form of cell division found in sexually reproducing organisms that produces haploid gametes (eggs and sperm) from diploid parent cells. Spermatogenesis is temperature sensitive; heat exposure induces DNA damage in spermatocytes and is implicated in male infertility, but the underlying mechanisms are largely unknown. Using the model organism Caenorhabditis
elegans, previous work showed that heat stress produces double-strand DNA breaks (DSBs) in spermatocytes, but not oocytes. The heat shock response (HSR) pathway is a highly conserved program of gene expression that promotes longevity and stress tolerance in response to heat. HSR is coordinated by the transcription factor HSF-1, which regulates sex-specific factors as well as genome integrity genes. To determine if HSF-1 regulates heat-induced DNA damage in C. elegans spermatocytes, we utilized high resolution microscopy and large-scale genomic analysis. Using an hsf-1 mutant, we find that HSF-1 is required to repress heat-induced DSBs in oocytes, suggesting a protective role for HSF-1 against heat-induced DNA damage in oocytes. Further, we performed mRNA-sequencing to identify genes differentially expressed by heat in spermatocytes and oocytes. My ongoing analysis focuses on the regulation of HSF-1 genomic targets. These data will inform our understanding of HSF-1 pathway function in developing sperm and eggs, and clarify the mechanisms underlying the development of heat-induced male infertility.

**Embodied Youth: The Typology of David and Goliath as a Mode of Self-Portraiture**

Ocon, Carleigh—Art History, University of Oregon

*Faculty Mentor(s): James Harper*

**Session: Artistic Impressions**

Christian typology is a common theme within Italian art during the Renaissance and Baroque periods; also common was for artists to begin experimenting with modes of self-portraiture within these religious works. The consistency of Italian artists’ use of the David and Goliath typology as a mode of self-reference poses an interesting revelation. Through the case studies of Bernini, Donatello, Caravaggio, and Giorgione, the David and Goliath typology reveals a common relatability via its Christian symbolism, psychoanalytical applications, and narrative emotional depth. In the cases of Bernini and Giorgione, it was in their early career and development into their own adulthood that manifested such a fascination in the David. Comparatively, Donatello and Caravaggio’s self-portraits were discoveries and references made later in life and revealed their homoerotic fascinations with youth as well as a mournful recognition of their aging. The consistent use of this typology across centuries and careers brings to light the relatability of this coming-of-age story and the complexity that this narrative poses in its evolution of climactic events.
Rebound and Resurgent Malaria Globally: Explanations and Under-estimations via a Meta-Review

Odell, Marlee—Biology, University of Oregon
Faculty Mentor(s): Melissa Graboyes
Session: Health Considerations

Over the past century considerable efforts have been put forth to eliminate malaria. Such attempts have proved fragile, with many gains and successes followed by a resurgence of malaria cases. In 2012, Cohen et al. published the first systematic review of malaria resurgence events globally, and concluded that most failures were the result of pull-backs in funding for elimination programs. While this publication was an excellent first step, it provides a narrow scope and definition of resurgence that fails to capture potential events or address the ethical implications of resurgence. This research both replicates and expands on Cohen et al.’s work by providing a more nuanced investigation of the concepts, causes and consequences of resurgence. This meta-review added social science and primary archival sources, broadened Cohen et al.’s definition of resurgence, including events reported for only one year, and discuss ethical implications of resurgence. Our preliminary results captured 117 resurgences over 160 years. Our work also found that terms used to describe resurgence are not clearly delineated in malaria literature, descriptions of resurgences are often vague, and causes of resurgence are not as straight-forward or categorical as they appear in the work of Cohen et al. These findings call for expanded research into resurgence, as well as how it is conceptualized and reported.

Flowers by the Sea: Sylvia Plath, Anne Sexton and the Misunderstood Young Women Who Carry Them

O’Donnell, Hailey—Journalism, University of Oregon
Faculty Mentor(s): Michael Wilson
Session: The KIDDs Are Alright

Few poets (few women) have legacies as storied and fraught with melodramatic tension as Sylvia Plath and Anne Sexton. In popular culture, their admirers are coded in darkness—written off as “troubled” and overly pessimistic. This research project examines society’s shortcomings in remembering Plath and Sexton and offers a new vision for discussing their influence. I argue that these women should be recognized for the space they have created within the literary world (and the world at large) for women to examine an experience of womanhood marked by mental health
concerns, feeling misunderstood, darkness, and general disillusionment with the expectations/demands of conventional femininity. I also posit that their true legacy is not the sum of their work or their cursed reputations—but rather, it is a spirit of subversive, honest creativity that lives within the young women whom their voices have inspired and assuaged. I reference my own journal entries from early adolescence as a primary source in illustrating how creative work can be distinctly cathartic for young women. My goal with this project is to reframe the greater meaning of Plath and Sexton’s lives to more accurately reflect the positive change they continue to prompt, and to consider how their stories can inform more nuanced and empathetic approaches to mental health in young women.

**Rebound and Resurgent Malaria Globally: Explanations and Under-estimations via a Meta-Review**

*Osman, Idil—Psychology, University of Oregon*

**Faculty Mentor(s): Melissa Graboyes**

**Session: Health Considerations**

Over the past century considerable efforts have been put forth to eliminate malaria. Such attempts have proved fragile, with many gains and successes followed by a resurgence of malaria cases. In 2012, Cohen et al. published the first systematic review of malaria resurgence events globally, and concluded that most failures were the result of pull-backs in funding for elimination programs. While this publication was an excellent first step, it provides a narrow scope and definition of resurgence that fails to capture potential events or address the ethical implications of resurgence. This research both replicates and expands on Cohen et al.’s work by providing a more nuanced investigation of the concepts, causes and consequences of resurgence. This meta-review added social science and primary archival sources, broadened Cohen et al.’s definition of resurgence, including events reported for only one year, and discuss ethical implications of resurgence. Our preliminary results captured 117 resurgences over 160 years. Our work also found that terms used to describe resurgence are not clearly delineated in malaria literature, descriptions of resurgences are often vague, and causes of resurgence are not as straight-forward or categorical as they appear in the work of Cohen et al. These findings call for expanded research into resurgence, as well as how it is conceptualized and reported.
Rain, Mercury and Corruption: Environmental Issues Portrayed Within Japanese Cinema

Panganiban, Japi—Cinema Studies, University of Oregon

Faculty Mentor(s): Rachel DiNitto

Session: Artistic Impressions

Cinema has grown into a platform where filmmakers can address societal issues through its form of visual presentation, allowing complex topics such as environmental issues to be presented in unique and compelling ways. Japan is no exception; its cinema playing an important role in documenting the 2011 disasters—the earthquake, tsunami, and Fukushima nuclear accident. However the country has a long history with environmental issues beyond the 2011 catastrophes; films that revolve around the trauma that stems from the nuclear bombings of WWII, the methylmercury poisoning of Minamata disease, and general environmental issues such as pollution. Four Japanese films tackle these socio-environmental issues in varied ways, showing that there is no singular method to address these issues in terms of themes or genre. Animated films like Makoto Shinkai’s Weathering With You speaks to the relationship between humans and their environment. Documentaries such as Noriaki Tsuchimoto’s Minamata: The Victims and Their World and Hayao Myazaki’s world-famous Princess Mononoke display the effects of pollution on the human body. Sion Sono’s Land of Hope explores the extremes surrounding the public view on radiation poisoning—both the ignorance and paranoia in regards to such a topic. These films all depict environmental issues in standout ways that have the power to incite awareness within its viewers.

Promoting Pollinators at Whitewater Ranch

Parish Mueller, Eloise—Global Studies, University of Oregon

Co-Author(s): Yalin Li, Will Baldwin

Faculty Mentor(s): Peg Boulay, Dara Craig

Session: Pre-Recorded Poster Presentation

Promoting Pollinators Team is a subdivision of the Environmental Leadership Program at the University of Oregon. This year, we are working on a continuation of the long-term “Riparian Restoration” project with a greater emphasis on increasing native pollinators while reducing commercial hive dependency. Our mission is to improve pollinator count and restore pollinator habitat and riparian ecosystem health along Goose Creek at Whitewater Ranch, home to the largest organic
blueberry farm in the Mckenzie River Valley. For 2021, we will continue tracking local pollinators, replanting native plants, controlling invasive plant species, monitoring water temperatures, and surveying the general health and quality of wildlife species at Goose Creek. These aspects will serve to accurately compare the project site to survey reports of 2019 and identify changes in trends seen in previous years. Due to the Holiday Farm fires in September of 2020, the ecology of Whitewater Ranch and surrounding lands have drastically changed. It is difficult to predict the number of native pollinators active and the conditions of restored riparian habitat due to these unprecedented circumstances. The team anticipates changing trends in pollinator counts and environmental quality which could influence the application of further restoration projects in the future. Whitewater Ranch will benefit from this project with decreased reliance on commercial pollinators and increased local plant and crop health.

**Inducing Photo-accessible Metal States in Zirconium Metal Organic Frameworks**

Payne, Lillian—Chemistry, University of Oregon

Faculty Mentor(s): Christopher, Hendon

Session: Up and ATOM

Photocatalysis, the acceleration of a photoreaction in the presence of a catalyst, is utilized in many famous industrial processes such as water splitting, water purification, and CO2 conversion. Metal organic frameworks (MOFs) are desirable for photocatalytic applications. To effectively perform photocatalytic transformations, long exciton lifetimes are needed. Ti(IV) MOFs have provided these long exciton lifetimes through ligand to metal charge transfer and metal-localized proton coupled electron transfer (PCET), but similarly structured Zr(IV) MOFs show less stable ligand to ligand excitations. This difference can be attributed to the lack of photoaccessible metal states at the conduction band edge in Zr(IV) MOFs. We show here that destabilizing the linker orbitals through removal of aromaticity gives access to metal states and allows stable excitations through a Zr(IV)/Zr(III) redox couple upon PCET.
Women in Flight: A Study of Feminist Liberation Through Poetic Expression
Pearl Johnson, Anna—Planning, Public Policy and Management, University of Oregon
Faculty Mentor(s): Brian Trapp
Session: KIDDs Speak

The United States’ sexual revolution of the 60s and 70s has been argued as a time of liberated behaviors surrounding feelings, desires, and love, both of and for women. In many ways, the revolution acted as a lasting catalyst of communication: the verbal and written expression of feeling. Though for some, the era did the opposite, strengthening purity culture and repression of emotions. How then does poetry from the period demonstrate the flexibility and versatility of women’s strong emotions, like rage or passion? What are the implications of how a woman expresses emotion? The final undertaking of the year-long Kidd Creative Writing Program at the University of Oregon, this analytic essay investigates the relationship between feminist liberation themes in poetry and the diverse ways such liberation is manifested through literary devices. By reviewing the poetry of Margaret Atwood, Eavan Boland, Erica Jong, and Audre Lorde I contend that close readings demonstrate that liberation in the written word is strongly tied to the author’s sense of place and their subsequent sociological environment.

COVID-19 Vaccine Distribution Inequality: Local Partnership for Global Change
Peasley, Sarah—General Social Science, University of Oregon
Co-Author(s): Sarah Peasley, Giovanni Ricci, Bailey, McGinnis, Jacqueline Peralta Romero, Ana Melder
Faculty Mentor(s): Kristin Yarris
Session: Pandemic Responses

As of March 30, 2021, 86 percent of COVID-19 vaccines have been administered in high and upper-middle-income countries, while only 0.1 percent of doses have been administered in low-income countries. To mend the gap of unequal COVID-19 vaccine distribution, our research aims to quantify the socioeconomic disparities of global vaccine distribution and identify contributing factors that have led to this inequality. Our findings indicate that the clear disparities are heavily influenced by socioeconomic factors. For instance, low-income countries often lack resources to provide healthcare to their populations. Furthermore, political and economic policies and practices, such as the monopoly power of pharmaceutical companies, shape current vaccine inequities. Within this
paper, we argue that the US government should and pharmaceutical companies must temporarily lift intellectual property rights on the vaccine so that more companies and generic producers can join the global COVAX initiative. We propose cultivating a more equitable vaccination distribution through partnering with Lane County-based organizations to distribute information and gather support with the prospect of bringing precedence to patent lifting to the Biden administration, the Bill & Melinda Gates Foundation, GAVI, CEPI, and the WHO in order to expedite the delivery of immunization to all countries.

**Hogs and Hazelnuts: adaptively managing pest spillover in the agricultural-wildland matrix**

Penkauskas, Calvin—Environmental Science, University of Oregon  
Co-Author(s): Alejandro Brambila, Drew Donahue, Taylor Larson, Betsey Miller, Lauren Hallett  
Faculty Mentor(s): Lauren Hallett, Alejandro Brambila  
Session: Pre-Recorded Poster Presentation

Pest spillover from wildlands to farms can create conflict between wildland conservation and agricultural production. For example, the key economic pest of hazelnuts in Oregon’s Willamette Valley is the filbertworm (Cydia latiferreana), a moth hosted by the native Oregon white oak (Quercus garryana). Oak stands near hazelnut orchards can sustain source populations that compound pest pressure in hazelnuts throughout the growing season. This dynamic is of conservational concern as historical oak habitat has been greatly reduced and what remains is almost entirely on private land, often in proximity to hazelnut orchards. Here, I present of a novel strategy to reconcile this conflict by using hogs to reduce pest pressure through prescribed grazing. From 2018 to 2020 we prescribed hog-grazing in early fall to glean filbertworm-infested acorns from an oak woodland floor. Hogs were both highly successful at reducing the total number of infested acorns and the ratio of infested acorns the following year. Despite an oak masting year in 2019, grazing reduced both the emerging and adult mating population of filbertworms the following year. These results demonstrate that prescribed grazing in oak patches can be an effective strategy to reduce filbertworm source populations. By benefiting both conservation and farmers, this novel pest approach provides a model for similar challenges and conflicts across the agricultural-wildland interface.
Wellbeing Resources on Campus: Thrive ARC’s Knowledge of UO Wellness Resources Compared to First-year Students Living on Campus
Penney, Eoin—Undeclared, University of Oregon
Faculty Mentor(s): Chantelle Russell
Session: Academic Residential Communities: Emerging Researchers
The goal of this research project is to compare the knowledge of Thrive students to first-year students when it comes to the awareness of wellness resources on campus. Thrive: Healthy Living is an Academic Residential Community centered around personal wellbeing, wellness resources on campus, peer education, and community influence. We hypothesize that due to the nature of the ARC, being a wellness-based community, these students will have more exposure and knowledge of UO wellness resources than the average first-year student. We will come to our conclusion using classroom experience with presenters, our own research on the UO website, and the future use of a student-wide survey to understand the breadth of knowledge possessed by the first-year student population. This will be paired with our own research of wellness resources across campus and whether or not we knew of them. Our primary results will support our hypothesis that students in the Thrive ARC have more knowledge of wellbeing resources than the average UO freshman. The findings of this project highlight the wellness information that our team gained through the ARC experience. This will lead us to the conclusion that there is an abundance of resources that UO students outside of the Thrive ARC are unaware of, which may benefit their personal wellbeing as well as other aspects of their lives.

