

Undergraduate Research Symposium

2018 Event Program

SCIENCES

SOCIAL SCIENCES

ARTS

HUMANITIES



UNIVERSITY OF
OREGON

Undergraduate Research Symposium 2018 Presentation Awards

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May 17, 2018

High Impact Practices

Experts in Higher Education studies will tell you that undergraduate research in its many forms is a “high impact practice”: it offers a dramatic opportunity for student engagement and success. We couldn’t agree more! Those of us involved in this Symposium have seen at close range those amazing “aha” moments when a student realizes that she has uncovered something on the very front lines of human culture and knowledge. Whether these contributions take place in a lab, in the archives, with a museum installation, in a dance studio, at a drafting table, at an easel, on the stage, or even in the streets: we know that undergraduate innovation transforms undergraduate lives.

We also know that these opportunities are crucial not only for the individuals involved, but for the very institution of Higher Ed itself. The impact of these “high impact practices” reaches us all. When we nurture and celebrate individual creativity at the baccalaureate level, we nourish the very heart of our university’s research mission, and its core principle of public service. We affirm the ways in which wisdom develops within community, and we recognize the inextricable link between teaching, with its transmission of knowledge to new generations—and research, with its creation of new knowledge among classmates and peers, teachers, and students.

Congratulations to all the student participants and faculty mentors who have made this event happen! Best wishes from your fans and supporters in Undergraduate Studies, the Robert D. Clark Honors College, University Housing, the University Libraries, the Division of Equity and Inclusion, and the Office for Vice President of Research and Innovation.



JOSH SNODGRASS
CO-CHAIR, UNDERGRADUATE
SYMPOSIUM PLANNING COMMITTEE



KEVIN HATFIELD
CO-CHAIR, UNDERGRADUATE
SYMPOSIUM PLANNING COMMITTEE

UNDERGRADUATE RESEARCH AWARDS 2018



WINNERS ARE SELECTED FROM TWO CATEGORIES

1. Papers or projects completed during a single course at the 300 level or above.
2. A thesis or project developed over more than a single term.

Each year through its Undergraduate Research Awards program, the UO Libraries recognizes undergraduates who produce high-quality research projects using the library's extensive resources and services.

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4 - 6 pm

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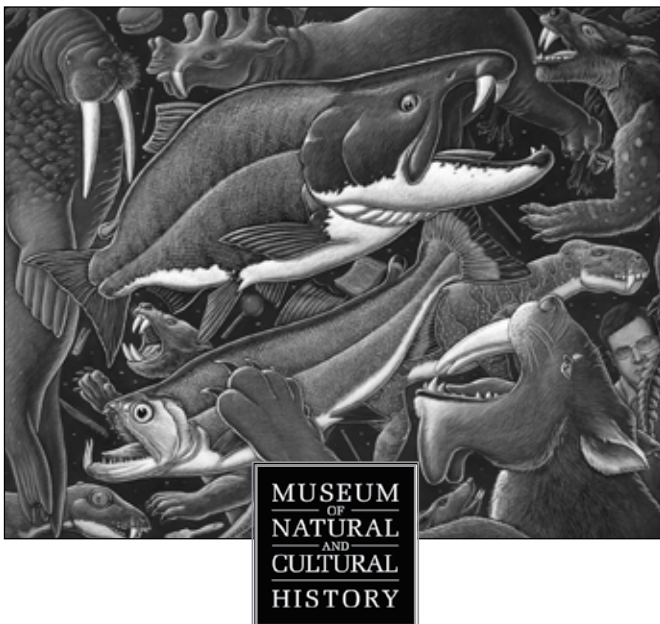
Fall issue submission deadline: Saturday June 30th, 2018

For more information and submission guidelines, visit blogs.uoregon.edu/ourj

OUR Journal is a program of the UO Libraries.

Questions? ourj@uoregon.edu

**The Museum of Natural and Cultural History presents
 THE MNCH UNDERGRADUATE RESEARCH POSTER AWARD**



The MNCH Undergraduate Research Poster Award recognizes excellence in undergraduate scholarship involving museum collections and/or research.

Open to students from all disciplines, the \$300 award 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. To be eligible, a project must be accepted to and present at the 2018 UO Undergraduate Research Symposium and must be installed by 9:00 a.m. on May 17 for judging.

UROP

Undergraduate Research Opportunity Program

PROGRAMS

MINI-GRANTS: Awards of up to \$1,000 to assist with research expenses including supplies, materials, equipment, and travel to conduct research.

VPRI UNDERGRAD FELLOWSHIP: 10 week summer research fellowship open to undergraduate students from all academic disciplines. Fellows receive a \$5,000 stipend.

O'DAY FELLOWSHIP IN BIOLOGICAL SCIENCES: 10 week summer research fellowship open to undergraduate and graduate student pairs conducting research in the biological sciences. Fellows receive a \$5,000 stipend.

PRESIDENTIAL UNDERGRADUATE RESEARCH SCHOLARS: Academic year research experience open to undergraduate students from chemistry, physics, earth sciences, and mathematics. Scholars receive a \$5,000 stipend.

HUMANITIES UNDERGRADUATE RESEARCH FELLOWSHIP: 16 week research experience open to undergraduate students from all academic disciplines that are conducting humanities-related research. Fellows receive a \$2,500 stipend.

RESOURCES & SERVICES

[List of UO Opportunities](#) [List of External Opportunities](#) [Resources on Getting Started](#) [Advising](#)

Undergraduate Research Symposium 2018 Presentation Awards

The awards given out at the Undergraduate Research Symposium recognize students who have an exceptional poster, oral presentation, or creative work. Award specifics below.

Division of Undergraduate Studies—Oral Presentation Award

The award recognizes undergraduate oral presentations characterized by excellence in research and clarity of delivery. 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 may receive the award as a scholarship. The Center for Undergraduate Research and Engagement (CURE) will assist the awardee with identifying a conference and preparing their application and presentation.

Sponsor: Division of Undergraduate Studies

Eligibility and Conditions:

- Open to students from all academic disciplines.
- Must be accepted to and present at the 2018 UO Undergraduate Research Symposium.
- Applicants must agree to be recorded on video during the oral presentation sessions at the Undergraduate Research Symposium
- The Undergraduate Research Symposium judges will review the recordings and decide on the winner after the symposium date
- Finalists will be notified of the outcome the week following the Undergraduate Research Symposium.

Biology Poster Award

The Biology Department will offer one \$300 award to the student with the best poster, and two \$100 awards for posters with honorable mention, in the fields of biology and marine biology. Judging will be performed by senior graduate students.

Sponsor: Department of Biology

Eligibility and Conditions:

- Any biology or marine biology major working in any science lab.
- Any undergraduate (from any major) that is working in a lab run by a biology department faculty member.
- Must be accepted to and present at the 2018 UO Undergraduate Research Symposium.
- Must deliver poster by 7:30pm on Wednesday, May 16 for judging.

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.

Sponsor: Undergraduate Research Opportunities Program, Office for Research and Innovation

Eligibility and Conditions:

- Open to students from all academic disciplines.
- Must be accepted to present at the 2018 UO Undergraduate Research Symposium.
- 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.
- Must deliver poster by 7:30pm on Wednesday, May 16 for judging.

International Studies Department Award

The International Studies Department Award recognizes oral presentations or posters focused on an international or intercultural topic and characterized by excellence in research and clarity of delivery. One \$300 award and two \$100 awards for honorable mention will be awarded.

Sponsor: International Studies Department

Eligibility and Conditions:

- Open to students from all academic disciplines.
- Must be accepted to present at the 2018 UO Undergraduate Research Symposium.
- Must deliver poster by 7:30pm on Wednesday, May 16 for judging.
- The awards given out at the Undergraduate Research Symposium recognize students who have an exceptional poster, oral presentation, or creative work. Award specifics below.

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 \$300 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 museum staff.

Sponsor: UO Museum of Natural & Cultural History

Eligibility and Conditions:

- Open to students from all disciplines
- Must be accepted to and present at the 2018 UO Undergraduate Research Symposium
- Must deliver poster by 7:30pm on Wednesday, May 16 for judging.

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. One \$300 award and one \$100 award for honorable mention will be awarded.

Sponsor: Food Studies Program and Division of Undergraduate Studies

Eligibility and Conditions:

- Open to students from all academic disciplines
- Must be accepted to present at the 2018 UO Undergraduate Research Symposium
- Must deliver poster by 7:30pm on Wednesday, May 16 for judging.