Interpolation of Sparse Indoor Temperature Data in Space and Time
Peters, Sam—Computer and Information Science, University of Oregon
Faculty Mentor(s): Michal Young
Session: Pre-Recorded Poster Presentation
We gathered indoor environmental data by mounting sensors on a robot vacuum cleaner. My research focuses on developing and assessing algorithms that interpolate sparse spatial data gathered intermittently in this parasitic data collection process. This dataset poses a unique challenge because of the way it was collected. The robot vacuum cleaner takes erratic paths around the room, causing uneven coverage in each data collection period. I implemented several different interpolation algorithms, and ran each with multiple parameters against the collected dataset, comparing how
well they predicted redacted temperature data. As a result, I found that two machine learning based interpolation methods, K-Nearest Neighbors Regression and Random Forest Regression performed similarly well, with average absolute prediction errors of less than 0.1 degrees C (0.2 degrees F). Fixed sensor control systems are widely used in commercial buildings. With suitable interpolation algorithms, parasitic mobile sensing systems have the potential to collect richer data economically.

**The influence of ephemeral ice mélange on Rink Isbræ Fjord circulation**

Peterson, Rachel—Environmental Science, University of Oregon

Faculty Mentor(s): Dave Sutherland, Nicole Abib

Session: Migratory Stories: Sea, Land and Air

Recent observations of the Greenland Ice Sheet (GrIS) show a downward trend in the total mass balance since 2003, highlighting concern for sea-level rise and the evolution of the ice sheet. Warm Atlantic water circulating up to the termini of tidewater glaciers can be a large contributor to Greenland’s ice sheet melt. Heat transport to glacier termini is strengthened by freshwater injection, which brings warm water to the glacier, leading to more melt and even greater rates of up-fjord heat flux. Currently, it is unknown whether the freshwater input from ice mélange (an agglomeration of calved ice, sea ice, and brash ice) can significantly alter fjord water properties and enhance the influx of warm Atlantic water toward glacier termini. Given this gap in knowledge, I wish to examine the influence of ice mélange on circulation. This will be done by using unique in situ observations of near-termini fjord water properties during an ephemeral ice mélange event in the proglacial fjord of Rink Isbræ. Using CTD data directly preceding the formation of an ephemeral ice mélange and directly following its dissolution, I was able to analyze the changes in the fjord’s water properties. After the ice mélange breakup, there was a freshening by 0.72 PSU at 30-35m deep and 0.35 PSU at 50-60m deep. There was a cooling by 0.33ºC at 50-60m deep and 0.33ºC at 80-100m deep.

**Bacterial range expansion and the Fisher speed: a discrepancy in nutrient-rich media**

Pettinari, Noah—Physics, University of Oregon

Faculty Mentor(s): Raghuveer Parthasarathy

Session: Pre-Recorded Poster Presentation

Bacterial motility, while one of the most well-studied phenomena in microbiology, is still poorly understood in its relation to macroscopic phenomena such as range expansion. In particular, the
Fisher speed, a theoretical relation of macroscopic motility to planktonic (cellular) motility, has not been rigorously tested in chemotactic bacteria. Both the swimming of individual bacteria and the bacterial colony’s overall spread were observed in five species of bacteria in low-density agar using light sheet fluorescence microscopy and cell phone imaging, respectively. Subsequent image analysis indicated a discrepancy between the predicted Fisher speed and the observed range expansion speed. These results are in agreement with recent findings for the commonly studied bacterium E. coli, and can likely be explained by chemotactic effects driving macroscopic motility. These results may be important in understanding how bacteria can colonize complex structured environments such as the vertebrate gut.

**Effect of accent perception on the perception of professionalism**

*Piccolo, Sabrina—Linguistics, Spanish, University of Oregon*

*Faculty Mentor(s): Melissa Baese-Berk*

*Session: The Fate of Humanities: Humanities Undergraduate Research Fellowship and Pre-Recorded Poster Presentation*

This study explores how people’s perceptions of speakers’ accents may be related to their perceptions of speakers’ professional characteristics. In this study, 256 online participants listened to two speakers, one with an accent common for a native Spanish-speaker in Oregon and one with an accent common for a native monolingual English-speaker in Oregon, discussing Mexican history or marine biology. Each speaker was described as an expert or nonexpert in the topic. Participants then rated how they perceived each speaker’s professionalism, confidence, believability, knowledgeability and level of experience.

On average, participants rated the speaker with the English-speaking accent higher in professionalism and confidence than the speaker with the Spanish-speaking accent. However, participants tended to rate the speaker with a Spanish-speaking accent higher than the speaker with an English-speaking accent in knowledgeability and experience when the speaker was presented as a nonexpert discussing Mexican history. These results suggest ways that perceptions about accents can affect assumptions made about speakers. Considering that accent perception may influence perceptions of character traits that are prioritized in professional settings, these results highlight the importance of acknowledging and challenging those assumptions in situations where unjust perceptions of a speaker can result in biased and harmful decisions, such as in job interviews, education and courtrooms.
Neonatal inflammation increases adult vulnerability to subsequent inflammatory stimuli

Plunkett, Deanna—Human Physiology, University of Oregon

Faculty Mentor(s): Adrianne Huxtable, Sarah Beyeler

Session: Inside Out

Adults frequently encounter inflammatory stimuli, but neonatal inflammation experienced early in life may increase vulnerability to impairments in breathing control when adults encounter subsequent inflammatory stimuli. Neonatal inflammation augments adult inflammatory responses to subsequent, usually insignificant, inflammatory stimuli (subthreshold inflammation) in many non-respiratory brain regions. Additionally, neonatal inflammation impairs adult breathing control, yet it is unknown whether neonatal inflammation increases susceptibility to subsequent adult inflammatory stimuli in respiratory control regions of the brain (such as the medulla and cervical spinal cord). Since microglia are the resident immune cells responsible for regulating brain inflammation and increase in number after inflammation, we hypothesized that neonatal inflammation primes microglia in respiratory control regions for an augmented response to adult subthreshold inflammation. Using flow cytometry to assess microglia number, adult male medullary microglia increased after neonatal inflammation alone, while adult male spinal microglia were unchanged. Further, the combination of neonatal inflammation and adult subthreshold inflammation increased both male medullary and spinal microglia, indicating adult microglia priming by neonatal inflammation. In adult females, neonatal inflammation alone did not increase microglia in either region. However, combined neonatal inflammation and adult subthreshold inflammation increased female medullary microglia, demonstrating priming in adult female microglia after neonatal inflammation. Therefore, neonatal inflammation region-specifically primed adult microglia after a usually insignificant inflammatory stimulus. Increased adult microglia after subthreshold inflammation suggests neonatal inflammation may predispose adults to heightened vulnerability to subsequent inflammation in respiratory control regions. Thus, neonatal inflammation likely increases the risk for impairments in breathing control after adult inflammatory challenges.
Creating Equity—The Food Insecurity Crisis in Eugene, Oregon

Powell, Alli—Planning, Public Policy and Management, University of Oregon

Faculty Mentor(s): Derek Brandow, Maggie Elias

Session: Pre-Recorded Poster Presentation

Creating Equity—The Food Insecurity Crisis in Eugene, Oregon will work to educate University of Oregon students on the challenges of food insecurity on campus. Not only do these issues persist in regular times, but the COVID-19 pandemic has negatively enhanced the effects of this urgent crisis. This will be a space for students to learn about the inequalities that exist throughout their school in relation to food equity and learn how to get involved and help out. We have found that over 36% of UO students were food insecure before the pandemic, but many people do not know what being insecure even looks like, so they are either too afraid to ask for resources or do not think they need them as much as other people. The knowledge of organizations on campus is also severely lacking, so individuals do not know where to turn or the next steps to take to get help. Through our presentation, we hope to make the available resources to students more clearly laid out and accessible, since accessibility is one of the driving factors that leads people to be food insecure. We will also be plugging an event on campus that will happen later in May that will work to further educate people, distribute fresh produce (fruits and vegetables), and collect non-perishable foods through a food drive, that will later be donated to the Student Sustainability Center.

Oral Histories of the Oregon Holiday Farm Fire: Understanding Place, People, and Community

Powell, Marianne—Environmental Studies, University of Oregon

Co-Author(s): Annie Williams, Myrthe Stalenhoef, Hana Francis, Eugene Davis, Alex Binder

Faculty Mentor(s): Katie Lynch, Bela Sanchez

Session: People and Place

This project is an exercise in collecting oral histories surrounding the Holiday Farm Fire in order to preserve the first hand experiences of individuals affected by the fires, while acknowledging trauma, resilience, and land management. This research will be conducted through in-person observations and virtual interviews with McKenzie River community members. Preliminary research relied on working closely with the McKenzie River Trust and the McKenzie Education Foundation to gather more information about the community and area. A comprehensive interview guide was created that
touches on people, place, and community. Due to the COVID-19 pandemic, interviews will be recorded using Zoom. The interview process will be followed by transcription, editing, and processing to produce a GIS story map, a multimedia storytelling presentation combining text and interactive maps of the Holiday Farm Fire. This project will provide a platform for the community to share events and experiences of the Holiday Farm Wildfire. It is our intention that these stories may serve as both a resiliency resource for other rural communities following natural disasters and as a healing process for those affected by the fire. This story map can also serve as a starting point for further research regarding the wildfire events of 2020.

**Physical Education and Recreation student incentive program to increase well-being**

Prunuske, Jin—Psychology, University of Oregon  
Faculty Mentor(s): Chantelle Russell  
Session: Academic Residential Communities: Emerging Researchers  
The incorporation of an incentive program, “Breadcrumbs—Feed Your Flight,” is to be implemented by the Department of Physical Education and Recreation to improve the well-being of incoming freshmen. We are exploring the question of what can the University of Oregon’s recreation center do to improve the well-being of incoming freshmen who indicate low well-being. With the implementation of an incentive system, we can encourage students to build healthy life practices and improve their overall well-being. We specifically want to increase the well-being of students who scored low on the Student Wellbeing and Success Initiative surveys. This incentive program will encourage students to utilize the student recreation center and work on the physical aspect of well-being. After the introduction to the Department of Physical Education and Recreation, we could analyze the secondary Student Wellbeing and Success Initiative surveys to interpret the results of an incentive program. The primary implication of our work shows that students are establishing healthy habits and show an improvement in overall well-being. Based on statistical data, the University of Oregon has discovered that students who take PE and Recreation courses are more likely to have a more enjoyable college experience than students who do not. Students will be more likely to be involved if they know there is an opportunity for incentives, leading to more motivation.
The effects of mining upon the environment and human communities
Quinn, Paul—Environmental Studies, University of Oregon
Faculty Mentor(s): Marsha Weisiger
Session: Pre-Recorded Creative Work
This podcast explores the connections between addiction and alcoholism and the toxic effects of environmental pollution caused by mining activities with attention to marginalized and vulnerable communities. Alcoholism is used as a metaphor to the destruction of the environment and poisoning of human communities. It examines hardrock mining and hardrock mining regulations broadly using coal and uranium mining as examples. The weakness of mining laws and regulations are presented as evidence to support the argument that the mining industry holds considerable influence over government regulators. The impact of weak regulation is then connected to environmental pollution and human illnesses such as cancer and kidney disease. Throughout the podcast, addiction to alcohol is contrasted with addiction to wealth by the mining industry. Congressional testimony of members of the Navajo tribe are used as evidence to examine the damage of uranium mining on vulnerable indigenous communities. The willingness of the mining industry and the US government to allow uranium mining pollution to persist within Indigenous communities is analyzed. It concludes with the paradox that alcoholics choose to slowly poison themselves while the communities slowly polluted by mining activities do not.

Cranial shape changes with age in male and female adults of Papio
Quintanilla, Andrea—Anthropology, University of Oregon
Co-Author(s): Jyhreh Johnson. Stephen Frost, Evan, Simons
Faculty Mentor(s): Stephen Frost
Session: Pre-Recorded Poster Presentation
Ontogenetic changes to skull shape from juveniles to adults have been well researched and studied, but those that occur during adulthood are less well known. In this study, we collected 45 3D landmarks with a Microscribe 3DX digitizer of 345 wild-collected baboon (Genus Papio) crania representing all six currently recognized subspecies. As a proxy for age, we visually scored maxillary third molars for degree of wear. Landmarks were superimposed with generalized Procrustes analysis using MorphoJ. Procrustes coordinates were regressed against natural log-transformed upper third molar wear stage using multivariate tests for significance. We used Landmark editor
to warp a surface scan to show the shape changes correlated with increased molar wear. Results demonstrated a significant effect of molar wear stage on cranial shape, even after accounting for size, but it is a subtle effect that accounts for approximately 4.5% of shape variance. As the skull ages, the face seems to get longer while the orbitals and zygomatics shift posteriorly. The sexes do not differ in the pattern of shape changes and their regression slopes are parallel, meaning that the sexes do not age differently in their cranial shapes. The degree these shape changes are a consequence of genetics or bone remodeling due to strain experienced during life is unclear. Nonetheless, if this pattern is consistent across papionins, then it may help better to diagnose fossil taxa represented by small samples where it is unclear if differences are taxonomic or due to age.