Undergraduate Research Symposium 2018 Agenda

Wednesday, May 16

5:00-7:30pm: **Poster Drop-Off** (EMU Ballroom Staircase Landing on Main Floor)

Thursday, May 17

9:00am **Registration/Check-in begins** (EMU Ballroom Lobby)

10:00am-11:30am **Concurrent Oral Session 1** (Swindells, Cedar, Spruce, Crater Lake South, Maple, Oak)

11:45am-1:15pm **Concurrent Oral Session 2** (Swindells, Cedar, Spruce, Crater Lake South, Maple, Oak)

1:30pm-3:00pm **Concurrent Oral Session 3** (Swindells, Cedar, Spruce, Maple, Oak)

Creative Work Session 3 (Redwood Auditorium)

3:15pm-4:45pm **Concurrent Oral Session 4** (Spruce, Crater Lake North & South, Maple, Oak)

Creative Work Session 4 (Redwood Auditorium)

Academic Residential Community Session 4 (Cedar, Coquille)

Lane Community College Transfer Student Panel Discussion (Swindells)

5:00pm-5:30pm **Reception. Welcome from Undergraduate Research Symposium Co-Chairs Kevin Hatfield and Josh Snodgrass and Mark Carey, Co-Organizer of the Climate, Public Lands, and Environmental Justice Mini-Conference; Remarks from Jayanth R. Banavar, Provost and Senior Vice President and David O. Conover, Vice President for Research and Innovation; Student Keynote by Iago Bojczuk, Media Studies Major; and Presentation of Faculty Mentor Awards** (Redwood Auditorium)

5:30pm-7:30pm **Poster Session** (Ballroom and Gumwood Room) **Includes posters from Climate, Public Lands, and Environmental Justice Mini-Conference**

Academic Residential Community Session 5 (Maple, Oak)

Catering (EMU Ballroom Lobby)

Undergraduate Research Symposium 2018 Acknowledgments

Sponsors

Division of Undergraduate Studies (Dennis Galvan)
University Housing (Michael Griffel)
UO Robert D. Clark Honors College (Karen Ford)
Office of the Vice President for Research and Innovation (David Conover)
UO Libraries (Adriene Lim)

Undergraduate Research Symposium Planning Committee

Kevin Hatfield (co-chair), Director of Academic Residential and Research Initiative, Division of Undergraduate Studies/Residence Life; Adjunct Assistant Professor, History
Josh Snodgrass (co-chair), Associate Vice Provost for Undergraduate Studies; Director of Center for Undergraduate Research and Engagement (CURE); Professor, Anthropology
Emily Atkinson, Undergraduate Advisor, School of Journalism and Communication
Rachel Bash, PathwayOregon Advisor
Hannah Bishop, Postdoctoral Research Scholar, Department of Biology/Institute of Neuroscience
Barbara Jenkins, Coordinator, Outreach and Special Projects, UO Libraries
Lanch McCormick, Director of Student Engagement, Center for Undergraduate Research and Engagement
Christabelle Moore, Undergraduate Research Engagement Coordinator GE, Center for Undergraduate Research and Engagement
Mary Popish, Student Experience Coordinator, Robert D. Clark Honors College
Karl Reasoner, Program Manager, Undergraduate Research Opportunity Program, Research and Innovation
Jessica Winders, Program Coordinator for Academic Initiatives, Residence Life
Associated Students of Undergraduate Research and Engagement (ASURE)
Allison Dona, Director; Research Area: Biological Anthropology and Molecular Biology
Claren Walker, Associate Director; Research Area: Media and Visual Culture
Momo Wilms-Crowe, Coordinator; Research Area: Global Ethics, Social Movements, and Identity Formation
Jordyn Mascarenas, Coordinator; Research Area: Astrophysics

Climate, Public Lands, and Environmental Justice Mini-Conference Partners

Mark Carey, Professor of History, Robert D. Clark Honors College
Ronald Mitchell, Professor, Political Science
Dave Sutherland, Associate Professor, Earth Sciences
Sarah Wald, Associate Professor, Environmental Studies

Undergraduate Symposium Faculty Abstract Review Committee

Rachel Bash, PathwayOregon Advisor, Teaching and Learning Center
Kristin Buxton, Science Librarian, UO Libraries
Katherine Donaldson, Social Sciences/Education Librarian, UO Libraries
Ramakrishnan Durairajan, Assistant Professor, Computer and Information Science
Laura Eidam, Class Encore Coordinator, Teaching and Learning Center
Catherine Flynn-Purvis, Institutional Repository Manager, UO Libraries, Digital Scholarship Center
Franny Gaede, Head, Digital Scholarship Services, UO Libraries
Katherine Hayes, Graduate Student, Geography
Julie Mueller, Faculty Consultant, Teaching Engagement Program

Undergraduate Research Symposium 2018 Acknowledgments *(continued)*

Mary Oberlies, Undergraduate Engagement Librarian, UO Libraries

Mike Peixoto, Undergraduate Coordinator, Department of Economics & Department of Sociology

Prisilla Sanchez, Graduate Employee, German and Scandinavian

Subik Shrestha, Ph.D. Student, Architecture

Isis Sroka, Science Learning Specialist, Undergraduate Studies

Kathleen Stroud, Map/GIS Associate Librarian, UO Libraries

Dean Walton, Science & Technology Outreach Librarian, UO Libraries

Laurie Woodward, Director, Erb Memorial Union

Key Collaborators

Ward Biagne, UO Libraries (Presenter Video Interviews)

Lynette Boone, UO Libraries (Oral Panel Filming)

Amanda Garcia, UO Libraries (Photography)

Lesli Larson, UO Libraries (Photography)

Rebecca Mellnik, EMU (Venue Planning)

Michaela Hager, EMU (Venue Planning)

Panel Moderators

Rachel Allen, Assistant Director of Student Services, School of Journalism and Communication

Hannah Bishop, Postdoctoral Research Scholar, Institute of Neuroscience

Peg Boulay, ELP Senior Instructor and Undergraduate Advisor, Environmental Studies

Kirby Brown, Assistant Professor, English and Native Studies

Amber Buck, Assistant Director, Residence Life

Charlie Butler, Instructor, School of Journalism and Communication

Jonathan Cain, Head, Data Services, UO Libraries

Mai-Lin Cheng, Assistant Professor of Literature, Robert D. Clark Honors College

nedzer erilus, Residence Life Coordinator, University Housing

Megan FinCannon, Community Director, Residence Life

Jeanne Hall, Senior Instructor, Educational Foundations Undergraduate Field Experience Coordinator

Nicole Kurhanewicz, Postdoctoral Scholar, Institute of Molecular Biology

Devin Lea, Graduate Student, Geography

Kathryn Lynch, ELP Instructor and Undergraduate Advisor, Environmental Studies

Jennifer O'Neal, University Historian and Archivist

Paul Peppis, Professor, English; Director of Oregon Humanities Center

Natascha Reich, Graduate Student, Musicology

Prisilla Sanchez, Graduate Student, German

Anna Schmidt-MacKenzie, Director of Residence Life and Educational Initiatives

Subik Shrestha, Doctoral Student, Architecture

Samantha Shune, Assistant Professor, Communications Disorders and Sciences

Jay Steinmetz, Instructor, Political Science

Jeremy Swartz, Postdoctoral Scholar, School of Journalism and Communication

Eric Torrence, Professor, Physics

Kristin Yarris, Assistant Professor, International Studies

Annie Zemper, Assistant Professor, Biology

Undergraduate Research Symposium

Oral Presentations, Creative Works, Data Stories and ARC Sessions Schedule

Thursday, May 17, 2018

Concurrent Oral Session 1 – 10:00-11:30 a.m.

HUMANITIES UNDERGRADUATE RESEARCH FELLOWSHIPS (HURF) – SWINDELLS ROOM: SESSION 1SW

Sam Beeker	Place and Paranoia: Pynchon and the Construction of the Postmodern Subject
Becca Marshall	Mushroom Justice? Willamette National Forest's Management of Commercial, wild Mushrooms
Meg Rodgers	The Anti-heroine: An Emergent Television Character Trope
Matthew Stephens	Examining Personhood and Environmental Policy: Determining the Benefits and Risks of Granting Legal Rights to Non-Human Entities
Jacqueline Huaman	Japanese Gendered Language, Idols, and the Ideal Female Romantic Partner
Sarah Hovet	Sense of Place in Contemporary Female American Poets: Indigenous and Immigrant Voices
MODERATOR:	Paul Peppis

WORDS AND SOCIAL IMPACT – CEDAR ROOM: SESSION 1C

Mitra LeBuhn	Picture This: The Role of Digital Storytelling in Motivating Action for Refugee Relief
Rachel Benner in Advertising	Brand Activism: Working Toward Progressive Representations of Social Movements
Eleanor Estreich Myanmar	A Rhetorical Analysis of Reports about Mass Atrocities: Rwanda, Bosnia, Syria, and Myanmar
MODERATOR:	Anna Schmidt-MacKenzie

CHILDHOOD DEVELOPMENT & COMMUNICATION DISORDERS AND SCIENCES – SPRUCE ROOM: SESSION 1S

Anyasha Aragon	How Smartforks Regulate Rate of Eating in People with Dysphagia Recovering from Stroke
Ashley Goussak	Electronic Media Exposure and Early Vocabulary Acquisition in Spanish-Speaking Homes
Fiona Byrne	How Experience Gets Under the Skin: An Examination of Potential Correlation between Childhood Adversity and Respiratory Sinus Arrhythmia
MODERATOR:	Samantha Shune

DATA STORIES – CRATER LAKE SOUTH ROOM: SESSION 1CS

Linmei Amaya Access	Evaluating the Impact of the CARD Act: A Subgroup Analysis on Credit
Lillie Scarth	Visualizing Assault Reports in Seattle, Washington

continued next page

Gabrielle Aufderheide The Challenges, Academic Potential, and Personal Power of Qualitative Research

Emily Wu Teaching, Learning, and Achievement: Are Course Evaluations Valid Measures of Instructional Quality at the University of Oregon?

MODERATOR: **Jonathan Cain**

NATIVE AMERICAN STUDIES AND ENVIRONMENTAL JUSTICE – MAPLE ROOM: SESSION: 1M

Doug Sam Northern Paiute Responses to the Occupation of Malheur: Decolonizing Discourses over Public Lands in the American West

Clara Gorman Inter-Tribal Dynamics of the Warm Springs and Grand Ronde Reservations: A Historical Legacy of Discrimination, Prejudice, and Settler-Colonialism

Seth Temple The Infrastructure of Settler Colonialism: Roads, Dams, and Sawmills on the Warm Springs Reservation

Rennie Kendrick Climate Change, Water Policy, and Society in the Peruvian Andes

MODERATOR: **Jennifer O'Neal**

Concurrent Oral Session 2 – 11:45-1:15 p.m.

NEUROSCIENCE & COGNITIVE PSYCHOLOGY – SWINDELLS ROOM: SESSION 2SW

Nelson Perez The Role of Patterned Spontaneous Circuit Activity in Drosophila Neuronal Circuit Assembly

Allison Zhou Does Seeing Something Old Help Infants Pay Attention to Something New in Object Sequences?