**Development of Biocompatible Hyaluronic Acid Hydrogel for Nerve Nano-Clip Fabrication**

Rajabzadeh, Hossein—Biochemistry, University of Oregon

Co-Author(s): Jakob Townsend, Morgan Brown, Tim, Gardner, Annie Gilbert, Marian Hettiaratchi

Faculty Mentor(s): Marian Hettiaratchi

Session: Pre-Recorded Poster Presentation

Implantable electronic devices can stabilize abnormal electrical activity between neurons in the nervous system to restore sensory-motor function. The Gardner Lab has designed, 3D-printed, and implanted nano-scale nerve clips (NNCs) onto the tracheosyringeal nerve of Zebra finches to stabilize electrical activity between neurons. However, NNCs fabricated from Ormocomp and IP-Dip stimulated a mild inflammatory response in the surrounding nerve tissue. To improve upon this design, we developed hyaluronic acid (HA) hydrogels that could be photo-crosslinked to create a NNCs that would elicit negligible inflammation. A minimally-swelling hydrogel was required to avoid nerve damage. HA was modified with methacrylate groups using 2.5x, 5x, 10x molar excesses of methacrylic anhydride to HA to form methacrylated HA (MeHA). 1H NMR spectroscopy revealed the modification levels of 2.5x, 5x, 10x MeHA to be 30%, 46%, and 54% respectively. MeHA was chemically crosslinked under ultraviolet light in presence of photo-initiator to form hydrogels. The initial weight of 2.5x, 5x, 10x MeHA hydrogels post-gelation and weight after incubation in phosphate-buffered saline for 14 days were used to calculate average swelling ratios of 1.01, 1.01, and 0.92, respectively, indicating minimal swelling. These results and preliminary studies demonstrating that MeHA hydrogels could be 3D-printed using a 2-photon printer suggest that MeHA could be amendable for use in NNCs.
Adverse Childhood Experiences and Salivary Oxytocin in Mothers With a History of Substance Abuse

Ricci, Giovanni—Psychology, University of Oregon
Faculty Mentor(s): Jen Ablow
Session: Pre-Recorded Poster Presentation

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 yet to be examined using a combination of the Adverse Childhood Experiences (ACE) questionnaire and salivary OT measures. The aim of this preliminary investigation was to explore the association between salivary OT and ACE scores using novel salivary measures to solidify previous findings on the relationship between OT and early childhood adversity. The study included a small sample of 10 mothers participating in a six-week infant parenting program for mothers of newborns with experiences with substance use disorders. Baseline maternal salivary OT was collected at the beginning of the program and ACE questionnaires were collected upon completion. Results showed a strong, significant negative correlation between baseline salivary OT and ACE scores (r =—0.81, p = 0.004). These results support prior research suggesting early childhood trauma reduces OT production later in life. Implications for understanding the role childhood adversity plays in reduced OT production as a potential pathway for the intergenerational impacts of trauma are discussed.

Exploring Oxaliplatin Derivatives Through Modification of the 3,4 Position

Rice, Haley—Data Science, Biology, University of Oregon
Faculty Mentor(s): Christine McDevitt
Session: Up and ATOM

Platinum anti-cancer compounds have been in clinical use for over 40 years and are used in around 20% of cancer regimes today. Despite their long use, the widespread binding activity for the three FDA approved platinum drugs, cisplatin, oxaliplatin and carboplatin, has not been well studied. The mechanism of action for cisplatin is through DNA damage response, however, it was recently discovered that oxaliplatin’s mechanism of action is through ribosome biogenesis.
stress, also referred to as nucleolar stress. Previous research in the DeRose lab has established structural characteristics necessary for platinum compounds to cause nucleolar stress, including hydrophobicity, steric bulk, and directionality. To determine what biomolecules are interacting with these platinum compounds, we aim to create an azide incorporated oxaliplatin mimic which can be used to pull down biomolecules. Here we investigate the 3,4 position of the cyclohexane ring of oxaliplatin to determine the window of tolerance in which an azide could be incorporated on the scaffold. We synthesize oxaliplatin derivatives with varying groups in the axial and equatorial position and determine whether these derivatives cause nucleolar stress using an nucleophosmin (NPM1) relocalization assay in non small cell lung cancer. Better understanding the targets of oxaliplatin may illuminate the specific biomolecules binding to platinum which can be used to better design new platinum compounds for use in cancer treatments.

**Ecological Design: Designing a Pollinator-Supportive Native Garden on Campus**

Richbourg, Alissa—Environmental Science, University of Oregon

Faculty Mentor(s): Peg Boulay

Session: Academic Residential Communities: Emerging Researchers

The recent decline of pollinator populations, including bees and other species, has been largely due to parasites, diseases, increased pesticide use, and habitat loss. Pollinator pocket gardens are urban habitats which support pollinators by offering them space to build hives, collect nectar and pollen, wash off in water, and rest as they move between other pollinator habitats. In partnership with UO Campus Planning & Facilities Management staff, our team compiled and implemented a comprehensive plan for a native pollinator pocket garden near the Urban Farm. This garden will primarily support pollinators and secondarily educate and serve as a pastime space for University of Oregon students, staff, and campus visitors. First, we chose an unused garden plot by considering two plots’ attributes as prospective spaces serving both humans and pollinators. Next, we used our plot’s characteristics among other criteria to select appropriate plants for our garden. We compiled guidelines for our garden’s implementation and maintenance, which Environmental Leaders ARC students implemented during spring term by planting native plants in our plot. The garden we designed will support pollinators’ critical ecological role and serve as an entry point for pollinator conservation conversations at the University of Oregon among university students, faculty, and staff, as well as the larger Eugene community.
Quantifying Glacial Melt and Movement Using Remote Sensing in Greenland’s Sermilik Fjord

Roberts, Lucy—Spatial Data Science and Technology, University of Oregon

Faculty Mentor(s): Dave Sutherland, Nicole Abib

Session: Pre-Recorded Poster Presentation

In Greenland’s fjords, large icebergs have been shown to be an indicator of oceanic circulation. However, previous reports published by Dr. Dave Sutherland’s Ocean and Ice group concluded that there is large variation of these flow systems seasonally and interannually. Providing reliable analysis of fjordic flow regimes in a specific fjord requires long-term data in order to mitigate annual fluctuations. Working along with Dr. Sutherland, I have been updating previously published research (2014 Article: “Quantifying flow regimes in a Greenland glacial fjord using iceberg drifters”) that used a very limited dataset.

I have been working with Dr. Sutherland to take these GPS data spanning 2012-2019. The previous publication used 10 GPS units from 2012 and 2013 to interpret iceberg motion in the context of mean fjord circulation. In aggregating eight years’ worth of data, we will be able to analyze information from >30 GPS devices to inform questions of recirculation and in-/out-fjord variations in velocity as they relate to flow variability, while mitigating noise from annual fluctuations. As large conduits of freshwater, the movement of icebergs and their interactions with the surrounding oceans are increasingly important when analyzing the impacts of global ocean warming. This project can provide the analysis needed to create and run more accurate models of fjord circulation and the ultimate fate of freshwater delivery from Greenland.

Media and Science: A Case Study of CTE

Roderique, Carolyn—Journalism/Political Science, University of Oregon

Faculty Mentor(s): Corbett Upton

Session: Fact or Fiction?

Conditions of reporting have changed with the 24-hour news cycle, and less specialization has created concerns of accuracy. This project looks into CTE and many of the misinformation represented in its reporting. It will look at issues like scientific biases, framing, and context that was left out. This project was created with a mix of scientific, academic and even a legal source to get a full picture of what the media was missing and why. Many of the inaccuracies and misinformation
were a mix of reporter’s own biases, framing, frequency. Not only were inaccuracies part of the issue with the reporting, but the “walk it off” culture in American contact sports or the contracts that encourage players to hide their injuries. This could also be applied and examined in the larger context of reporting on science.

Investigating the Benefits of Maternal Thiamine Supplementation for Infant Social Alertness
Rudolph, Jenna—General Science, University of Oregon
Faculty Mentor(s): Dare Baldwin, Jeffrey Measelle
Session: Pre-Recorded Poster Presentation

Millions of Southeast Asian children are at risk for thiamine deficiency, which in turn puts their neurocognitive development in peril. Our study investigates the possibility that thiamine supplementation for Cambodian mothers protects infants’ cognitive development. Specifically, we examined the extent to which thiamine supplementation enhances infants’ alertness to caregivers’ efforts to engage. Such alert responsiveness indexes neurocognitive well-being, while also supporting further neurocognitive progress.

As part of a larger, double-blind, randomized controlled trial, lactating mothers (N = 335) received one of four levels of thiamine supplementation (0, 1.2, 2.4, or 10mg/day) beginning at 2 weeks postpartum. We assessed infants’ alertness in relation to caregivers’ efforts to interact via a new method, the Primary Engagement Task (PET), when infants were 2-, 12-, and 24-weeks. In the PET, mothers were asked to coax a smile from infants, and sustain a mutually positive interaction. As the PET progressed, mothers were cued to add, then remove, engagement modalities during six 30-second epochs. Video coding determined changes in infants’ alertness across epochs. As predicted, infants’ alertness increased, then decreased (remaining higher than baseline) as the PET unfolded. Moreover, these patterns tended to become more pronounced with increasing age and maternal thiamine supplementation.
COVID-19 Vaccine Distribution Inequality: Local Partnership for Global Change

Sacamano, Annalise—Global Studies, University of Oregon

Co-Author(s): Sarah Peasley, Giovanni Ricci, Bailey McGinnis, Jacqueline Peralta Romero, Ana Melder

Faculty Mentor(s): Kristin Yarris

Session: Pandemic Responses

As of March 30, 2021, 86 percent of COVID-19 vaccines have been administered in high and upper-middle-income countries, while only 0.1 percent of doses have been administered in low-income countries. To mend the gap of unequal COVID-19 vaccine distribution, our research aims to quantify the socioeconomic disparities of global vaccine distribution and identify contributing factors that have led to this inequality. Our findings indicate that the clear disparities are heavily influenced by socioeconomic factors. For instance, low-income countries often lack resources to provide healthcare to their populations. Furthermore, political and economic policies and practices, such as the monopoly power of pharmaceutical companies, shape current vaccine inequities. Within this paper, we argue that the US government should and pharmaceutical companies must temporarily lift intellectual property rights on the vaccine so that more companies and generic producers can join the global COVAX initiative. We propose cultivating a more equitable vaccination distribution through partnering with Lane County-based organizations to distribute information and gather support with the prospect of bringing precedence to patent lifting to the Biden administration, the Bill & Melinda Gates Foundation, GAVI, CEPI, and the WHO in order to expedite the delivery of immunization to all countries.

Evaluating the Impact of Climate Change and water scarcity on Chronic Kidney Disease in El Salvador

Sanchez, Paola—Neuroscience, Visiting McNair Scholar, Boston College

Faculty Mentor(s): Nadia Abuelezam

Session: Health Considerations

In rural communities of El Salvador and Guatemala, poverty lies rampant. The majority of the population in such communities rely on farming in order to provide for themselves and their family. Recently, a lot of attention has garnered around a perplexing problem—an increase in the prevalence of Chronic Kidney Disease of unknown etiology that is affecting farmers and rural workers in a
disproportionate amount. This problem can have grave implications on the economic and social life of El Salvador. Similarly, the rural communities most at risk for such renal insufficiency in Guatemala are indigenous people who suffer from the adverse effects of climate change and water privatization that prevents them from accessing their own resources.

This study will analyze some of the most interesting hypotheses regarding the rise in Chronic Kidney Diseases in El Salvador and Guatemala—namely, climate change and water scarcity in rural areas. By synthesizing these two hypotheses, the research will be able to provide justification for the new phenomenon of “climate refugees.” Because climate change plays a huge role on immigration, analyzing its impact on Global Health is key to understanding the magnitude of the effects that Chronic Kidney Disease of unknown etiology can have on these vulnerable communities.

Thiamine supplementation benefits language development in infants at risk for thiamine deficiency

Sanchirico, Anna—Psychology, University of Oregon

Co-Author(s): Dare Baldwin, Kyly Whitfeild, Jeffrey Measelle

Faculty Mentor(s): Dare Baldwin, Jeffrey Measelle

Session: Pre-Recorded Poster Presentation

Millions of infants, especially in regions such as Southeast Asia, are currently at risk of thiamine deficiency. We investigated the extent to which maternal thiamine supplementation in rural Cambodia might protect their exclusively breast-fed infants’ language development. A double-blind randomized controlled trial provided daily thiamine supplementation (0, 1.2, 2.4, or 10mg daily) to 335 breast-feeding Cambodian mothers when their infants were between 2 and 24 weeks of age. Of the 335 infants, 248 participated in two tasks measuring language development: 1) the Mullen Scales of Early Learning (MSEL) receptive and expressive language sub-scales at 2, 12, and 24 weeks, and 2) at 24 weeks the IDS Preference Task assessing the degree to which infants display a highly functional preference for infant-directed speech (IDS) relative to adult-directed speech (ADS) at 24 weeks.

We predicted a dose-response relationship at 24 weeks between maternal thiamine supplementation and both infants’ MSEL language scores and the magnitude of their IDS preference. These predictions were confirmed: infants whose mothers received higher levels of thiamine supplementation displayed a) significantly higher MSEL receptive language scores and marginally higher expressive language scores, and b) a higher-magnitude preference for IDS over ADS. These findings provide evidence that thiamine supplementation for lactating mothers benefits language development for infants at risk of thiamine deficiency.
Race-Related Discrimination is Linked to Body Image Concerns in Asian/Asian American Men

Sato, Alyson—Human Physiology, University of Oregon
Faculty Mentor(s): Claire Guidinger, Nichole Kelly
Session: Pre-Recorded Poster Presentation

Asian/Asian American men report higher levels of body image concerns relative to their ethnic peers. One potential reason may be due to experiences with racism, which are associated with disordered eating symptoms. No studies to date have investigated if experiences with racism are associated with body dissatisfaction in this population. We hypothesized that experiences with racism would be positively associated with Asian/Asian American men’s body image concerns, and that ethnic identity commitment and exploration would buffer these associations. Participants (266 Asian/Asian American men; Mage=24.4±3.6y) completed an online survey that measured demographics; experiences with racism and microaggressions; ethnic identity commitment and exploration; and muscularity and body fat concerns. After adjusting for body mass index, income, education, and presence of a psychiatric diagnosis, linear regression models indicated that both experiences with racism and microaggressions were significantly and positively associated with concerns with muscularity and body fat, B’s = 1.32-1.19, p’s< .05. Ethnic identity commitment buffered the link between experiences with microaggressions and concerns with muscularity (B =—1.22, p<.05). Our data suggest that experiences with racism are negatively associated with body image in Asian/Asian American men, and that a greater ethnic identity commitment may serve as a protective factor. Prospective data are needed to clarify these associations.

COVID-19 and its Effect on Anti-semitism Within France

Saunders-Ruesz, Miles—Political Science, University of Oregon
Co-Author(s): Natalie Hawkins, Zoe Holmquist
Faculty Mentor(s): Matthias Vogel
Session: Pre-Recorded Poster Presentation

The Covid-19 pandemic has affected the globe in countless ways. Economies have suffered, millions of lives have been lost, and issues that were present before March 2020 got worse. Anti-Semitic actions against the French-Jew population had been on a steady rise pre-Covid, but how would a global pandemic affect that rise. The French government had taken some action to try and calm the threats,
but the people see these efforts as inadequate. Already having done the research looking at the statistics and stories of these hateful acts before Covid-19 we want to discover if a global pandemic created a positive or negative impact on the rise in Anti-Semitic acts. If the pandemic pushed people to work together or if it made matters worse and gave Anti-Semitic groups a paved road to continue their harassing. The pandemic has put pressures on the government that may have altered the stress to bring the Jewish population safety in terms of Anti-Semitic acts.

**Vehicles of Injustice: White Savior Complex in Latin America**

Savoy, Cian—Political Science, University of Oregon

Faculty Mentor(s): Matthias Vogel

Session: Pre-Recorded Poster Presentation

The white savior complex has an unprecedented effect in our global society but not many people have looked at the vast consequences that occur from it nor the causes that created it in the first place. The classic white savior is someone from a developed country who visits a developing country using resources that the local community cannot utilize in their daily life. For example, a church mission trip based in California bringing paint and other materials to paint homes in the Mexican State of Oaxaca. While in the short term that community is able to have houses that are painted, in the long term they are now reliant on volunteers from an entirely different country. From a historical context the white savior complex has been an effect or a symptom of a larger problem. Throughout this project, the issues that will be discussed are American involvement in the developing region of Latin America and Mexico and how the modern White Savior Complex is a symptom of that involvement. Using reports from researchers around the world, the root cause of the white savior complex actually stems from the influence of developed countries upon developing countries. This project is important because it will be looking at the root cause of the white savior complex and hope to find reasonable solutions to these systemic problems in Latin America and Mexico. The solution to global problems might not be in the developing countries but in the already developed ones.
How Covid-19 Closure Affected Blood Pressure and Functional Capacity at PeaceHealth’s Cardiac Rehab

Schnoor, Natalie—General Science, University of Oregon
Faculty Mentor(s): Aaron Harding
Session: Pandemic Responses

With the unknowns of the highly infectious covid-19 virus, paired with a lack of personal protective equipment (PPEs), Cardiac Rehab closed for nearly two months (March 17, 2020—May 11, 2020). With the closure, research was performed to discover if there were any significant changes in patient’s systolic and diastolic blood pressures as well as functional capacity, which is measured in METs. It’s noteworthy that although Cardiac Rehab closed for two months, patients transitioned to unsupervised Cardiac Rehab by way of telephone appointments. Data was obtained in order to run a two sample T-test. From here, the results clarify whether the changes in data are significant enough to state that the closure had any effect on patient’s systolic and diastolic blood pressures, and functional capacity. After running the T-test, results suggest there were no significant changes in individual’s systolic and diastolic blood pressures, nor patient’s functional capacity. The research validates that Cardiac Rehab by way of telephone appointments was beneficial during the covid-19 closure.

Northern Triangle Push Factors: Trump’s Attempted Immigration Deterrence through Humanitarian Aid

Scott, Caitlin—Global Studies, University of Oregon
Faculty Mentor(s): Galen Martin
Session: Pre-Recorded Poster Presentation

In April of 2019, the Trump Administration announced its intentions to freeze US foreign aid to El Salvador, Guatemala, and Honduras in an overall strategy to punish the Central American nations and encourage them to employ their own immigration deterrence methods. However, concerns persisted regarding whether ending funding for humanitarian aid projects would effectively mitigate migration, when oftentimes these programs serve to lessen prominent push factors in the Northern Triangle of Central America and encourage reinvestment in local communities. After a thorough literature review of the related academic field and an examination of the root causes influencing the intense push factors in the NTCA, diverse stories from stakeholders present an overarching view of the impacts of
President Trump's aid policies. Interviews with migrants and aid beneficiaries, excerpts from Central American newspapers, conversations with aid workers, and statements from US politicians point to the negative repercussions of aid reduction. Human perspectives of individuals closest to the situation describe the intensification of push factors without the support of USAID funding. Overall, despite attempts to use deterrence immigration policy to reduce migration, the Trump Administration failed to acknowledge the power of regional push factors, ultimately reinforcing them by reducing the power of USAID projects to locally manage concerns, offering implications for future best practices.

ChangeDwell—Attentional Patterns Within The Change Blindness Phenomenon
Scott, Ethan—Psychology, University of Oregon
Faculty Mentor(s): Dare Baldwin
Session: Pre-Recorded Poster Presentation
People witnessing identical streams of information can experience that information very differently. 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. For example, applications could include refinements to diagnosis in those with attentional impairments, such as attention-deficit hyperactivity disorder, dementia, and severe brain injury.
Split Diminutives: A Cross-linguistic Study of Truncation Patterns in American English
Seretan, Kira—Linguistics, University of Oregon
Faculty Mentor(s): Vsevolod Kapatsinski
Session: The Fate of Humanities: Humanities Undergraduate Research Fellowship
On average, participants rated the speaker with the monolingual accent higher in professionalism and confidence than the speaker with the bilingual accent. However, participants tended to rate the speaker with the bilingual accent higher than the speaker with monolingual accent in knowledgeability and experience when the speakers were presented as nonexperts discussing Mexican history. These results suggest ways that perceptions about accents can affect assumptions made about speakers. Considering that accent perception may influence perceptions of character traits that are prioritized in professional settings, these results highlight the importance of acknowledging and challenging those assumptions in situations where unjust perceptions of a speaker can result in biased and harmful decisions, including in job interviews, classrooms and courtrooms.

Comparing Acute Mountain Sickness Definitions to Examine Differences in Systemic Inflammation
Shah, Karina—Human Physiology, University of Oregon
Faculty Mentor(s): Andrew Lovering, Kaitlyn DiMarco
Session: Pre-Recorded Poster Presentation
Acute mountain sickness (AMS) occurs when individuals rapidly ascend to high altitudes, but its exact cause remains unknown. Additionally, AMS is assessed using a subjective questionnaire so there is no precise, objective method for diagnosing AMS. Hypoxia, or low oxygen, at altitude results in a proinflammatory state and AMS is associated with systemic inflammation as determined by elevated plasma levels of some cytokines. PURPOSE: To determine if the association between AMS and inflammation was altered based on how AMS was defined. METHODS: 17 women and 17 men were exposed to 10 hours of normobaric hypoxia (11.5% O2) simulating 15600 feet. Blood samples taken before and at 10 hours of hypoxia were assayed for 13 inflammatory cytokines. AMS was defined using 5 different definitions. RESULTS: We found that Interleukin (IL) 8 significantly increased in AMS—but not AMS+ participants regardless of AMS definition. Additionally, AMS—but not AMS+ participants
significantly increased IL-33 concentration from baseline to 10 hours of hypoxia only under 3/5 definitions. Furthermore, all subjects significantly increased IL-1β concentration except AMS+ subjects for 3/5 definitions. CONCLUSION: These data suggest that how AMS is defined may influence whether there are differences in circulating inflammatory cytokines between those with and without AMS. Therefore, the relationship between systemic inflammation and AMS may be more complex than previously thought.

Coping Mechanism (2021) for string trio
Sherpa, Jonathan—Music Composition, University of Oregon
Faculty Mentor(s): Robert Kyr
Session: Pre-Recorded Creative Work

My name is Jonathan Sherpa, I am an Undergraduate student majoring in Music Composition here at the University of Oregon. My contribution to the Undergraduate Research Symposium is in the form of a 4-movement string trio I composed during the Winter term entitled, “Coping Mechanism.” My composition seeks to explore and exploit the various difficult emotions I was struggling with and my attempts at dealing with them, hence the title of the piece. Each movement is representative of a different emotion I was dealing with ranging from Longing, to Panic, Anger, and finally Despondency. The piece does this through extreme dissonance, turbulent melodies, and by maintaining a motivic relationship that pervades each movement and is not fully resolved until the last few moments of the fourth movement.

The goal of the piece was to explore the development of dissonant musical ideas that gradually are able to move towards a more consonant role. By doing so, I would hopefully be musically illustrating the emotional journey I had experienced for myself of taking pain and turning it into personal growth. Given the turbulent state of the world, I’ve found the theme presented in my piece of using struggle as a catalyst for personal growth to be of significant relevance to the willpower of those who continue to seek forward motion despite troubling circumstances.
Thinking About My Future While Sitting in Science Class: Future Thinking and Motivation to Learn

Smith, Madeleine—Educational Foundations and Psychology, University of Oregon
Faculty Mentor(s): Jenefer Husman, Matthew C. Graham
Session: Pre-Recorded Poster Presentation

What makes a successful student in a college science class? Do the goals students have and their confidence influence student motivation to be self-regulated learners? Research has demonstrated that when students are focused on learning goals (rather than performance goals), understand how the course is essential in achieving their future goals, or are confident; they are more self-regulated learners. Prior research has focused on which of these factors have the strongest relation to self-regulated learning. However, it may be more accurate to consider how these aspects of motivation (valuing of the course, confidence, and types of goals) work in consort, rather than individually, to influence students' motivation for self-regulated learning. The present study will use a profiling approach to identify and find the relation between patterns in students' motivation and self-regulated learning and performance in a science course. Participants were 388 students enrolled in an introductory science course at a large Northwest state university. Participants completed a self-report questionnaire on their future thinking, goals, confidence, self-regulation, and knowledge-building strategies. Preliminary analysis with bivariate correlations showed a strong to moderate correlation between motivation, self-regulation, and student performance ranging from \( r = .49 \) to \( r = .10, p < .05 \). Cluster analysis will be used to create profiles based on multiple aspects of students' motivation and how different profiles relate to students' self-regulation and performance. Understanding different profiles based on patterns of motivation is essential to constructing targeted interventions to support students' success in science and other STEM fields.

Confessional Poetry, and the Liberation of the Invisibly Ill Poet

Snyder, Emma—Linguistics, University of Oregon
Faculty Mentor(s): Michael Wilson
Session: KIDDs Speak

Where is the mind left when betrayed by the flesh? This project explores the origins of the confessional poetry movement, and how it has served to uplift the voices of chronically and/or invisibly ill poets. My essay will explore theory on defining the confessional poetic, as well as cover
several recurring themes utilized in confessional poetry surrounding illness, including dualism, metaphors of imprisonment or isolation, and the juxtaposition of the beautiful and the grotesque. The body and its “oppression” remains a central theme throughout the paper, as the invisibly ill poet is left to construct a “new reality,” asking themselves what comes next when forced to struggle against their own physical self.

The Body and its Gardens, a Creative Reading
Snyder, Emma—Linguistics, University of Oregon
Faculty Mentor(s): Michael Wilson
Session: KIDDs These Days

My poems “How to Hunt for Wild Garlic,” “New Growth,” and “Waking” are all part of the collection “The Body and its Gardens,” an exploration in the similarities of the physical body and the natural world. The poem “How to Hunt for Wild Garlic” is a story of a poisoning and betrayal by one’s lover, their body then interred to be made anew in the work “New Growth.” Finally the reincarnation occurs in “Waking,” where the narrator is then brought back to relearn to be human. “The Body and its Gardens” is an extended story throughout its works of grotesque rebirth, and the beauty and horror of becoming something less than human. It is a promise that you will return, but you will do so with termites in your ribs and mulch under your skin.

The Analysis of How Drug Trafficking Effects the Function of Economic, Social, Political, and Environmental Conditions within Central America
Spease, Kamryn—Psychology, University of Oregon
Faculty Mentor(s): Matthias Vogel
Session: Pre-Recorded Poster Presentation

The Analysis of How Drug Trafficking Effects the Function of Economic, Social, Political, and Environmental Conditions within Central America. Research shows that drug trafficking is the cause of many detrimental experiences that occur throughout Central American countries. The purpose of this study is to understand the influence drug traffickers have on the economy and its citizens. Based on extensive research we were able to find that areas with high rates of trafficking create an increase in homicidal rates, imprisonment, prostitution, illegal migration, and kidnapping. Drug related crime has also caused a substantial amount of economic loss due to its networking
shipments that bring about environmental issues such as deforestation. Which further degrades the economy with an annual loss of hundreds of millions of dollars in natural resources. Whereas the proceeds from drug networks go towards immoral influence over politicians, giving drug traffickers confidential authority over local government and businesses. The significance of this study is to educate people on the functions of drug trafficking and deeply analyze the effect it has. There is a rooted complexity within drug related crime that influences the increase of other societal misconducts.

Using Fluorescence Assays to Explore Kynurenine Pathway Regulation in Neurospora Crassa

Speed, Haley—Biology, University of Oregon

Faculty Mentor(s): Eric Selker

Session: Pre-Recorded Poster Presentation

In Neurospora crassa (a filamentous fungus), there are several enzymes that cause the breakdown of tryptophan into fluorescent anthranilic acid, many of which have the chromatin markers that our lab studies, specifically methylation of lysine 27 of histone H3. If we give a N. crassa culture tryptophan and it fluoresces, this indicates that the genes are “turned on” normally; if it doesn’t, they could be abnormally “turned off.” Since July of 2020, I have been using this convenient system to gain insights into the mechanism controlling tryptophan degradation, which may illuminate general chromatin control processes. Utilizing the FGSC knockout library, I have screened 13,000 mutants using fluorescence assays, leading me to identify ten that fluoresce atypically. I used 150 μL liquid cultures for my primary screening and 1 mL liquid cultures for my secondary screening of the collection. I have also confirmed the knockouts via PCR and am currently complementing the genes of interest to determine if those genes are causing the phenotype. The next steps of this research is to find out why my mutants are behaving abnormally, and to determine if this is because of abnormalities in their chromatin markers. Studying chromatin markers is essential to understanding the eukaryotic genome at large because of their ubiquity throughout most eukaryotic organisms.
Racial Influence on Trans-femme Murder Convictions

Stone, Jude—Political Science, University of Oregon

Faculty Mentor(s): Alison Gash

Session: The Fate of Humanities: Humanities Undergraduate Research Fellowship

Trans-femme people of Color are currently the demographic most likely to be murdered in the US. Their marginalized identities of race, gender, and Queerness intersect in such a way that many US institutions inflict systems of oppression upon them. The legal system in particular devalues these people’s lives and has a significant impact on their rights because it relies on the precedent of previous rulings to determine future case verdicts and even governmental policy. Accordingly, every case that undermines Trans-femme people’s social worth further cements the precedent of disregarding their cases.

This paper examines how race and Queer identities interact in the court of law. Specifically, it explores how race impacts the degree of conviction and whether hate crime charges are applied to violence against Trans-femme people depending on both the victim’s and perpetrator’s race. BIPOC are more likely to face harsher sentencing than their White counterparts, so I am investigating if society’s contempt for the stereotype of the hyper-masculine, violent BIPOC man supersedes its disgust for Trans people’s defiance of gender roles, particularly when examining how their race shapes the public’s perception of them.

To answer these questions, this project reviews news articles, court transcripts, and carceral databases while engaging with several OutCrit theories.

The social cost of reproduction to female Lemur catta

Stone, Liam—Anthropology, University of Oregon

Co-Author(s): Colin Brand, Alexana Hickmott, Frances White

Faculty Mentor(s): Frances White, Colin Brand

Session: Pre-Recorded Poster Presentation

Though large variations of social dominance systems exist across primate species, ring-tailed lemurs (L. catta) exhibit a strong hierarchy with females ranking higher than males. Studies suggest this is due to the high cost of reproduction in a seasonal resource availability environment. Typically viewed as a species-level adaptation, these same evolutionary principles should hold on the individual level. As such, females with infants should experience higher reproduction-related costs than do
females without infants, and therefore may show different behavioral strategies that reflect this cost differential. Data on affiliative and aggressive social behavior were collected during focal sampling in 1996 from two semi-free ranging L. catta groups at the Duke Lemur Center in Durham, NC. We compared interactions involving females with infants (N=5) to interactions that involve females without infants (N=4). We calculated rates based on the observation time (28.25 hrs). Females were more aggressive with an infant (0.74/hr) compared to those without (0.25/hr). In contrast, females without infants (3.58/hr) were more affiliative than those with infants (1.10/hr). These findings point to different behavioral strategies based on reproductive status in this taxon, depicting that females with infants suffer higher costs and have less ability to invest in sociality. L. catta’s sociality and behavior may explain these patterns, offering insight into how they compare to other primates.