Ashley Dresen Enhancing Low Frequency Rhythms in the Motor Cortex of Humans

MODERATOR: **Arnaldo Carreira-Rosario**

ONLINE AND TELEVISION MEDIA STUDIES – CEDAR ROOM: SESSION 2C

Mai Amalie Bak College Students and Online Streaming Services: Piracy and Suggestions for the Future of Content Distribution

Kyle Heiner The Power of America's Most Watched Show: How Entertainment Television Can Change Social Behaviors

Arunima Bhattacharjee Controversies around Al Jazeera

Ben Pettis Pepe the Frog: Challenging Cultural Hegemony with Internet Memes

MODERATOR: **Jeremy Swartz**

CHEMISTRY, MATH, AND COMPUTER AND INFORMATION SCIENCE – SPRUCE ROOM: SESSION 2S

Jacob Bieker Using Machine Learning for Source Detection at the First G-APD Cherenkov Telescope (FACT)

Taylor Contreras Clustering Algorithm Performance Studies for the ATLAS Trigger System at the HL-LHC

continued next page

Nathaniel Schieber A Computational Approach to Tangled String
Makenna Pennel Nanoparticles!

MODERATOR: **Eric Torrence**

EXPLORING THE SELF – CRATER LAKE SOUTH ROOM: SESSION 2CS

Tucker Engle Finding Self in Key West and a Red Wheelbarrow

Seth Temple The Sum of My Parts: A Genetic Inquiry with 23andMe

Leanne Johnson The Structure and Culture of Greek Life and Its Impacts on Identity

MODERATOR: nedzer erilus

RACE, COMMUNITY, AND EQUITY – MAPLE ROOM: SESSION 2M

Sravya Tadepalli Indians-Americans in Corvallis, Oregon

Hannah Schadelmeier-Lynch
& Simoan Waldron Communities United: Combatting Portland Gentrification through Infrapolitics

Alejandra Miranda The Role of Mentoring and Ethnic Identity in Latinx* High School Students

Nana Adjepong & Kebret Ketema Tracing the Lineage of Historical Racial Narratives and Their Continued Effect

Cali Hodge The Impact of Dangerous Minds in Teacher Education: Exploring the Use of the Representation of School in Film to Raise Critical Consciousness in Preservice Teachers

MODERATOR: **Devin Lea**

GENDER BASED INQUIRY – OAK ROOM: SESSION 2O

Guy Jones The More it Looks Like Queer Street the More I Ask

Megan Schenk Another Girl Bites the Dust: Motherhood and Futurity at the End

Sarah Hovet Beyond Muses: Feminism and Gender in Modern Irish Literature (1880 – Present) From Augusta Gregory to Eavan Boland

India Zietsman Gender Stereotypes and Gender Inequality's Effects on Chilean Technical Students and University of Oregon Students

MODERATOR: **Mai-Lin Cheng**

Concurrent Oral Session 3 – 1:30-3:00 p.m.

HISTORY – SWINDELLS ROOM: SESSION 3SW

Caroline Richelsen The Empire's New Clothes: The Establishment of Social Sciences in Post-War Academia and Its Implication for British Colonial Policy

Mira Cohen Prostitution in the Frontier West

Momo Wilms-Crowe Responding to the Hyde Amendment: Abortion Discourse, Race, and a Conspiracy of Silence

continued next page

John Dechert	Russia's Experiment in Scouting, 1909-1922
Sadie Kavalier	William Morris as Collector: Analyzing Two Volumes in the Special Collections University Archives
MODERATOR:	Megan FinCannon

MUSIC – CEDAR ROOM: SESSION 3C

Sheena Moore	English American Colonial Sacred Music: Rebellion and Egalitarianism
Derek White	Arranging and Transcribing: More than Just the Notes
Lizzy Elkins	Spitting Bars and Subverting Heteronormativity: An Analysis of Frank Ocean, Tyler, the Creator, other Contemporary Rap/R&B/Pop Artists' Disclosures from Heteronormativity, Traditional Concepts of Masculinity, and the Gender Binary
Joseph Yaconelli	Machine Learning of Motifs and Motif Patterns in Probabilistic Jazz Grammars
MODERATOR	Natascha Reich

INFORMING PUBLIC POLICY – SPRUCE ROOM: SESSION 3S

Blake Dressel & Natalie Valent	Green Job Creation and the Most Efficient Way to Reallocate the Investment Cap and Invest Revenue Created by Clean Energy Legislation in Oregon
Linmei Amaya	Evaluating the CARD Act: Subgroup Analysis on Restricted Credit Access
Shuxi Wu	Transnational Professionals: Global Hires, the New Knowledge Economy, and the Metanational Corporation
Manju Bangalore	Getting to Mars: Assessing In-Space Propulsion Options
MODERATOR:	Eric Torrence

DNA & GENES – MAPLE ROOM: SESSION 3M

Colin Maxwell	Investigating the Role of the Transposons in Temperature-induced DNA Damage during Spermatogenesis
Rachel David	Investigating the Role of Genomic Positioning in Directing Meiotic Double-Strand DNA Break Repair
Corinne Togia	PTPN11 S502P and Tyrosine Kinase Non-Receptor-2 increase RAS/MAPK Signaling in Acute Myeloid Leukemia
Alexander Miller	A Forward Genetic Screen for Genes Required in <i>C. elegans</i> Embryonic Morphogenesis
Cordell Clark	SMC-5/6 Facilitates Efficient DSB Repair during Meiosis in <i>C. elegans</i>
MODERATOR:	Nicole Kurhanewicz

LITERATURE – OAK ROOM: SESSION 3O

Ashley Kim	Text to Table: Everything is About Lemon Meringue Pie
Elisa Carvallo	La Mulata: In Her Own Words

continued next page

Alison Hamilton	A River Runs Through: An Analysis of Ken Kesey's <i>Sometimes a Great Notion</i> Exploring the Mirroring of a Fictional River to the Flow of the Novel through Syntax and Form
Elmira Louie	Sa'di and the Safavid: The Material Culture of a Treasured Persian Manuscript Now at UO
Maxfield Lydum	Spectral Prose: Reading the Object in Icelandic and American Literature
MODERATOR:	Prisilla Sanchez

Concurrent Oral Session 4 – 3:15-4:45 p.m.

GUTS AND MONKEYS – SPRUCE ROOM: SESSION 4S

Nicholas Jahahn	Characterization of Lrig1 Positive Stem Cells during Colitis Recovery
Lillian Carroll	Inflammatory Phenotypes of Zebrafish Enteric Nervous System Mutants
Tabor Whitney	Effects of Environment and Relatedness on the Gut Microbiome of Ugandan Red Colobus Monkeys
India Brock	Assessing the Role of Crossing Structures in Primate Conservation
Zoë Wong	Chitin Binding Protein GbpA Promotes Proliferation in the <i>Drosophila</i> Midgut
MODERATOR:	Annie Zemper

ENVIRONMENTAL EDUCATION – CRATER LAKE NORTH ROOM: SESSION 4CN

Jordan Baker	Planting a Seed by Restoring Connections – A Project of the University of Oregon's Environmental Leadership Program
Co-Presenters:	Richie Nguyen, Ingra Buys, and Annabelle Lind
Katie O'Connor	UO ELP Climate Action Team: Educating Eugene's Young Adults
Co-Presenters:	Maya Vigil, Makena Dandley, Simoan Waldron, Yue Liu, Jackson Drake, Katie Robinson, and Kelsey Maass
Ned Maynard	Amongst the Ancients: Place-Based Experiential Education within the H. J. Andrews Experimental Research Forest
Co-Presenters:	Kiana Seto, Dylan Plummer, and Riley Olson
Katy Roy-Johnson	Cultivating Connections: Garden-Based Education to Connect with the Willamette Valley
Co-Presenters:	Becca Perrin, Sydney Morrison, Gracie Williams, and Milo Gazzola
MODERATOR:	Kathryn Lynch

ECOLOGY – CRATER LAKE SOUTH ROOM: SESSION 4CS

Sierra Ching	Quantifying Vegetation, Structure, and Canopy Density at 'Alalā Release Site
Benjamin Avis	Impacts of Rising Heat and Precipitation on Plant Phenology in Pacific Northwest Prairies
Co-Presenters:	Miles Steele, Sean Petitt, Emma Rasmussen, and Hunter Mackin

continued next page

Emily Bork	2018 Native Revegetation and Restoration at Goose Creek
Co-Presenters:	Madeline Cowen, Bren Catt, Lachlan Addicott, Elizabeth Baach, and Brianna Ashley
Kira Bartlett	Estuary Coastline Change over a Century in the Coos Bay, Oregon
Jacob Jansen	Complicating Autonomy through Empowering Agency: Honeybees at the Center of Conflict
MODERATOR:	Peg Boulay

WHEN DISASTER STRIKES – MAPLE ROOM: SESSION 4M

Momo Wilms-Crowe	Shifting the Aid Paradigm: An Exploration into Effective Humanitarian Policy Design through a Case Study Analysis of Omnes Volunteer Association
Maria Pervova	A Comparative Analysis of Preventive and Post Conflict Action in Refugee Crises
Indigo Larson	A Feasibility Report on the Use of Urine Diverting Container-Based Sanitation Toilets in Post-Earthquake Disaster Scenarios
Ann Peters	Representations of Madness in Zanzibar, Tanzania: An Analysis of Colonial Mental Health Diagnostic Labels
MODERATOR:	Kristin Yarris

ART & ARCHEOLOGY – OAK ROOM: SESSION 4O

Jacob Armas	Perspectives on Czech Art of the 1970s and Early 1980s: Framing an Understudied Period
Hannah Solheim	Art Destined for Destruction: Uncovering the Origin of the Anthropomorphic Mask in the Museum of Natural and Cultural History's Alice Henson Ernst Collection
Samantha McGee	Portrayals of Power: The Local Identity of Three Cypriot Sarcophagi from the 5 th Century BCE
Dylan Carlini	Identifying Fossils: Horses of Kyrgyzstan in the Miocene
MODERATOR:	Subik Shrestha