The Molecular Design of a Metal-Oxide Supported Iridium Monolayer for Water Oxidation Catalysis

Stovall, Nathan—Chemistry, University of Oregon
Co-Author(s): Raina Krivina
Faculty Mentor(s): Shannon Boettcher, Raina Krivina
Session: Pre-Recorded Poster Presentation

Anthropogenic climate change has driven interest in the research and development of clean energy alternatives. Great advancements in renewable energy production have been made, but their intermittency requires the development of a carbon-neutral energy storage device. Water electrolysis has been proposed as a solution to this dilemma, via the state-of-the-art proton exchange membrane (PEM) electrolyzer. However, the acidic operating conditions of this device results in slow kinetics of the oxygen evolution reaction (OER). Iridium oxide has shown to be the only catalyst capable of withstanding these harsh conditions, but its low abundance and high costs limits its use. My research focuses on the design and synthesis of iridium based OER catalysts.

Thus far, we have developed a novel synthetic method for precisely binding a cheap commercially available iridium precursor (IrCODCl dimer) to the surfaces of inexpensive acid-stable metal oxide substrates. The mechanism of this assembly was investigated with UV-vis, X-ray photoelectron, and NMR spectroscopies. Furthermore, determination of the mass loadings during electrochemical experiments have been performed via in-situ inductively coupled plasma induced mass spectroscopy. Electrochemical measurements have shown exceptionally high intrinsic activities at significantly reduces mass loadings. The optimization of this technology could allow for industrial-scale implementation of water electrolysis for carbon-neutral energy storage.
Coordinated observations of asteroids by Pine Mountain and Nishi-Harima Astronomical Observatories

Tamai, Nobuyuki—Physics, Department of Human Environmental Science, Kobe University

Faculty Mentor(s): Masayuki Itoh, Iku Karukome

Session: Pre-Recorded Poster Presentation

Coordinated broadband photometric measurements of the asteroid 665 Sabine were obtained in August 2020 from the Nishi-Harima Astronomical Observatory (NHAO) and Pine Mountain Observatory (PMO) using a 0.6 meter telescope (NHAO) and the 0.35m Robbins telescope at PMO. 665 Sabine has a rotational period of 4.294 hours, semi-major axis of 3.14 AU, and diameter of ~51km. In total, these observations produced 180 images from PMO, and 280 images from NHAO. These 460 images of the target were then analyzed to produce a “lightcurve” of the asteroid, where photometric estimates of the asteroid’s brightness over time are plotted in order to extract the rotation period as well as the shape of the target. At most locations, 665 Sabine cannot be tracked for more than two rotations. Continuous observation of rotating asteroids over several rotation cycles is necessary for determination of basic asteroid properties—such as the shape, surface properties, and rotation period. To obtain continuous coverage of an asteroid for more than two rotation cycles, multiple observing sites (separated by ~6 h in longitude) are needed. As a collaboration, NHAO and PMO work together to obtain data on asteroids that span several rotation periods. NHAO is operated by the University of Hyogo and located in Sayo, Japan (lat ~ 35 N, long ~ 134 E). PMO is operated by the University of Oregon and located near Bend, Oregon, (lat ~ 44 N, long ~ 121 W).

Covid-19 and Teletherapy: Environment, Access and Efficacy

Taylor, Alyssa—Sociology, University of Oregon

Faculty Mentor(s): Clare Evans

Session: Policies, Impact, and Response

COVID-19 has had an impact on individual mental health and the structure of how mental health treatment is offered. The objective of this research was to understand the extent that environment played in patient access and experiences with remote therapy models. This research was conducted through a one-time, five to ten-minute survey that contained open-ended as well as multiple choice questions. Respondents had attended therapy or wished to attend in the past year. About sixty-five percent were female identifying, and a majority had been seeing a therapist at some point prior to
COVID. Most respondents had insurance that covered behavioral health and a majority of that came from a Medicare expansion program or was through an employer. The biggest barrier for people still looking for therapy in 2020/21 was a lack of therapists accepting new patients and provider bios that were not comprehensive or lacking in personality. All respondents from both groups were open about therapy with at least someone in their lives. In terms of the environmental impacts of teletherapy, a majority of respondents attended therapy in their bedrooms to avoid other members of their households, some took walks, some found ways to meet with their therapist outdoors. The major concerns were privacy, technological issues and inability to read body language. Despite a majority of respondents preferring in-person treatment, the overall consensus was that teletherapy should remain an option post-pandemic.

**Ecological Design: Designing a Pollinator-Supportive Native Garden on Campus**

Taylor, Caroline—Environmental Studies, University of Oregon  
Faculty Mentor(s): Peg Boulay  
Session: Academic Residential Communities: Emerging Researchers

The recent decline of pollinator populations, including bees and other species, has been largely due to parasites, diseases, increased pesticide use, and habitat loss. Pollinator pocket gardens are urban habitats which support pollinators by offering them space to build hives, collect nectar and pollen, wash off in water, and rest as they move between other pollinator habitats. In partnership with UO Campus Planning & Facilities Management staff, our team compiled and implemented a comprehensive plan for a native pollinator pocket garden near the Urban Farm. This garden will primarily support pollinators and secondarily educate and serve as a pastime space for University of Oregon students, staff, and campus visitors. First, we chose an unused garden plot by considering two plots’ attributes as prospective spaces serving both humans and pollinators. Next, we used our plot’s characteristics among other criteria to select appropriate plants for our garden. We compiled guidelines for our garden’s implementation and maintenance, which Environmental Leaders ARC students implemented during spring term by planting native plants in our plot. The garden we designed will support pollinators’ critical ecological role and serve as an entry point for pollinator conservation conversations at the University of Oregon among university students, faculty, and staff, as well as the larger Eugene community.
Hendricks Forest Management Plan 2021
Taylor, Jenika—Environmental Studies, University of Oregon
Co-Author(s): Jessi Henderson
Faculty Mentor(s): Alex Renirie, Peg Boulay
Session: Pre-Recorded Poster Presentation

As climate change increases the frequency and intensity of natural disturbances, it is important that local forest management plans reflect the changing needs to meet public safety and ecological preservation. The Hendricks Forest Team of the Environmental Leadership Program is currently using forest monitoring methods to gather data on the health and abundance of Douglas Fir trees to help inform a sustainable management plan for the City of Eugene Parks and Open Space. Tree monitoring methods and protocols utilized during this project were adopted from the Forest Inventory and Analysis (FIA) Program of the US Forest Service at the direction of Eugene Parks and Open Spaces. This includes: diameter, perimeter, and crown measurements. Research and data collection is still currently underway at the time of the writing of this abstract. The Hendricks Forest team contends that climate change will play a significant role in the future of Hendricks Park, and considerations of species succession and maintaining biodiversity will be crucial to the new management plan. Data collected will be used to inform the Forest Management Plan and the final conclusions will not be determined until the plan is finalized. The research conducted by the Hendricks Forest team provides necessary data for the City of Eugene Parks and Open Space to utilize in updating their Forest Management Plan in order to build resiliency and ensure that the park may be utilized by future generations.

Promoting Pollinators at Whitewater Ranch
Thompson, Jennifer—Environmental Studies, University of Oregon
Co-Author(s): Yalin Li, Will Baldwin
Faculty Mentor(s): Peg Boulay, Dara Craig
Session: Pre-Recorded Poster Presentation

Promoting Pollinators Team is a subdivision of the Environmental Leadership Program at the University of Oregon. This year, we are working on a continuation of the long-term “Riparian Restoration” project with a greater emphasis on increasing native pollinators while reducing commercial hive dependency. Our mission is to improve pollinator count and restore pollinator habitat
and riparian ecosystem health along Goose Creek at Whitewater Ranch, home to the largest organic blueberry farm in the Mckenzie River Valley. For 2021, we will continue tracking local pollinators, replanting native plants, controlling invasive plant species, monitoring water temperatures, and surveying the general health and quality of wildlife species at Goose Creek. These aspects will serve to accurately compare the project site to survey reports of 2019 and identify changes in trends seen in previous years. Due to the Holiday Farm fires in September of 2020, the ecology of Whitewater Ranch and surrounding lands have drastically changed. It is difficult to predict the number of native pollinators active and the conditions of restored riparian habitat due to these unprecedented circumstances. The team anticipates changing trends in pollinator counts and environmental quality which could influence the application of further restoration projects in the future. Whitewater Ranch will benefit from this project with decreased reliance on commercial pollinators and increased local plant and crop health.

Impacts of Economic Conditions on Hate Crimes in The United States

Tonguino, Marie-Rose—Economics, University of Oregon

Faculty Mentor(s): Jonathan Davis

Session: Understanding US Justice

Research shows that in various regions of the world, there is a strong association between economic conditions and civil conflicts. This paper seeks to investigate the role of economic conditions on hate crime trends in the United States, using data analysis as the primary tool of investigation. The FBI defines a hate crime as “a criminal offense against a person or property motivated in whole or in part by an offender’s bias against race, religion, disability, sexual orientation, ethnicity, gender, or gender identity”. Although hate itself is not considered a crime, a traditional offense like murder, arson, or vandalism, with an added element of bias, is a crime.

The main variable evaluated in this analysis is the unemployment rate in each state over time, which I use as a proxy for economic conditions. I then evaluate the effect this has on the annual change in the rate of FBI reported hate crimes per state. I control for variables such as population demographics (racial diversity) over time, economic contractions (recessions), and state median income. I also observe the effects of the 2009 Matthew Shepard and James Byrd, Jr. Hate Crimes prevention Act on the number of hate crimes reported.
Effect of hesitation sound phonetic quality on perception of language fluency and accent

Trebon, Tillena—Linguistics, University of Oregon

Faculty Mentor(s): Melissa Baese-Berk

Session: Pre-Recorded Poster Presentation

Nonnative speech has different pausing patterns compared to native speech. There are two types of pauses: filled and unfilled. Unfilled pauses are silent. Speakers make sounds during filled pauses. Different languages use different sounds for filled pauses; this is described as phonetic quality. English speakers use “uh” and Spanish speakers use “eh” to hesitate. When the phonetic quality of a hesitation sound (henceforth “HS”) is consistent with the HS used by native speakers, the HS is native. HSs with phonetic quality inconsistent with a native speaker HS are non-native. Studies show that proficiency and speech community influence whether L2 speakers produce native or nonnative HSs. However, no study has investigated the perceptual consequences of using nonnative versus native HSs. This study investigates the effect of HS phonetic quality on perception of language fluency and accentedness. In Experiment 1, participants rate sentences for fluency and accent. In Experiment 2, participants listen to two sentences with different HSs and choose which sentence sounds more accented and more fluent. Experiment 1 results show that HS phonetic quality did not impact listener judgements about accentedness or fluency. However, in Experiment 2, listeners rated nonnative HSs less fluent and more accented. This project has important implications for how learners treat pausing when practicing their L2 and for understanding how listeners process pauses when listening to nonnative speech.

The effect of production when learning to perceive and produce a novel sound contrast

Trebon, Tillena—Linguistics and Spanish, University of Oregon

Co-Author(s): Orion Wesson, Maggie Wallace, Zoe Haupt

Faculty Mentor(s): Melissa Baese-Berk, Zachary Jaggers

Session: Pre-Recorded Poster Presentation

Previous research demonstrates that during simultaneous training of novel sound contrasts in both perception and production can disrupt rather than enhance perceptual learning. This indicates that although perception and production are assumed to be closely connected, these modalities may have
a competitive relationship. In spite of this perceptual disruption, subjects trained in perception and production show gains in producing the distinction they were trained on, compared to perception-only training.

The current study examines how subjects learn to produce a new sound contrast after training in only perception or in perception and production. 30 native Spanish speakers were trained on an unfamiliar Basque sound contrast. The analysis of the post-test productions explored many phonetic dimensions of these tokens to determine how participants distinguished the sound categories. This analysis was compared across the two conditions to examine the relationship between production learning and perceptual learning.

The results are similar to previous studies in indicating a competitive relationship between production and perception. Additionally, the results indicate a generalizable improvement in the produced tokens for the production, but not a significant increase in the trained sound contrast, suggesting a more complex relationship between perception and production. These findings contribute to a better understanding of effective language learning practices.

**LGBTQ Rights: The Push and Pull for Progress in China**

Trefny, Kyle—Economics, University of Oregon

Faculty Mentor(s): Matthias Vogel

Session: Pre-Recorded Poster Presentation

The People’s Republic of China is home to one of the largest LGBTQ communities on the planet. However, according to the UN, an overwhelming majority of queer Chinese individuals hide their sexuality in their daily lives. Why? In this study, we bear the findings of personal interviews with some of China’s most prominent LGBTQ voices. We also inspect literature on history, law, and censorship, contextualizing the PRC with systems around the world. We encounter a national history free from the Abrahamic religious prejudice that drove homophobia in regions like the United States. Yet more recently, western powers have influenced the oppression and stigmatization of Chinese LGBTQ communities. Our research finds that the PRC’s barriers around LGBTQ rights are exacerbated by a centralized political structure that impedes social momentum. In today’s China, gay marriage is not legal, same-sex couples are unable to adopt, transgender individuals cannot change their gender marker at their personal discretion, and discrimination on the basis of sexuality is still allowed. Despite pervasive censorship, advocacy groups and internet communities are working to improve queer lives and the country as a whole. While marriage equality and additional equal rights are
advancing under various Asian governments, the future of such change in China remains unclear. This ambiguity makes the work of LGBTQ advocates, like those we spoke to, vital in forging the path ahead.

**Physical Education & Recreation student incentive program to increase well-being**

Tritto, Isabella—Music, University of Oregon  
Faculty Mentor(s): Chantelle Russell  
Session: Academic Residential Communities: Emerging Researchers

The incorporation of an incentive program, “Breadcrumbs—Feed Your Flight”, is to be implemented by the Department of Physical Education and Recreation to improve the well-being of incoming freshmen. We are exploring the question of what can the University of Oregon's recreation center do to improve the well-being of incoming freshmen who indicate low well-being. With the implementation of an incentive system, we can encourage students to build healthy life practices and improve their overall well-being. We specifically want to increase the well-being of students who scored low on the Student Wellbeing and Success Initiative surveys. This incentive program will encourage students to utilize the student recreation center and work on the physical aspect of well-being. After the introduction to the department of physical education and recreation, we could analyze the secondary Student Wellbeing and Success Initiative surveys to interpret the results of an incentive program. The primary implication of our work shows that students are establishing healthy habits and show an improvement in overall well-being. Based on statistical data, the University of Oregon has discovered that students who take PE and Recreation courses are more likely to have a more enjoyable college experience than students who do not. Students will be more likely to be involved if they know there is an opportunity for incentives, leading to more motivation.

**Immigrants and Foreigners in Japan: Their Role in Society and How They are Perceived**

Trostel-Shaw, Claire—Communication Disorders and Sciences, University of Oregon  
Faculty Mentor(s): Matthias Vogel  
Session: Pre-Recorded Poster Presentation

Our project is called The Role of Immigrants and Foreigners in Japanese Society and How they are Perceived. We research attitudes towards immigration in Japan and explore why people have a negative view of immigrants even though immigrants coming to Japan would benefit the country.
We explore the many factors that surround immigration to Japan, such as Japan’s low birth rate, aging population, competitive workforce, and history of strict immigration policy. We also explore the challenges of foreigners assimilating into Japanese society, from its complex language and writing system to its many complicated societal rules, as well as racism experienced by foreigners. We use primary and secondary sources including statistical data to support our research on how negative attitudes towards foreigners and immigrants in Japan affect people living there who are not Japanese. The homogenous nature of Japanese society and the importance placed on collectivist culture has resulted in an emphasis on people living in Japan feeling like they have to conform to cultural standards. This can make living in Japan as a non-Japanese person difficult, because immigrants often feel like perpetual foreigners. We conclude that immigrants have a tremendously important role in Japanese society and that Japan must consider easing immigration restrictions to remain competitive in an ever globalizing economy.

Japanese Youth and Irregular Employment During COVID-19: A Quantitative and Qualitative Analysis

Uptegrove, Manami—Global Studies, University of Oregon

Faculty Mentor(s): Alisa Freedman

Session: Pre-Recorded Poster Presentation

Irregular employment, which can be identified as being employed by means of part-time and contract work among many other alternatives in contrast to the expected regular (full-time and long-term) employment, has made up a significant part of Japan’s work force since the 1990s. By examining quantitative and qualitative data showcasing historic and current mistreatment and devaluation of irregular workers and displaying them as inferior to regular workers, one can observe the lack of urgency by both business leaders and policy makers towards assisting irregular workers in a situation like COVID-19 that has negative impacts on all. Through the visibility of disparities between these types of workers, this thesis argues how the societal and political view of irregular workers overall and especially of young irregular workers and the resulting decisions made in combatting labor related issues, is harmful to the wellbeing of individuals during COVID-19 and is detrimental to making major long-term changes to Japan’s work style and labor force. This is especially important in a time of precarity and uncertainty towards the current labor force crisis related to an increasingly aging and diminishing population, that seems will last into the foreseeable future, as well as due to COVID-19 remaining as an ongoing crisis both in Japan and globally.
The Relationship Between Vehicle Emissions and Asthma

Valentine, Jackson—Exploring, Central Oregon Community College

Faculty Mentor(s): Sarah Baron

Session: Data Stories

The project’s purpose was to find and draw a connection between airborne particle pollution and asthma rates in the United States. Data was gathered primarily from online sources such as articles published by the CDC and EPA. This data was compared with overall asthma data to infer a cumulative influence on asthma rates. Data specific to asthma and vehicular particulates was limited, but a plethora of data highlighted the harmful effects of particulate matter from similar sources. There was an increase in asthma rates for people located near roadways and big cities where elevated levels of vehicular pollutants were produced. The research results concluded that vehicle emissions directly correlate to overall asthma rates across the United States and that direct exposure to particulates should be minimized whenever possible. Long-term solutions could include the mainstream adoption of electric vehicles as an alternative to combustion engines. Furthermore, increasing distances to roadways whenever possible.

Here, There, and Back Again: the Greater Romantic Lyric in Modern Irish Migration Poetics

Vance, Mia—English, University of Oregon

Faculty Mentor(s): Michael Wilson

Session: KIDDs Speak

Poetics of place have had a longstanding home within traditional Irish poetry; Patrick Kavanagh, William Butler Yeats, and Seamus Heaney are just a few Irish poets to have pulled inspiration from their geographical, historical, linguistic, political, and personal spaces in their native Ireland. Arguably of equal prevalence are the migrations, both historical and modern, of Irish citizens to—and in recent decades, increasingly back from—various countries abroad (notably the United Kingdom and the United States). As an American poet of Irish-immigrant lineage, considering my own fascination with place-based poetics and the possibility of my own migration experience, have sought out a poetic form existing within the extant literary establishment whose structure might support the complexity of Irish [im/e]migration writing. Through a series of close-readings of a selection of works by the late great Irish and international poet Eavan Boland within the context of the Greater
Romantic Lyric form, this presentation explores the relationship between the spatial, temporal, and philosophical movements of modern Irish [im/e]migration and the locality-based GRL formal structure—from here, to there, and back again.

**We Make Magnificence: Original Poems for Page and Stage**

Vance, Mia—English, University of Oregon  
Faculty Mentor(s): Michael Wilson  
Session: KIDDs These Days  

Much of my poetry is inspired by place. When the flow of ideas slows to a drip, typically all it takes is a trip, a drive, or a walk in the woods to refill the inspiration reserves and get me back to the writing desk. This past year, however, has drastically limited the scope of my movement—to the grocery store, around the neighborhood, and the rare treat of a drive around town. In other words, the poems that have developed over the last thirteen months—especially those developed within the Kidd Creative Writing Workshop Series—have shifted from a rhetoric grounded in place to one of shelter-in-place. Throughout this extended abeyance, my poetic attention has shifted to more complicated meditations on home and heritage, distance and family, longing and loss. This selection of shelter-in-place poems is presented in the spirit of sharing those works which have rung the loudest bells of truth in me, with the hope that they may ring a bell in others.

**Countries Beyond Bars: A Cross-National Comparison of Methods of Incarceration**

Vann, Madi—Sociology, University of Oregon  
Faculty Mentor(s): Peg Bouley  
Session: Policies, Impact, and Response  

The culture of incarceration in the United States has long been rooted in punitive practices intended to punish incarcerated persons rather than to rehabilitate these populations in preparation for re-entry into society upon release. Alongside the high recidivism rates among prison populations, the United States is long overdue for an overhaul in prison practices, specifically pertaining to punitive practices of incarceration. Using the incarceration model of the Netherlands as an exploratory country of comparison, this research delves into varying methods of incarceration and criminal sanctions, primarily centered on rehabilitative measures of incarceration. While rehabilitative methods of incarceration assist in some aspects of post-release aid, it is through areas of
community support outside of the criminal justice system that occur prior to incarceration that this research shows an effective reduction of recidivism and crime rates. By looking at alternate examples of incarceration in relation to published rates of recidivism in each country, this research works to call into question the efficacy of incarceration measures as a whole in easing prisoner reentry into society.

Isotopic Fractionations Produced During Direct Air Capture of Carbon Dioxide

Vinis, Edward—Earth Sciences, University of Oregon

Faculty Mentor(s): Ellen Olsen, James Watkins

Session: Pre-Recorded Poster Presentation

The stable isotope composition of carbonate minerals provides a record of the conditions under which those minerals formed. Carbonate travertine constructions precipitated from high-pH (>11) springs exhibit large and peculiar isotopic variations that are not fully understood, limiting the use of travertine as a paleoenvironmental archive. We carry out laboratory experiments that simulate carbonate travertine formation under controlled conditions (temperature, pH, solution composition, and hydrodynamics) to determine what factors govern their isotopic composition. In our experiments, a CaCl2-K2O solution with no dissolved carbon is brought to high pH by addition of NaOH. The solution is exposed to a N2-CO2 atmosphere whereupon CO2 diffuses into solution and undergoes a series of reactions that lead to the formation of a CaCO3 crust. Data on the mineralogy, morphology, and stable isotope composition of the CaCO3 will be presented. Our experiments also present an opportunity to quantify the rates and limitations of CO2 removal from air by travertine formation.

Influence of Prenatal Nutrition on Birth Outcomes and Negative Affectivity in Infants

Volk, Hailey—Human Physiology, University of Oregon

Faculty Mentor(s): Jennifer Ablow, Elinor Sullivan

Session: Pre-Recorded Poster Presentation

Excessive inflammation during pregnancy can exert powerful effects on the developing fetus by altering embryonic, fetal, and placental growth and development, predisposing the fetus to adverse birth outcomes and long-term health complications. An anti-inflammatory diet and proper prenatal supplementation could be a promising avenue to combat the inflammatory state pregnancy induces,
particularly in obese women. However, there is a lack of data linking maternal environmental mediators of inflammation, such as diet, to birth outcomes and behavior in offspring. We examined the association among prenatal nutrition during the 22nd and 37th week of gestation and birth outcomes, as well as negative affect in infants 1 month after birth, in a cohort of 55 mother-child pairs. We found pro-inflammatory diets in the 3rd trimester and throughout the duration of participants pregnancy, as measured by the Dietary Inflammatory Index (DII), were associated with higher APGAR scores at 5-minutes. Maternal under-supplementation of DHA and EPA and increased iodine supplementation during the 2nd trimester was associated with higher APGAR scores at 5 minutes, while increased iodine supplementation in the 3rd trimester was associated with lower APGAR scores at 5 minutes. Further, increased folic acid supplementation in the 3rd trimester was associated with higher levels of infant negative affectivity 1-month postpartum.

Racism as a Public Health Crisis

Vuong, Jennifer—Family and Human Services, University of Oregon

Faculty Mentor(s): Kristin Yarris

Session: Health Considerations

Health inequity, caused by systematic disparities between communities, results in poor health outcomes and decreased quality of life among certain groups of people within a population. It is accredited to social determinants of health, life stressors, or other social factors present in one's environment such as transportation, housing, etc. In the US, BIPOC individuals report higher levels of negative experiences with health outcomes compared to other social groups. Contributing to these disparities in Oregon are the state’s historically deep-rooted racism and structural inequalities. Our project investigates racial and ethnic health disparities in Oregon, including those that have impacted BIPOC communities during the Coronavirus pandemic. Using available secondary data sources (e.g., at Oregon Health Authority), and focusing on population-level health indictors (e.g., chronic disease morbidity, self-perceived health ratings, and COVID health outcomes), we document these racial and ethnic disparities in health. Additionally, we use qualitative data from primary data sources (interviews and questionnaires), with Lane County residents to further examine the impact of racial discrimination on lived experiences of health. Our study highlights how experiences with racism put the BIPOC community at a health disadvantage. We aim to publicize these disparities through shared infographics in hopes of alleviating this burden for BIPOC individuals by sharing ideas for public action.
Thinking About My Future While Sitting in Science Class: Future Thinking and Motivation to Learn
Vuong, Jennifer—Family and Human Services, University of Oregon
Faculty Mentor(s): Jenefer Husman, Matthew C. Graham
Session: Pre-Recorded Poster Presentation
What makes a successful student in a college science class? Do the goals students' have and their confidence influence student motivation to be self-regulated learners? Research has demonstrated that when students are focused on learning goals (rather than performance goals), understand how the course is essential in achieving their future goals, or are confident; they are more self-regulated learners. Prior research has focused on which of these factors have the strongest relation to self-regulated learning. However, it may be more accurate to consider how these aspects of motivation (valuing of the course, confidence, and types of goals) work in consort, rather than individually, to influence students' motivation for self-regulated learning. The present study will use a profiling approach to identify and find the relation between patterns in students' motivation and self-regulated learning and performance in a science course. Participants were 388 students enrolled in an introductory science course at a large Northwest state university. Participants completed a self-report questionnaire on their future thinking, goals, confidence, self-regulation, and knowledge-building strategies. Preliminary analysis with bivariate correlations showed a strong to moderate correlation between motivation, self-regulation, and student performance ranging from $r = .49$ to $r = .10$, $p < .05$. Cluster analysis will be used to create profiles based on multiple aspects of students' motivation and how different profiles relate to students' self-regulation and performance. Understanding different profiles based on patterns of motivation is essential to constructing targeted interventions to support students' success in science and other STEM fields.

Women in Film Noir: A Reflection of Postwar Society’s Evolving Gender Roles
Waldron, Erica—Psychology, University of Oregon
Faculty Mentor(s): Ulrick Casimir
Session: Pre-Recorded Poster Presentation
During WWII, American society experienced a momentous shift in gender roles as women stepped out of the domestic sphere and transitioned into the wartime economy. Following the war’s resolution, the government andsects of society alike pushed for a return to conventional gendered spaces.
Within this period of widespread societal contention and disillusionment, the dark and fatalistic genre of film noir grew in popularity. My research analyzes noir films using cinema and cultural studies lenses to explore how postwar society viewed ideal gender roles and the evolving place of women. Close examinations of *Gun Crazy*, *Out of the Past*, and *The Reckless Moment* reveal that female characters’ interactions with narratives of crime, love and family reflect contemporaneous societal concerns about progressive gender roles. The tradition defying femme fatale mirrors postwar women engaging in the workforce. The manner in which they are punished in noir is reminiscent of societal backlash against the shift in gender roles. In contrast, femme attrapeés are engrossed in their familial duties, therefore reflecting the reversion to tradition desired by society. Even though film noir allows femme attrapeés to survive the films’ finales, the genre offers a denigrated depiction of this idealized lifestyle. Noir was originally popular in the mid 1900s, but its ability to capture and reflect on societal occurrences through the art of film remains critical today as society continues to evolve.

**Correlations Between Neighboring Minima in Jamming**

*Wales, Nicole—Physics, University of Oregon*

*Faculty Mentor(s): Eric Corwin*

*Session: Time Space Continuum*

By using random perturbations, the uniform exploration of the jamming energy landscape of simulated, athermal glass particle systems in 3-dimensions can be used to determine the possible energy minima. In the limit of infinite dimensions, mean-field theory predicts extended configurational changes are responsible for differences between such nearby minima. In this investigation, we sought to determine if this prediction holds true in 3-dimensions or if differences between minima in low dimensions are controlled by localized movements, in which only a fraction of the system particles move between associated configurations of neighboring minima. To determine whether the minima pairs are correlated via global or local deformations, the inverse participation ratios calculated between all neighboring minima of a given landscape were compared across thousands of systems of varying particle size and pressure. Preliminary results suggest nearby minima are correlated by global deformations in the 3-dimensional case. If confirmed, such results would point to the universality of the Gardner phase amongst amorphous materials, which could lead to the development of new, stronger materials.
A Descriptive Analysis of the Impact of COVID-19 on Student Performance at the University of Oregon

Walker, Natalie—Economics, University of Oregon

Faculty Mentor(s): William Harbaugh

Session: Pre-Recorded Poster Presentation

The COVID-19 pandemic has caused immense loss and disturbance in all aspects of society. College students had to rapidly adapt to an online learning environment while dealing with personal disruptions caused by the pandemic in order to maintain their college and future career path. We hypothesize that grades have increased—despite previous literature finding decreased student outcomes in online courses—due to universities implementing more lenient grading policies. In this paper, we descriptively analyze administrative data from the University of Oregon to investigate the impact of COVID-19 on student performance, retention, and graduation in Spring and Fall terms of 2020. Additionally, we examine variations of these effects across course and instructor characteristics. Preliminary comparison of average grades in pre-COVID and post-COVID terms show an increase of 0.278 GPA points on a 4-point scale. Our purpose is to describe newly emerging trends in higher education caused by the pandemic and offer insight into the effect of administrative policy on student outcomes at the University of Oregon.