LANE COMMUNITY COLLEGE PANEL – SWINDELLS ROOM: SESSION 4SW

Getting Involved in Research as a Transfer Student

Dr. Matt Smear, Institute of Neuroscience
 Dr. Kristin Yarris, International Studies, Director of Global Health Minor
 Tara Parrillo, Director of Student Support Services
 Jared Acosta-King, Senior, Psychology
 Vince Thoms, Senior, Physics
 Maria Dresser, Senior, Physics

MODERATOR: Hannah Bishop

Creative Works Session 3 – 1:30-3:00 p.m. Redwood Auditorium

- Aidan Grealish** The Body Electronic: Exploring the Permeability of the Self in the Age of Wearable Computing
- Guthrie Stafford** Translating the Work of Carl Sagan into Song
- MODERATOR:** **Amber Buck**

Creative Works Session 4 – 3:15-4:45 p.m. Redwood Auditorium

- Virginia-Rose Seagal, Daniel Hernandez, Andres Erasto Rosales, and Erika Garcia**
Nuestra Voz Silenciada: Our Silenced Voice
- Dena Brocksmith** Dance and Camera
- Kris Galago** The Loss of Native Hawaiian Culture Resulting from Migration to the Pacific Northwest
- MODERATOR:** **Amber Buck**

Academic Residential Communities Session 4 – 3:15-4:45 p.m.

MEDIA AND SOCIAL ACTION ARC – COQUILLE ROOM: SESSION 4CQ

Media Studies and Social Justice (Note: 3:45pm Start Time)

Lena Felt, Claire Forsberg, Kelly Franks, Micah Mew, Emma Moyers, Madilyne Nguyen-Acosta, Isa Ramos Kelsey Reasor, Taylor Schassen, Marin Stuart, Miles Warren

MODERATORS: **Charlie Butler and Rachel Allen**

COMMUNITY FOR MULTICULTURAL SCHOLARS ARC – CEDAR ROOM: SESSION 4C

CMS ARC Cultural Assets and Advocacy through Identity Poems and Artistic Expression (Note: 3:30pm Start Time)

Nasistu Bedada, Symone Cole, Damaris Garcia-Rios, Donyé Green, Ben Her, Courtney Holman, Raquell Johnson-Mendoza, Joey Lim, Juan Mancillas, Natalie Perez, Jaden Salama, Katrina Villacarlos

MODERATOR: **Jeanne Hall**

Academic Residential Communities Session 5 – 5:40-7:00 p.m.

NATIVE AMERICAN AND INDIGENOUS STUDIES ARC – MAPLE ROOM: SESSION 5M

Research as Ceremony: Documenting and Stewarding UO Indigenous Community History

Lofanitani Aisea, Cydney Taylor, Kata Winkler, Damian White Lightning, Toni Viviane Asphy, Allyson Alvarado

MODERATORS: **Kirby Brown and Jennifer O'Neal**

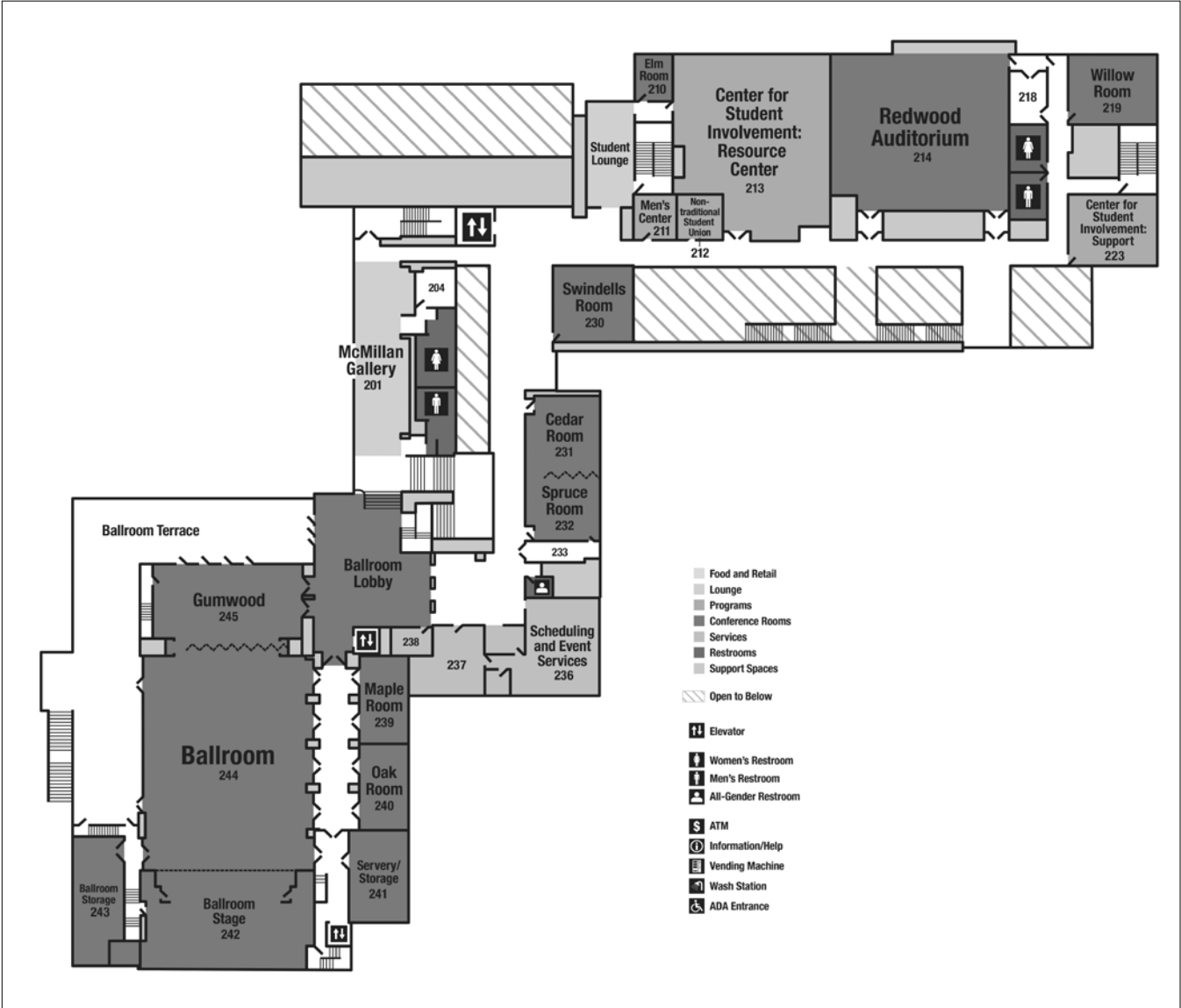
GLOBAL ENGAGEMENT ARC – OAK ROOM: SESSION 5O

Global Engagement, Global Connections

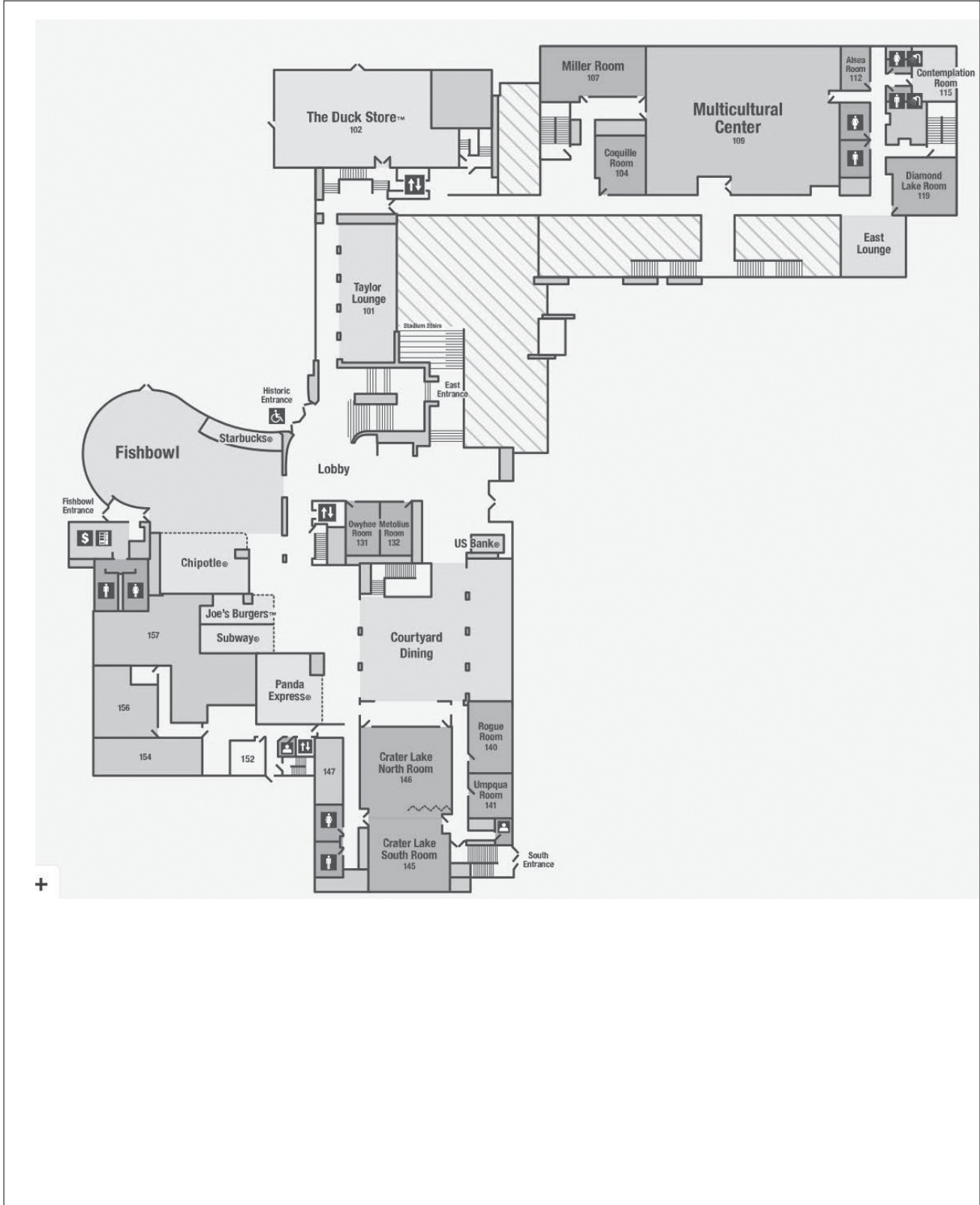
Amy Alfredson, Jessica Cade, Karmen Clark, Thomas Johnson, Samantha Lazarescu, Ashley Martinez, Rebecca Mayer, Colette Meyer, Shea Stevens, Flannery Trexler