The effect of production when learning to perceive and produce a novel sound contrast

Wallace, Maggie—Linguistics and Japanese, University of Oregon

Faculty Mentor(s): Melissa Baese-Berk, Zachary Jaggers

Session: Pre-Recorded Poster Presentation

Previous research demonstrates that during simultaneous training of novel sound contrasts in both perception and production can disrupt rather than enhance perceptual learning. This indicates that although perception and production are assumed to be closely connected, these modalities may have a competitive relationship. In spite of this perceptual disruption, subjects trained in perception and production show gains in producing the distinction they were trained on, compared to perception-only training.

The current study examines how subjects learn to produce a new sound contrast after training in only perception or in perception and production. 30 native Spanish speakers were trained on an
unfamiliar Basque sound contrast. The analysis of the post-test productions explored many phonetic dimensions of these tokens to determine how participants distinguished the sound categories. This analysis was compared across the two conditions to examine the relationship between production learning and perceptual learning.

The results are similar to previous studies in indicating a competitive relationship between production and perception. Additionally, the results indicate a generalizable improvement in the produced tokens for the production, but not a significant increase in the trained sound contrast, suggesting a more complex relationship between perception and production. These findings contribute to a better understanding of effective language learning practices.

Section 1557: Cultural Implications of the ACA for Transgender Persons

Ward, Maya—Political Science, University of Oregon
Faculty Mentor(s): Krystale Littlejohn
Session: The Fate of Humanities: Humanities Undergraduate Research Fellowship

This research looks primarily at a comparison of Section 1557 of the ACA under the Obama and Trump administrations to see how language use affects outcomes of healthcare for transgender persons. Using a discourse analysis and the Dedoose software I examine language frequency and use of ten key words in Section 1557 including its comment and response under the Obama and Trump Administrations, and then found the most holistically representative examples of each word to specifically analyze using a discourse analysis approach. While the Trump Administrations uses blatantly hateful language, the Obama administration by not laying out clear frameworks for protection or accountability leaves room for discriminatory practices in the infrastructure. To provide quality access to healthcare for transgender persons strict language around discrimination, patient protection, insurance costs, and proper identification need to be enforced. Healthcare for transgender people is abysmal, and policy must be carefully analyzed in the future to ensure a progression towards quality care that all persons deserve access to, with a specific focus on the promotion and inclusion of transgender voice in the policy making process.
Associations in Openness & Adoptee Life Satisfaction: Comparing Transracial and Same Race Adoption

Warth, Whitney—Human Physiology, University of Oregon

Faculty Mentor(s): Leslie Leve, Camille Cioffi

Session: Pre-Recorded Poster Presentation

While it is commonly presumed that adoption results in the formation of a loving family, it can also come with inherent losses to both the families and adoptees involved. In addition to a potential lack of knowledge about an adoptee’s origins, the pairing of children and parents of different races, through transracial adoption, may add an additional layer of complexity. Structural openness, or the communication between an adoptee and their birth parents, may be an avenue for adoptees to bridge gaps in their knowledge and forage connections with their past. The present research investigates the associations between the level of openness and adoptee life satisfaction for both transracial and same race families.

Surveys from adolescent adoptees in the Early Growth and Development Study found that transracial and same race adoptees did not differ significantly in their level of openness, satisfaction with their adoption’s openness, life satisfaction, or the strength of their family relationships. Despite this, it appears that in transracial adoptions, more openness may be associated with higher life satisfaction and higher satisfaction with their adoption’s openness, in comparison to same race adoptees. The present study aims to develop a deeper understanding of the effects of structural openness, while providing insight on ways to support adoptees and their families in coping with adoption related losses.

Untitled 2020

Weedman, Marley—Art, Central Oregon Community College

Faculty Mentor(s): Andria Woodell

Session: Pre-Recorded Creative Work

Untitled (2020)

The artistic process, much like science, offers the inquisitive a space to make sense of the world. The artist forms a hypothesis, or creates a plan of exploration and collects data which is then put together and interpreted by themselves and the viewer. A true artist acknowledges that a single work may never be complete, that offering it up to the audience is just the beginning of a larger process of
more exploration and interpreting by others.

This body of work comes from a roll of film shot in the spring of 2020. Before developing, my assumption was that the images would reflect my state of mind at the time; I expected to receive images (data) mostly of my home and the piles of “stuff” I had been manically rearranging to cope with the pandemic. After sending the data to be processed by Pro Photo Lab in Portland, I received a body of work so surprising and intimate that demonstrate endless opportunity for study. Some images are blurry and hard to make out, almost unusable. Others reflect social change, both in the larger community and in familial and friend relations.

By sharing this collection of photos, I extend to you the viewer an opportunity to make inquiries, explore variables within each image and come to conclusions based on your interpretations of the data. I share with you life work, images from a most fragile time and ask that you approach each with curiosity, inviting conversation around process and story.

Characterizing Cortical Visual Responses Near the Perceptual Threshold

Weibezahn, Annie—Biology, University of Oregon

Co-Author(s): Kristen Chauvin, Cristopher Niell

Faculty Mentor(s): Kristen Chauvin, Cristopher Niell

Session: Pre-Recorded Poster Presentation

At any given moment, our brain is processing a large amount of sensory information, yet we are only consciously aware of a small portion of it. Information that we perceive must reach a perceptual threshold, which is defined as the point at which a subject can consciously recognize a presented stimulus 50% of the time. However, perceptual thresholds are not static—they vary from day to day and over the course of experimental tasks. Previous research at the single-cell level has suggested that our sensory perception strongly depends on the brain's internal dynamics, often referred to as behavioral state, which changes based on factors like locomotion, arousal, and attention. Yet, whether behavioral states can account for fluctuations within perceptual thresholds is not known.

The goal of my project was to characterize the dynamic range of population level neural responses to visual stimuli that varied in contrast and duration. Using wide field calcium imaging of transgenic mice, we identified maximum and minimum neural responses, quantified the population-level neural threshold, compared these values across cortical visual areas, and identified stimulus parameter values that likely lie near the perceptual threshold. In future work, pupil diameter, running speed, and task engagement will be tracked alongside neural activity in response to the near-threshold stimulus.
parameters I identified to further our understanding of how behavioral state influences conscious awareness.

**Duck Buddy Program App to be Proposed to Physical Education and Recreation**

Wenck, Emma—Biology, University of Oregon

Faculty Mentor(s): Chantelle Russell

Session: Academic Residential Communities: Emerging Researchers

For this project, we designed an app idea to propose to the Department of Physical Education and Recreation, for people to find workout buddies. Incoming students at the University of Oregon who participated in the Student Wellbeing and Success Initiative survey, conducted by the Office of Student Life Assessment and Research, can be identified as having low wellbeing indicators. The creation of the Duck Buddy app is to encourage first year students with low wellbeing indicators to use the Student Recreation Center more. We developed an app concept for students to join and find workout buddies. Students can create a profile to make sure that they are paired with someone who also has similar workout goals and is also at the same athletic ability. This app also includes tutorials on how to use the equipment in the REC. This is a proposal for an app that we would present to the Department of Physical Education and Recreation (PE & Rec). If this app were created and implemented, future research could explore its effectiveness and determine if it positively impacted students with low wellbeing indicators to take advantage of the programs and resources in the PE & REC. We believe that this app will be beneficial to students because going to the gym without prior experience or a friend can be intimidating. This app would help inform students on the resources and opportunities available at the PE & REC and help the PE & REC connect with students.

**Session: Pre-Recorded Poster Presentation**

Wesson, Orion—Linguistics, University of Oregon

Co-Author(s): Melissa Baese-Berk, Zachary Jaggers

Faculty Mentor(s): Melissa Baese-Berk, Zachary Jaggers

The effect of production when learning to perceive and produce a novel sound contrast

Previous research demonstrates that during simultaneous training of novel sound contrasts in both perception and production can disrupt rather than enhance perceptual learning. This indicates that although perception and production are assumed to be closely connected, these modalities may have
a competitive relationship. In spite of this perceptual disruption, subjects trained in perception and production show gains in producing the distinction they were trained on, compared to perception-only training.

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Race-Related Discrimination is Linked to Body Image Concerns in Asian/Asian American Men

Wilhelm, Jessica—Human Physiology, University of Oregon

Faculty Mentor(s): Claire Guidinger, Nichole Kelly

Session: Pre-Recorded Poster Presentation

Asian/Asian American men report higher levels of body image concerns relative to their ethnic peers. One potential reason may be due to experiences with racism, which are associated with disordered eating symptoms. No studies to date have investigated if experiences with racism are associated with body dissatisfaction in this population. We hypothesized that experiences with racism would be positively associated with Asian/Asian American men’s body image concerns, and that ethnic identity commitment and exploration would buffer these associations. Participants (266 Asian/Asian American men; Mage=24.4±3.6y) completed an online survey that measured demographics; experiences with racism and microaggressions; ethnic identity commitment and exploration; and muscularity and body fat concerns. After adjusting for body mass index, income, education, and presence of a psychiatric diagnosis, linear regression models indicated that both experiences with racism and microaggressions were significantly and positively associated with concerns with muscularity and body fat, B’s = 1.32-1.19, p’s<.05. Ethnic identity commitment buffered the link.
between experiences with microaggressions and concerns with muscularity ($B = -1.22, p < .05$). Our data suggest that experiences with racism are negatively associated with body image in Asian/Asian American men, and that a greater ethnic identity commitment may serve as a protective factor. Prospective data are needed to clarify these associations.

**Women’s Migration from Mexico Due to Gender Inequality: Psychological Effects of the Language Gap**

**Williams, Julia—Psychology, University of Oregon**

**Faculty Mentor(s): Matthias Vogel**

**Session: Pre-Recorded Poster Presentation**

According to past research, the migration process has shown to be taxing on individuals. More specifically, the language gap can create additional psychological stresses and keep women in Mexico from seeking asylum in the US. Women are fleeing Mexico in order to liberate themselves from the oppressive systems due to patriarchy in their home country. This research will explore how differences in language regarding the immigration process can have an influence on the psychological health of women seeking asylum. To answer this question, previous research on the topic of Mexico/US Migration will be used and examined through psychological and linguistic lenses—the authors’ area of focus. This extensive investigation shows that women face psychological tolls from the language differences when seeking asylum—which in turn creates immense difficulty in this search for a better, safer life. This issue involves Americans because we need to be aware of the vast injustices faced daily by Mexican women and be willing to provide resources to ensure their health and well-being. This is our responsibility because women’s rights are human rights—and we must ensure this is sustained in our sister country, Mexico. By improving the availability of information regarding immigration as well as simply living in the US afterward, we can improve their well-being and eliminate the additional stressors keeping women from immigrating and finding a better and safer life in the US.
The Bicultural & Poetic Cinematic Voices of the 60’s in the New Hollywood’s Golden Age of the 70s

Wilson, Katherine—English, University of Oregon

Co-Author(s): Stephen Rust

Faculty Mentor(s): Stephen Rust, Peter Alilunas

Session: Pre-Recorded Creative Work

Echoes From the Set Vol. II (1967–77) Shadows From the Underground: Cinema Under the Influence, emerged from researching questions brought up from my professors about Echoes Vol I: What created the New Hollywood of the 70’s? Was it the Experimental films of Stan Brakhage and the NY Village Voice film criticism under Jonas Meekus in the 60’s? Was it the new technology of portable cameras, sound and lights? The answer is, that all of the above contributed; but the main central thread that connected the New Hollywood was the worldwide effect of Iconoclasm, which in America also created a counter-cultural ideology, and the voice of that ideology was bi-cultural. To reconcile the inherent conflict of two cultures or biculturality sometimes required a third language, a metaphorical one. In America, the 60’s generation was countering their own Culture’s threat of domination, as coined by Cherokee intellectual and feminist Andrea Smith as Heteropatriarchy and the three pillars of white supremacy, which were directly embedded in Slavery and Capitalism, Genocide and Colonialism, and Orientalism and War. Beginning with the Civil Rights Era, the bicultural and metaphorical voices of marginalized people began to be heard, and they joined together to create a new vernacular through political movements expressed cohesively in the arts, including Cinema. One particular bicultural voice emerging in the 60’s counterculture was the voice of the original Indigenous through bicultural people.

Effect of Pyridoxamine Treatment on Arterial Stiffness and Cognitive Function in Old Mice

Wolf, Julia—General Science, University of Oregon

Faculty Mentor(s): Ashley Walker, Emily Reeve

Session: Pre-Recorded Poster Presentation

With advancing age, large arteries experience increased stiffness in their walls, while small arteries maintain elasticity. Arterial stiffening can occur when advanced glycation end-products (AGEs) form, resulting in collagen in the extracellular matrix becoming cross-linked. Age-induced
large artery stiffness is associated with cognitive impairment and heightened risk for developing neurodegenerative disease. The formation of AGEs and collagen cross-linking have been shown to be inhibited by pyridoxamine. It was hypothesized that pyridoxamine treatment would prevent age-related arterial stiffness and attenuate cognitive impairment. Pyridoxamine was administered via drinking water to old C57BL/6 mice for six months, with old and young control groups. Aortic stiffness was measured by pulse wave velocity (PWV), while carotid and middle cerebral artery stiffness were measured ex vivo. Nest building was performed to measure cognitive ability. Old pyridoxamine treated mice had lower aortic PWV and a trend for lower carotid stiffness compared with old control mice. There was no difference in cerebral artery stiffness across groups, indicating that pyridoxamine specifically targets age-related arterial stiffening. Nest building was impaired in old control mice compared with young, but old pyridoxamine treated mice were not different from either group. These results shed light onto potential pyridoxamine treatments for preventing large artery stiffness to preserve cognitive function.

Television Adaptation in the Age of Media Convergence in China

Wu, Shuxi—Asian Studies, University of Oregon

Faculty Mentor(s): Dan Buck

Session: Fact or Fiction?