MODERATORS: **Jay Steinmetz, Matthias Vogel, Laurie deGonzalez, Yukari Furikado-Koranda, Maria Licia Aldana Rogers, Monica Zikpi, Muzi Li, Shengwei Lai**

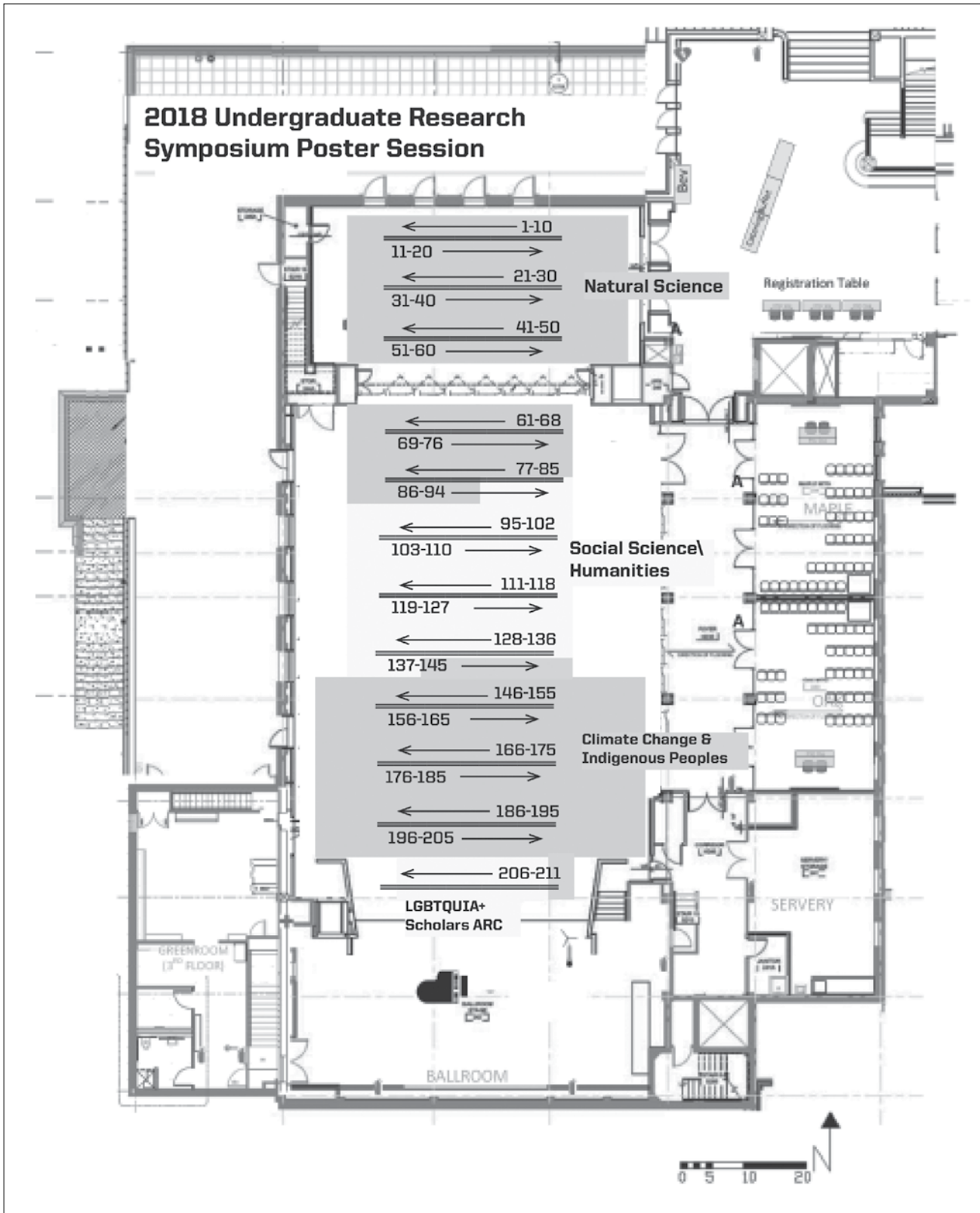
Undergraduate Research Symposium 2018 Venue Map – EMU Level Two



Undergraduate Research Symposium 2018 Venue Maps—EMU Level One



Undergraduate Research Symposium 2018 Venue Map – EMU Ballroom and Gumwood Room



Undergraduate Research Symposium Presentation Abstracts

Thursday, May 17, 2018

SAMUEL RYAN ADCOCK – PSYCHOLOGY

POSTER 106 Title: The Influence of Women’s Self-Perceptions of Ability and Effort Expenditure on Science, Technology, Engineering, and Math Field Persistence

Research Area: Social Psychology

Faculty Mentor(s): Sara Hodges, Kathryn Denning

Abstract:

Women in the United States consistently drop out of Science, Technology, Engineering, and Math (STEM) fields at various points along the career pathway. While discrimination is an important factor, women’s self-perceived levels of natural ability and effort exertion relative to those of others in their field may lead to decreased future persistence in STEM. To discover whether these factors influence the decision to leave STEM at the undergraduate level, the current study used questionnaires to measure male and female undergraduates’ future persistence, field identification, and self-perceptions of ability and effort expenditure. We expect to find that low self-perceived natural ability as well as high self-perceived effort exertion relative to peers will be associated with low future persistence, moderated by gender. However, we also expect to find that field identification will act as a buffer allowing for future persistence in spite of self-perceived low ability and high relative effort exertion. If confirmed, these findings will speak to the importance of conveying to women that gender does not influence STEM ability

NANA ADJEPONG – POLITICAL SCIENCE

Co presenter(s): Kebret Ketema

ORAL SESSION 2M Title: Tracing The Lineage Of Historical Racial Narratives And Their Continued Effect

Research Area: Social Science

Faculty Mentor(s): Avinnash Tiwari

Abstract:

Narrative is an important weapon that has been continuously used against minorities. This can be proven by taking a look at historical examples of false narratives being purposefully used to take power away from such groups. This has had lasting ramifications, and is a factor in the problem these groups face today. One main example of this is the creation of the “black savage” which in turn has led to inescapable stereotypes that still exist to this day. This affects the way African Americans are seen today, and in turn serves as a barrier for them, despite this being a stereotype created in the past.

ANISHA ADKE – BIOLOGY

POSTER 46 Title: The genetic basis of the first connections in the brain

Research Area: biology

Faculty Mentor(s): Adam Miller

Funding: Vice President for Research and Innovation (VPRI) Undergraduate Fellowship, UROP Mini-grant

Abstract:

An estimated 100 billion neurons form the human brain, equal to the number of stars in our galaxy. Nervous system function emerges from connections, or synapses, between these neurons, which are either electrical or chemical. The synapses form a wired circuit that emerges over development as directed by an organism’s genetic code. The first synapses that form are critical to normal circuit wiring, as they lay the foundation upon which mature circuits are built. Research has shown that these first synapses are electrical, but it is unknown which genes are responsible for the connections. This project aims to identify the genes required for the first synapses and investigate their roles from a molecular, circuit, and behavioral standpoint. This will provide a critical understanding of nervous system wiring, as genetic defects that alter normal circuit wiring are linked to neurodevelopmental disorders such as autism and schizophrenia.

To explore the genes responsible for electrical synapses, we examined the first spinal cord circuits that form in zebrafish. We identified genes-of-interest using RNAseq and are finding when, where, and how these genes control the formation of the first synapses, analyzing them for neural network and behavioral changes. Preliminary behavioral analysis suggests that the gene Cx46.8 is involved in early circuit formation, while mutations in Cx35.1, Cx34.1, Cx35.5, Cx34.7, and Cx43.4 show no visible disruption. Future work using RNA in situ hybridization will characterize Cx46.8 localization, allowing for a better

understanding of where the gene is at work. We are also using fluorescent calcium indicators to characterize the mutations and the resulting disruptions to circuit wiring in order to understand the roles of the genes in early electrical synapse formation.

MELISSA ADLER – HUMAN PHYSIOLOGY

POSTER 101 Title: Emotion and Identity Influence on Associative Memory

Research Area: Psychology

Faculty Mentor(s): Dasa Zeithamova, Taylor Guthrie

Abstract:

Eye witness testimonies play an important role in the criminal justice system. These testimonies depend upon the witness' abilities to remember not only individual elements of events (e.g., having seen a specific person before), but remember how the elements of the event are associated with one another (e.g., having seen the person and the gun together). The events involved are usually emotionally charged but past studies on the influence of emotion on memory have focused primarily on how people remember individual elements rather than associations between multiple elements. People's perceptions may also be influenced by their biases and stereotypes towards certain races and/or genders. In this experiment, I explored how effects of face identity and emotion influence people's memories. I hypothesized that non-Caucasian, emotional, male faces will inhibit associative memory. Participants studied associations between two individual objects or between a face and an object and were then tested on how well they recalled those associations, as well as if they tended to connect related memories. The face stimuli were of different races and genders and had either neutral or angry expressions. Preliminary results indicate that the emotional faces, specifically the non-Caucasian, male faces, have an impact on the participant's abilities to form associations and recall those associations later. Results from this experiment may demonstrate challenges involving eye-witness testimonies. If it is shown that emotion coupled with certain identity factors interrupts these associative memory processes, then the validity of eye-witness testimonies falls in to question.

MEGAN AHERN – EDUCATION FOUNDATIONS

POSTER 103 Title: Working for the Future

Research Area: Educational Psychology

Faculty Mentor(s): Nané Kochoian, Jenefer Husman

Abstract:

The focus of an individual's goals has been shown to shift during one's lifetime. Occupational Future Time Perspective (OFTP) is a domain-specific Future Time Perspective that refers to employee's perceptions of their occupational future time horizon and the future perceived opportunities in their professional life. This research aimed to contribute to a better understanding of the importance and relevance of OFTP in the prediction of workers' professional goals. We predicted that high scores of focus on opportunities and open-ended remaining time, as well as high scores of learning and performance goal orientations positively predict growth-related goals, whereas both high scores negatively predict generativity goals. The sample consisted of 545 French-speaking Belgian employees in administrative positions (63.9% female; ages= 25-65 years). Relations between occupational future time perspective, age, goal orientation approach, and goal content were explored. This was done by using an eight-item scale based on previous research on OFTP (Zacher 2013; Zacher & Frese, 2009) to measure focus on opportunities and perceived remaining time in their career. The findings suggest that individuals' broader goal orientation affects the content of daily specific goals, as well as suggesting a positive link between leaning goal orientation and performance goal orientation. This research is significant because it introduces Future Time Perspective into the area of careers and occupations, and establishes the relationship between perceptions of occupational future time horizons and perceived opportunities of employees and how this relationship affects work-related outcomes.

SAMUEL AHLQUIST – HUMAN PHYSIOLOGY

Co presenter(s): Whitney Olivia

Poster 88 Title: Severity of Cranial Phenotypes in Double Mutants Affected by the Interaction Between *fras1* and *ezh2* Genes

Research Area: Biology

Faculty Mentor(s): Charles Kimmel

Abstract:

This study assesses the interaction between two genes, *fras1* and *ezh2*, in zebrafish craniofacial patterning. The *Fras1* protein stabilizes facial development and is studied to understand Fraser syndrome in humans. *Ezh2* is a protein subunit of a repressive complex that is important for early embryonic development and essential for tissue maintenance. *Ezh2* is explored because of its role in controlling epigenetics, which is a background that can affect the expression of genes. Loss of function in these two genes individually results in mild reduction in the opercular bone (OP). We therefore hypothesized that the interaction between *ezh2* and *fras1* in double mutants will result in more severe reduction in OP bone size. Zebrafish embryos

were stained to assess bone morphology and each set was phenotypically separated into WT, single, and double mutant groups using key phenotypes. The embryos will be genotypically verified through PCR in this ongoing study. As predicted, the double mutants displayed more severe reduction in the OP bone when compared to the single mutants. We concluded that the double mutants displayed a synergistic effect for the OP bone as the result appears more severe than both single mutants combined. This study suggests that changes in epigenetics, in this case loss of *ezh2* function, influences the severity of the *fras1* phenotype which could also influence the degree of severity of Fraser syndrome in humans.

HUSSEIN AL-ZUBIERI – BIOCHEMISTRY

Poster 82 Title: Determining Scrib binding partners relevant to its spindle orienting function

Research Area: Molecular Biology

Faculty Mentor(s): Ken Prehoda, Nicole Paterson

Abstract:

Asymmetric stem cell division requires a mitotic spindle oriented relative to its axis of polarity. Spindle orientation determines where the cleavage furrow is positioned, thereby determining the location of cell division. Without a correctly oriented spindle, tumorigenesis can occur. Indeed, many of the proteins in the pathway are tumor suppressors. Two pathways have been found to position the spindle, Mud pathway and Dlg pathway. Both are required for spindle orientation. Our research focuses on a Dlg pathway protein member called Scrib which is a tumor suppressor protein that has been shown to be required for spindle orientation. The function of Scrib is not yet fully understood, and our research is focused on discovering the mechanism of its function in this process. A starting point for identifying function is to test the requirement of the functional domains of Scrib *in vivo*, and determine the specific function of these domains *in vitro*. My project is to determine the Scrib binding partners relevant to its spindle orienting function.

LINMEI AMAYA – ECONOMICS

Oral SESSION 1CS Title: Evaluating the CARD Act: Subgroup Analysis on Restricted Credit Access

Research Area: Social Science: Economics

Faculty Mentor(s): Alfredo Burlando

Abstract:

The Credit Card Accountability, Responsibility and Disclosure Act of 2009 (CARD Act) is a federal law established in response to the recession of 2008. Mandates were created to increase credit responsibility for both creditors and recipients. A portion focuses on restrictions for young adults, which requires a cosigner for those aged under 21 and changes credit worthiness evaluation by considering individual income rather than household income. This study aims to investigate whether the restrictions decreased access to credit for young adults and whether the magnitude of the impact varied among demographic subgroups. The analysis uses individual data from the Panel Study of Income Dynamics, which uses an estimation sample from the Transitioning Adults Supplement. A difference-in-difference approach was used to estimate the impact on treated individuals (under 21) when the act went into effect and a control group (over 21). The propensity of owning a credit card was compared across the treatment and control groups. For preliminary results, we found that there was a 3% difference in credit card ownership between the groups but these results were not statistically significant. When comparing across subgroups, we found that white males were more likely to be restricted from access relative to blacks and other non-whites. The study will include further subgroups analysis and outcome indicators that could potentially be impacted from the hypothesized decrease in credit access. The overall implications of this study aim to address are the effectiveness of both credit legislation and a further analysis of credit market dynamics.

LINMEI AMAYA – ECONOMICS

Data Story SESSION 3S Title: Evaluating the Impact of the CARD Act: A Subgroup Analysis on Credit Access

Research Area: Social Science: Economics

Faculty Mentor(s): Alfredo Burlando

Abstract:

The CARD Act of 2009 is a federal law established in response to the recession in 2008. A part focused on restrictions for young adults in efforts to increase credit responsibility. I aim to investigate whether the restrictions decreased access to credit for young adults, and whether the magnitude of the impact varied among demographic subgroups. Using panel data from the Panel Study of Income Dynamics I will use a difference-in-difference model to estimate the impact on treated individuals (under 21) and a control group (over 21). The overall aims of this study are to address the effectiveness of credit legislation and provide analysis of credit market dynamics.

OLIVIA ANDERSEN – GEOLOGICAL SCIENCES

Poster 68 Title: Petrographic and Geochemical Correlation between Central Oregon Dikes and Flows to the Columbia River Flood Basalts.

Research Area: Natural Science

Faculty Mentor(s): Ray Weldon

Funding: Presidential Undergraduate Research Scholars Program (PURS Program)

Abstract:

Central Oregon is made up of numerous basalt flows and dikes, having been produced from multiple volcanic events. While much of the basalt in the region has been mapped Picture Gorge Basalt of the Columbia River Flood Basalts, the local dikes may have a different source than the type area Picture Gorge Basalt. To further correlate or distinguish the local dikes from the basalt flows in the Central Oregon region, we used petrographic features observed from thin sections and compared the geochemistry of two dike samples to the geochemistry of various local basalt samples.

From the X-Ray Fluorescence (XRF) data of each sample, we produced plots that showed relationships and trends between our samples. There are three clusters in our plots. One cluster contains the dike samples and one of the PGB samples. These samples are abundant in TiO₂, P₂O₅, SiO₂ and K₂O while having low percentages of MgO, Al₂O₃, and CaO. The second cluster consists of five PGB samples, with low measures of TiO₂, P₂O₅, SiO₂ and K₂O while containing higher traces of MgO, Al₂O₃ and CaO. The last two basalt samples makes a third cluster of data points, which generally falls in the middle of the trend line created by the two clusters mentioned earlier.

The Petrographic features observed further explain the geochemistry. The dike and NR₁ samples are a mixture of glass, albite, and few orthoclase grains, resulting in higher oxide content of SiO₂, K₂O and Na₂O were as the cluster of five PGB samples have higher percentages of large pyroxene grains and fewer plagioclase grains and glass, resulting in higher traces of MgO, Al₂O₃ and CaO.

All samples plot within Grande Ronde Basalt boundaries, which have high silica content and MgO contents ranging from 2.5-6.5 wt% and TiO₂ ranging from 1.6-2.8 wt% (Reidel 2013). Plotting TiO₂, P₂O₅, MgO and K₂O offer the most reliable indicators used to identify and distinguish flows (Reidel 2016, Hooper 2000). To further our study, we compared the geochemistry of the PGB to other flow events of the CRFB, such as the Steens and Imnaha basalts. Both the Steens and Imnaha basalts plot below the Grande Ronde Basalt on an alkali vs. silica plot (Camp 2013), indicating that the dikes in Central Oregon are indeed Picture Gorge Basalt.