This article introduces the ‘intellectual property show’ concept currently inciting heated discussions among Chinese media studies scholars into English-language academia. Intellectual property show, a Chinese term generally referring to television shows adapted from internet fiction (and to a secondary extent, video games), explicitly suggests an adaptation form and logic particular to an environment characterized by converging media and digital transformations of cultural production. Using the 2019 Chinese hit show All is Well, adapted from an internet novel with the same name, I approach intellectual property show as a media artefact situated at the volatile convergence of political demand, business interest, and new media affordances through adopting an integrative approach to contemporary adaptations in China. By attending to both the material context of production and the media text itself, I join the current exploration in adaptation studies for methods that answer the why and how of adaptation.
The Analysis of How Drug Trafficking Effects the Function of Economic, Social, Political, and Environmental Conditions within Central America

Wyatt, Sora—Anthropology, University of Oregon
Faculty Mentor(s): Matthias Vogel
Session: Pre-Recorded Poster Presentation

The Analysis of How Drug Trafficking Effects the Function of Economic, Social, Political, and Environmental Conditions within Central America. Research shows that drug trafficking is the cause of many detrimental experiences that occur throughout Central American countries. The purpose of this study is to understand the influence drug traffickers have on the economy and its citizens. Based on extensive research we were able to find that areas with high rates of trafficking create an increase in homicidal rates, imprisonment, prostitution, illegal migration, and kidnapping. Drug related crime has also caused a substantial amount of economic loss due to its networking shipments that bring about environmental issues such as deforestation. Which further degrades the economy with an annual loss of hundreds of millions of dollars in natural resources. Whereas the proceeds from drug networks go towards immoral influence over politicians, giving drug traffickers confidential authority over local government and businesses. The significance of this study is to educate people on the functions of drug trafficking and deeply analyze the effect it has. There is a rooted complexity within drug related crime that influences the increase of other societal misconducts.

Computational study of metal organic framework electronic behavior

Yang, MinChieh—Chemistry, University of Oregon
Faculty Mentor(s): Christopher H. Hendon Hendon
Session: Pre-Recorded Poster Presentation

Due to metal organic frameworks’ (MOF) high surface area and crystal lattice architecture, electronic conductive MOFs have arisen to become promising candidates for energy store applications. As binding nature between metal and organic linkers is ionic, electronically conductive MOFs required for energy related applications remain unexplored and desirable while most MOFs are insulators. Ni3(HITP)2 (Ni3{2,3,6,7,10,11-hexaiminotriphenylene}2) as a MX4 type structural MOF has shown conductivity of 40 S/cm through pi-stacking along the C-direction of its organic linker instead of through the conjugating pathway along the in-plane provided by the MX4 structure. To explore in-
plane charge transfer of Ni₃(HITP)₂, Ni₃(HITP)₂ derivative NiTAA-MOF (Ni(II) Tetraaza[14]annulene-Linked Metal Organic Framework) was synthesized. Here, with computational techniques, we examine the effect of the additional 3-carbon bridge motif towards Ni₃(HITP)₂ electronic structure. In addition, as NiTAA-MOF composed of unoxidized HITP linker, electronic structural exploration towards n-type doped Ni₃(HITP)₂ was performed for examining potential improvement of Ni₃(HITP)₂ in plane charge transfer ability. Based on computational results, bulk NiTAA-MOF shows an insulating feature along all pathways with electron doped Ni₃(HITP)₂ possessing interesting electronic properties for further discussion.

**Hendricks Forest Management Plan 2021**

Ycaza, Joseph—Environmental Science, University of Oregon  
Co-Author(s): Jessi Henderson  
Faculty Mentor(s): Alex Renirie, Peg Boulay  
Session: Pre-Recorded Poster Presentation

As climate change increases the frequency and intensity of natural disturbances, it is important that local forest management plans reflect the changing needs to meet public safety and ecological preservation. The Hendricks Forest Team of the Environmental Leadership Program is currently using forest monitoring methods to gather data on the health and abundance of Douglas Fir trees to help inform a sustainable management plan for the City of Eugene Parks and Open Space. Tree monitoring methods and protocols utilized during this project were adopted from the Forest Inventory and Analysis (FIA) Program of the US Forest Service at the direction of Eugene Parks and Open Spaces. This includes: diameter, perimeter, and crown measurements. Research and data collection is still currently underway at the time of the writing of this abstract. The Hendricks Forest team contends that climate change will play a significant role in the future of Hendricks Park, and considerations of species succession and maintaining biodiversity will be crucial to the new management plan. Data collected will be used to inform the Forest Management Plan and the final conclusions will not be determined until the plan is finalized. The research conducted by the Hendricks Forest team provides necessary data for the City of Eugene Parks and Open Space to utilize in updating their Forest Management Plan in order to build resiliency and ensure that the park may be utilized by future generations.
Wearable Microfluidic Colorimetric Sweat Sensors for Real-Time Personalized Hydration Monitoring
Yim, Albert—Human Physiology, University of Oregon
Faculty Mentor(s): Jonathan Reeder
Session: Pre-Recorded Poster Presentation
Continuous, real-time sweat analysis is an underdeveloped field with promising applications ranging from clinical health care to athletic performance. Currently, microfluidic devices allow for noninvasive collection and storage of sweat 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 indicative of performance metrics. A low-cost and passive method to record the continuous sweat rate would enable real-time sweat loss measurement and hydration feedback. This proposed project will develop methods to accomplish this through microfluidics and colorimetric reagents. The colorimetric reagent will provide color gradients for physiologically sweat rates ranging from 3 to 34 μL/hour for a collection area of r = 3 mm. Then benchtop studies will create the colorimetric system that is capable of visually quantifying the collected sweat rate in microfluidic devices. This will provide a future opportunity to develop a smartphone app for immediate analysis. Eventually, on-body trials will test the accuracy of the sweat sensor’s analyzed rate. Attaining continuous sweat rates will normalize biomarker concentrations which correlate to health and performance metrics and are highly coveted in the biomedical and sports science communities.

Determining How S100A9 Activates TLR4 Using Evolutionary and Biochemical Approach
Yin, Jiayi—Biochemistry, University of Oregon
Co-Author(s): Sophia Phillips
Faculty Mentor(s): Mike Harms, Sophia Phillips
Session: Pre-Recorded Poster Presentation
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 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 characterize mutant ancestral S100A9s to identify important functionally related amino acids of S100A9, using site-directed mutagenesis, and then characterize how these mutations alter activity. I will have identified a few key mutations important for the evolution of S100A9 function, setting up mechanistic studies for how S100A9 activates TLR4 from this research program.

**Does Affect make Meaning or does Meaning make Affect? A Multi-Session/ Multi-Level Analysis in Older Adults**

Yu, Shyla—Psychology, University of Oregon

Co-Author(s): Melissa Moss, Ulrich Mayr

Faculty Mentor(s): Ulrich Mayr, Melissa Moss

Session: Pre-Recorded Poster Presentation

An individual’s perceived purpose, or meaning in life, has been identified as an important component of their mental health and general well-being. There is also substantial evidence that positive affect and meaning in life are related. Here we test the hypothesis of (a) positive feedback dynamics between affect and meaning in life and (b) that such dynamics may have a stress-buffering effect. Positive and negative affect, the presence of meaning, and stress were assessed across 12 weeks on a weekly basis in a group of 50 to 90-year-olds (N=259) within the context of a larger study examining psychological responses to the COVID-19 pandemic. Multi-level cross-lagged panel analyses revealed that experiencing greater meaning in life results in subsequent greater positive and reduced negative affect and that experiencing greater positive affect and less negative affect independently predicted subsequent increases in meaning in life. In addition, some of these relationships were more strongly expressed in older adults, suggesting a strengthening of positive feedback dynamics with age. Moreover, the strength of the time-lagged relationships between (a) positive affect and meaning in life and (b) meaning in life and positive affect interacted to predict greater resilience to stress. We
discuss the implications of our results for potential interventions targeting positive feedback cycles between mental-health-related variables and the need for replicating our results in a more diverse sample.

**Bird Nerds: Uniting Elementary School Students in Oregon and Mexico through Shared Migratory Birds**

Zajac, Olivia—Environmental Studies, University of Oregon  
Co-Author(s): Arielle Names, Madi Scanlan, Bella Campino, Miranda Roso, Devin Vandergriff  
Faculty Mentor(s): Katie Russell, Katie Lynch  
Session: Migratory Stories: Sea, Land and Air

Our team of Environmental Leadership Program students partnered with the Willamette-Laja Twinning Project to bring the “Aves Compartidas” (shared birds) program to River Road Elementary School. With birds as our focus, this project aims to unite students in Oregon and Guanajuato, Mexico using shared species and language to foster deep ecological and cultural connections. Under a remote framework, our team created a bilingual curriculum for third through fifth grade students, centered around our shared migratory birds and their habitats. We hypothesize that students will become more familiar with migratory birds shared between Oregon and Mexico, along with their respective watersheds. In the initial lessons, we established baseline evaluations of the students’ prior knowledge about birds and continued to monitor their knowledge and enthusiasm, utilizing written and discussion-based activities. To gauge student understanding of the material, our team has measured attendance and engagement through student participation in class as well as their involvement in a weekly ecological themed bingo activity. Student teaching teams discussed, evaluated, and recorded the results of the reflection activities after each lesson. We will compile and analyze data from weekly lessons and the final assessment to determine the effectiveness of our team’s curriculum. The curriculum created provides a framework for future Environmental Leadership Program cohorts and seeks to cultivate civic engagement, uplift young environmental stewards, and engage global residents.
Wellbeing Resources on Campus: Thrive ARC’s Knowledge of UO Wellness Resources Compared to First-year Students Living on Campus.

Zamudio, Carly—Journalism, University of Oregon

Faculty Mentor(s): Chantelle Russell

Session: Academic Residential Communities: Emerging Researchers

The goal of this research project is to compare the knowledge of Thrive students to first-year students when it comes to the awareness of wellness resources on campus. Thrive: Healthy Living is an Academic Residential Community centered around personal wellbeing, wellness resources on campus, peer education, and community influence. We hypothesize that due to the nature of the ARC, being a wellness-based community, these students will have more exposure and knowledge of UO wellness resources than the average first-year student. We will come to our conclusion using classroom experience with presenters, our own research on the UO website, and the future use of a student-wide survey to understand the breadth of knowledge possessed by the first-year student population. This will be paired with our own research of wellness resources across campus and whether or not we knew of them. Our primary results will support our hypothesis that students in the Thrive ARC have more knowledge of wellbeing resources than the average UO freshman. The findings of this project highlight the wellness information that our team gained through the ARC experience. This will lead us to the conclusion that there is an abundance of resources that UO students outside of the Thrive ARC are unaware of, which may benefit their personal wellbeing as well as other aspects of their lives.

The Relation between Parent Competence and Parent-Child Interactions: A Consideration of Culture

Zepeda, Lucy—Psychology, University of Oregon

Faculty Mentor(s): Andrea Imhof

Session: Pre-Recorded Poster Presentation

In the majority of research, parenting interventions have been conducted with a focus on Western populations. We aim to address this cultural gap by examining the relationship between parent-centered variables (parent stress, nurturance, limit-setting) and parent-child interactions. A sample of 116 caregiver-infant dyads (0-3 years) were recruited from a larger intervention study. Free play interactions between parent and child were recorded during home visits to observe “serve"
and “return” behaviors. In this sample: 67% (n=78) films contained interactions in Spanish, and 33% (n=38) were recorded in English. Parents completed measures including the SEPTI, PSI, and PSOC. Films were coded using a detailed glossary and flowchart. Correlation analyses were used to evaluate associations between parenting scores on the parenting measures and parenting behaviors.

We found differences in baseline associations between parent self-rated scores and observed behavioral interactions for English and Spanish-speaking families. In only Spanish speaking families, PSI was correlated with low reciprocity ($r(78) = 0.272, p =0.016$), and negatively correlated with higher reciprocity ($r(78) = -0.255, p =0.24$). In only English speaking families, SEPTI nurturance ($r(38) = 0.336, p =0.039$) and Discipline Limit setting ($r(38) = 0.343, p =0.035$) are significantly correlated with a lack of engagement between parent and child. Implications of these linguistic differences will be further discussed.

**Magnetoelastic Sensors for Real-Time Tracking of MSC Growth**

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Session: Inside Out

The cell therapeutics industry has grown significantly in the past decade; however, in adherent cell culture, there is still a technological gap for a scalable, non-invasive method of tracking cell-number and critical process parameters remotely and in real-time. Magnetoelastic sensors are capable of wireless tracking that can monitor different physical, chemical, and biological parameters. Its ability to be scaled into different sizes and ratios for chemical and biological sensing makes them a promising prospect that can track human-derived Mesenchymal stromal cells (hMSC) in real-time. MSCs hold a lot of potential within cell-based therapeutics due to their ability to differentiate into bone, cartilage, and fat. In this study, we develop a sensing system that uses magnetoelastic materials in monitoring hMSC cell growth/numbers in 2D in vitro cell cultures. The basis for this research is supported by studies done with magnetoelastic sensors that have shown the capability in monitoring the cell numbers of L929 fibroblasts. This study intends to develop a new sensing platform for the purpose of remotely tracking MSC numbers and critical process parameters in real-time. This technology will offer a more robust and consistent method of producing and researching large quantities of stem cells that can be in a reproducible and predictable manner while also ensuring safety and quality.
Astrocyte mitochondria support motor circuit function in a Drosophila model of ALS

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Session: Pre-Recorded Poster Presentation

ALS is a disease where selective degeneration of motor neurons (MNs) causes death. Although ALS is considered a MN disease, dysregulation of neighboring glial cells contributes to ALS in animal models. Astrocytes are a predominant glial cell type that send fine projections to neuronal synapses and metabolically support neurons. Indeed, electron microscopy has identified mitochondria in astrocytic processes. We hypothesize that failure of astrocyte mitochondrial trafficking to synapses contributes to MN loss in ALS. We used in vivo imaging to assay MN activity following astrocyte-specific knockdown (KD) of the ALS-causing gene tbph and observed ectopic MN signaling and increases in MN synapses at the neuromuscular junction (NMJ), resulting in altered locomotor behavior in a Drosophila model of ALS. Accordingly, we saw an increased prevalence of astrocyte mitochondria co-localized with synapses on MN dendrites, which could be further increased by optogenetic activation of MNs. Through genetic screening, we identified the mitochondrial adaptor protein, Milton, as essential for astrocyte mitochondrial trafficking. Astrocyte KD of Milton using RNAi caused failure of mitochondria to traffic to MN synapses, as well as similar changes to NMJ ultrastructure and locomotor function as seen following tbph KD. Through further study, we hope to inform our understanding of the etiology of ALS and move towards successful therapeutic strategies.