ANYASHA ARAGON – COMMUNICATION DISORDERS AND SCIENCES, GERMAN LANGUAGE

ORAL SESSION 1S Title: How Smartforks Regulate Rate of Eating in People with Dysphagia Recovering from Stroke

Research Area: Communication Disorders and Sciences (College of Education)

Faculty Mentor(s): Samantha Shune

Funding: Clark Honors College Thesis Grants for Extraordinary Expenses

Abstract:

Individuals recovering from stroke have a very high incidence of swallowing problems (dysphagia). One way to reduce rates of aspiration and choking in this population is by reducing rate of eating. Current methods for reducing rate, such as verbal cueing, often decrease quality of life. With advances in technology, smartforks provide a potentially novel method for reducing eating rate while maintaining increased autonomy. The purpose of this study was to examine the impact of a smartfork on eating rate and quality of meals in stroke survivors with dysphagia. The research was conducted at Oregon Rehabilitation Center over the course of two meals: one meal was eaten without the use of the smartfork's feedback and the second meal was eaten with the vibrotactile and visual feedback turned on. Results indicated that the fork was effective for two out of the three participants. Specifically, for those two participants, their rate of eating decreased and the percentage of bite intervals when the target rate of eating was met increased with the use of the smartfork feedback. The visual feedback provided by the fork was more effective than the vibrotactile feedback. All participants felt the fork maintained or improved the quality of their meal. These results indicate that a smartfork is potentially a helpful device to make eating a safer and more enjoyable experience for people with dysphagia.

JACOB ARMAS – THE HISTORY OF ART AND ARCHITECTURE, INTERNATIONAL STUDIES**ORAL SESSION 40 Title: Perspectives on Czech Art of the 1970's and early 80's: Framing an Understudied Period****Research Area: Art History/ Humanities****Faculty Mentor(s): Jíří Ptaček, Sara Brock****Funding: Gloria Tover Lee Scholarship in Art History****Judy Fosdick Oliphant Scholarship in International Studies****UO Summit Scholarship****GEO Map Your Future Scholarship****SIT Study Pell Grant Match****SIT/ UO Scholarship****Abstract:**

This paper is an exploration of how different generations of art historians, art writers, and curators think about, approach and frame Czech art of the Normalization era between the 1970's and early 1980's. While not always representing generational differences, differing personal and professional orientations among people interviewed allows for a fuller picture of this period, which is understudied in the Czech, and indeed International art historical discourse. In the latter case, this is because key texts have yet to be translated or are not readily available and, there is not a broader understanding of the artistic activity that took place during this time. Six structured interviews were conducted based on a standard set of questions developed from relevant secondary sources in English. This data was then analyzed in an attempt to see if and how the interpretation of the period's art has changed with succeeding generations. The paper makes the preliminary conclusion that with more historical distance comes more willingness to reevaluate the period and interpret its art in new contexts, but also finds some understandings are not affected by generational difference. Further interviews would provide a more defined frame with which to view the period.

SEJAL ASHER – INTERNATIONAL STUDIES**POSTER 93 Title: Postpartum Depression In Argentina's Public Health Sector****Research Area: Global Health****Faculty Mentor(s): William Johnson, Kristin Yaris****Abstract:**

Globally, Argentina has the highest population of psychologists per capita and is succeeding increasing psychiatric social acceptability; yet, the lack of maternal mental health programs and education is questionable and troublesome. The research presented focuses on the treatment and education of postpartum depression in the public healthcare sector of Argentina and why access to care is almost nonexistent in a nation openly invested in mental health care. The primary research was collected over four weeks and methods included formal interviews, informal conversations, and participant observation. A majority of this research was conducted while volunteering in Maternidad Martin, a public maternity clinic in Rosario. During the time in the clinic, the researcher interviewed many staff members, volunteers, and patients about maternal mental health. The conclusion was made that the lack of information and education surrounding maternal mental health is high because of the lack of government enforcement for a set standard of care in the public health system. In provinces further from the capital, the quality of care is progressively lower. This is not due to discrimination but rather to the lack of education amongst medical workers. In addition, the structure of the Argentine family adds to the widening informational gap surrounding the stigma of maternal mental health. Though general mental health is openly discussed, negative mental health issues associated with motherhood are taboo as women fear being labeled as an inadequate mother. This research is critical because it expands upon an issue affecting one in seven women globally. It is imperative to strengthen maternal mental health care because ignoring issues within the topic is not only detrimental to the quality of life for the mother, but also negatively affects the future of the child and stability of the family structure as a whole.

GABRIELLE AUFDERHEIDE – WOMEN GENDER AND SEXUALITY STUDIES, BIOLOGY**DATA STORY SESSION 1CS Title: The Challenges, Academic Potential, and Personal Power of Qualitative Research****Research Area: Public Health****Faculty Mentor(s): Judith Raiskin, Jessica Cronce****Abstract:**

I performed qualitative interviews with ten individuals from the HIV Alliance in Eugene, Oregon to investigate how the agency employs the harm reduction philosophy when providing services and how this impacts their clients who inject drugs. The stories interviewees recalled and the vocabulary they used provided insight to their understanding and implementation of harm reduction. I felt unsuccessful at relaying the profundity of information I obtained from the interviews. However, the information greatly impacted how I did interpret my research and influenced my own definition of harm reduction and my overall opinion on harm reduction interventions targeting HIV prevention.

BENJAMIN AVIS – ENVIRONMENTAL STUDIES**Co presenter(s): Miles Steele, Sean Petitt, Emma Rasmussen, Hunter Mackin****ORAL SESSION 4CS Title: Impacts of Rising Heat and Precipitation on Plant Phenology in Pacific Northwest Prairies****Research Area: Environmental Science****Faculty Mentor(s): Peg Boulay, Scott Bridgham****Abstract:**

This study seeks to understand the anticipated impacts of predicted climate change on the phenology of 12 different prairie grasses and forbs. Three sites have been selected ranging from Southern Oregon to Southern Washington. Our site, Willow Creek, is located in the Southern Willamette Valley and was selected due to its high-quality restored prairie habitat. To address the possible effects of climate change on plant survival rate and vigor, our experimental design approach is to manipulate temperature and precipitation with four treatments (including control) and measure reproductive variables of the planted focal species. Experimental parameters will be consistent with average predictions for temperature and precipitation increase, and the site will be composed of 20 plots with 5 replicants of each treatment. Our team will be responsible for data collection, quality assurance, and analysis of the results. These simulations will predict the likelihood of extinction for focal species within their current range, as well as the effects on phenology and geographic distribution.

MAISIE BAILEY – BIOLOGY**POSTER 61 Title: Unprecedented Long-term Survival of Saline Lake Cyanobacteria and Algae in Hyper-saline, Highly Alkaline, Dark, Anoxic Muds****Research Area: Natural science****Faculty Mentor(s): Richard Castenholz****Abstract:**

The survival of photosynthetic microorganisms buried in muds of a saline lake over several years of a saline lake has been observed. This phenomenon was quite unexpected and unprecedented. Lake Abert is a large, closed basin, soda lake in eastern Oregon. It normally has a pH of ~10, a salinity of about 30-50 ppt, and annual temperatures of 4-25°C. Under these conditions the predominant phototrophs in the water were several species of cyanobacteria, diatoms, green algae, and micro-invertebrates. During 2013-2016, the lake water had shrunk in area, drying out almost completely due to evaporation exceeding input. Salinity reached over 200 ppt, with most of the sodium carbonates precipitated, NaCl remaining as the predominant salt in solution. Photosynthetic microorganisms were no longer present visibly nor culturable from this water. However, the former shores were bounded by moist muds (~50% water by weight), hyper-saline (>200 ppt), anoxic, with pH>10. Samples taken from this mud were collected and incubated in light at 24°C in liquid nutrient medium at a salinity of 30 ppt. Various cyanobacteria and diatoms grew as enrichments and were isolated and purified in culture. These results occurred after mud samples had been kept in the dark for over 12 months at 12°C. All of the cyanobacteria in culture also survived desiccation. Gene sequences of selected survivors will be obtained to ascertain if these strains are genetically unique. Survival under these severe conditions is unprecedented and results may apply to limits of photosynthetic microorganisms in other extreme environments.

MAI AMALIE BAK – JOURNALISM**ORAL SESSION 2C Title: College Students and Online Streaming Services: Piracy and Suggestions for the Future of Content Distribution****Research Area: Media Studies****Faculty Mentor(s): Heather Shoenberger****Abstract:**

This study aims to understand how American undergraduate university students make decisions about the entertainment media they stream, including the motivations in choosing a particular streaming service and their attitudes and actual engagement with piracy. In recent years, the entertainment media industry has been evolving more quickly than ever before, and a significant factor in this change is the ever-accelerating transition to online streaming services. These services, including Netflix, Hulu, and Spotify, offer films, television shows and music which can be streamed and downloaded through the Internet on most digital devices. Increasing methods of piracy and peer to peer password sharing has made it more difficult to regulate how entertainment media is distributed, and determine whether consumers use legal methods to obtain the media they consume. This project will use semi-structured individual interviews of 30 undergraduates at the University of Oregon with the goal to be to illuminate their understanding of/participation in piracy, and media streaming motivations and habits. The results of this study seek to offer empirical evidence of college student awareness of piracy policies, use of online streaming and offer suggestions for content providers looking to avoid piracy in the changing entertainment media landscape.

JORDAN BAKER – ENVIS

Co presenter(s): Richie Nguyen, Ingra Buys, Annabelle Lind, Richie Nguyen

ORAL SESSION 4CN Title: Planting a Seed By Restoring Connections - A Project of the University of Oregon's Environmental Leadership Program

Research Area: Social Science

Faculty Mentor(s): Kathryn Lynch

Abstract:

Nature plays an essential role in a child's growth-stimulating imagination, creativity, problem-solving, a sense of wonder, and connection to the larger world. Current formal education emphasizes standardized testing and the accelerated use of technology, and it has become increasingly easy for children to miss out on the valuable lessons offered by nature. The Restoring Connections project was established to reconnect children with their local natural areas.

As a partnership of the University of Oregon's Environmental Leadership Program, Adam's Elementary School and Mt. Pisgah Arboretum, our mission is to develop a place-based, experiential environmental education program for elementary school children that cultivates a lasting connection to the land based in reciprocity and respect. Our project provides students, K-3rd grade, three opportunities a year to visit Mount Pisgah and use it as an outdoor classroom to learn ecology of the Willamette Valley. Each grade focuses on a different local ecosystem and studies the plants and animals that live there, followed by an opportunity to see these species in person and build a sense of place in their community. This curriculum is interdisciplinary, inquiry-based environmental education that progresses from awareness in to action.

This year, our team developed a third-grade spring curriculum, which focuses on prairies and the biodiversity within them, as well as developing field activities in celebration of Earth Day. Our goal is to create a spark in children's hearts and impart a sense of wonder, inspiring them to continue their connection with nature and be the change in the world!

MANJU BANGALORE – PHYSICS, MATHEMATICS

ORAL SESSION 3S Title: Getting to Mars: Assessing In-Space Propulsion Options

Research Area: Space Exploration

Faculty Mentor(s): Dan Tichenor, Ben Roberts

Abstract:

The evolution of life has always depended on exploration. From single cell organisms to multicellular, from water to land, and onwards to consciousness. NASA's hope is to land astronauts on the Red Planet in the 2030s. But how do we get there? A proper propulsion system is necessary to transport the crew members to and from Mars. Current technologies being investigated will take 6 – 12 months just for a one-way trip. However, there are other technologies available for R&D, such as nuclear electric propulsion. A study was conducted to layout and translate the technical capabilities of each major in-space propulsion option for legislators and key decision makers. In addition, the paper examines the policy and political implications of choosing one system over another. This paper serves as a critical addition to the information legislators and policymakers need to decide which transportation system will carry our species beyond one planet, continuing our legacy of crossing new frontiers.

DYLAN BARDGETT – CHEMISTRY

POSTER 79 Title: Quantitative Analysis of Thin Films via X-ray Fluorescence Spectroscopy

Research Area: Natural/Physical Science

Faculty Mentor(s): David Johnson

Abstract:

From photovoltaics and semiconductors to optical and protective coatings, thin films have made their way into every facet of daily life. Driven by the significance of these materials, the scientific community has embarked on a global quest for cheap, nondestructive, and precise analytical techniques for determining the elemental composition and structure of thin films. One technique, known as X-Ray Fluorescence spectroscopy (XRF), uses the characteristic energies of photons fluoresced by an incident beam of X-rays to determine the relative amounts of different elements in a material. This study set out to take XRF a step further by measuring not only the relative quantity, but the exact quantity, directly proportional to the number of atoms, of each element in a film. Using a solid-state material synthesis method known as physical vapor deposition, thin films were deposited onto silicon substrates and heated to produce a wide range of crystalline compounds such as TiSe₂, Bi₂Se₃, and MoSe₂. Crystalline diffraction techniques were used to identify and confirm the structures of the films as well as their total thicknesses. These films were then scanned on an XRF spectrometer, and background signals were subtracted manually by measuring a fragment of the non-deposited silicon substrate set aside before the film deposition process. Data indicates that the intensity of fluoresced photons of a given energy characteristic of an atomic element scales linearly with the number of atoms of the corresponding element, so long as the total film thickness is less than roughly 100 nm. This study concludes that, when calibrated properly, XRF can be used to directly measure the quantities of specific elements in a film. These findings greatly bolster the viability of XRF spectroscopy as suitable analytical technique for the characterization of thin films.

KIRA BARTLETT – EARTH SCIENCE, GEOGRAPHY**Oral SESSION 4CS Title: Estuary Coastline Change over a century in the Coos Bay, Oregon****Research Area: Natural/Physical Science****Faculty Mentor(s): David Sutherland, Patricia McDowell****Abstract:**

Coos Bay Estuary is the largest bay between San Francisco and Puget Sound. The estuary serves an important role in the region's economic prosperity through transportation and agriculture. The purpose was to study the Coos Bay Estuary coastline change through the years 1895 through 2011 and determine the human and natural influences causing the changes. Historic NOAA maps were georeferenced into ArcGIS and analyzed by altering shapefiles of the estuary shoreline the years using for each selected map. Comparison maps, area change charts, and shoreline distance verses time graph were used to demonstrate the major changes. The changes were compared to a historical events timeline for the region of Coos Bay to show the correlation. The major changes on the estuary shoreline are a result of the local airport construction, and other areas that were heavily influenced by human alteration and influence. Between the years 1953 and 1940 the estuary was the most heavily altered. Only a minimal amount of the shoreline changes shows evidence of natural causes, such as erosion. With this information, the City of Coos Bay can decide on what preservation or alterations they feel are necessary to maintain the economic benefits of the estuary.

SAM BEEKER – ENGLISH, COMPARATIVE LITERATURE**Oral SESSION 1SW Title: Place and Paranoia: Pynchon and the Construction of the Postmodern Subject****Research Area: Humanities****Faculty Mentor(s): Brendan O'Kelly****Funding: I have been supported through the Humanities Undergraduate Research Fellowship (HURF), and have received a mini-grant from the Undergraduate Research Opportunity Program.****Abstract:**

Paranoia is generally pathologized as an unproductive condition. Yet, this pathologization is what constitutes it as a trope within postmodern literature, the most quintessential example of this being Thomas Pynchon's 1966 novel, *The Crying of Lot 49*. With my research, I pose questions about selfhood and paranoia by reading the aforementioned novel, drawing on Eve Kosofsky Sedgwick's theorizations of paranoid knowing and reparative reading. Specifically, I construct a reparative reading of paranoia itself, as a site of meaning-making and knowledge production within postmodern literary forms and landscapes. My theorization of paranoia within the novel is seen through a spatio-political lens that seeks to recognize how spatial arrangements within Pynchon's writing of the California landscape allow for potentially restrictive and finite sets of actions that may be deemed paranoid within politically discursive paradigms, such as the 1960s. Utilizing findings from research conducted at UC Berkeley, UT Austin, and the University of Oregon, my research generates a reading of the novel alongside its historical, political, and theoretical contexts to better understand paranoia as a product of the regionally specific environmental conditions within Pynchon's representation of California. Paranoia here is seen as immanent to the identity formation of the postmodern subject, whose environmental conditions are what inform its available actions within that environment and the ways those actions are labeled and identified. During a time in which paranoia and identity play a complicated role in our troubling contemporary political environment, my reading of the novel seeks to propose alternative epistemological strategies for navigating the discourses pertaining to paranoid identities and the consequences that arise from the labeling of those identities as such. My reparative definition of the paranoid subject may prove useful for navigating the politics of despair that inform both contemporary understandings of postmodern subjectivity and those of the 1960s.

CASSIDY BENDER – BIOLOGY**Poster 135 Title: Examining Risk and Protective Factors in the Relationship Between Discrimination Stress and Body Mass Index (BMI) In a Sample of Latinx Adults.****Research Area: Social Science****Faculty Mentor(s): Tasia Smith, Jonathan Pedroza****Abstract:**

In 2016, the State of Obesity Organization reported that Latinx populations (47.8%) have a higher obesity rate when compared to non-Latinx White populations (32.6%). Depressive symptoms are one factor that has been found to be associated with obesity. Studies show greater depressive symptoms are associated with increased obesity in Latinx populations; however, research has not focused on the protective and risk factors between depression and obesity, such as discrimination stress and social support. Discrimination stress, which is associated with depressive symptoms and obesity, may serve as a mediator in predicting obesity in Latinx populations. While discrimination stress may help in explaining the connection between depressive symptoms and obesity, protective factors, like social support may buffer the relationship. Latinx populations have shown positive outcomes when receiving social support for depressive symptoms, which may buffer potential increases in Latinx obesity. The purpose of the present study is to examine discrimination stress as a mediator and social support as

a moderator of the relationship between depression and obesity within Latinx adults. A national sample of Latinx adults (N=800) was recruited using Qualtrics Panel to participate in an online survey. Depressive symptoms, discrimination stress, social support, and BMI, a measure of obesity will be assessed through self-report measures. Predicted findings are that discrimination stress will further explain the depression and obesity relationship while social support will decrease the relationship's strength. Unique variations within the Latinx community may be unveiled, allowing for the development of culturally sensitive depression prevention programs.

RACHEL BENNER – MEDIA STUDIES, ADVERTISING

Oral SESSION 1C Title: Brand Activism: Working Toward Progressive Representations of Social Movements in Advertising

Research Area: Social Science

Faculty Mentor(s): Kim Sheehan

Abstract:

Advertising agencies frequently use the cultural energy of social movements to connect brands to new audiences and promote their products. Recent “brand activism” efforts in the industry tie marketing messages to specific issues of social justice. A large body of academic critique about the general intersection of social movements and marketing exists, but insights from these studies are largely ignored by people in the advertising industry. This thesis addresses that disconnect. After exploring studies of social movements’ framing in advertising messages, this project assesses the strengths and weaknesses of those frames with a theoretical model. In-depth interviews with advertising professionals then shape a best practices guide for creating pro-social advertising: a way for advertising to best address critical discourse around social movements and brands leading to industry differentiation, increased brand trust, and progressive allyship with social movements.

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Advertising agencies have always attempted to use the cultural energy of social movements to connect brands to new audiences and promote their products. Recently, however, an industry trend has taken that connection to a new level. “Brand activism” efforts tie marketing to specific issues of social justice. A large body of academic critique about this intersection of social movements and marketing exists, but it is largely ignored by the industry. This thesis addresses that tension. After exploring studies of social movements’ framing in advertising messages, this project assesses the strengths and weaknesses of those frames with a theoretical model. In-depth interviews with advertising professionals then shape a best practices guide for creating pro-social advertising: a way for advertising to best address critical discourse around social movements and brands, leading to industry differentiation, increased brand trust, and progressive allyship with social movements.

ARUNIMA BHATTACHARJEE – PUBLIC RELATIONS

ORAL SESSION 2C Title: Controversies around Al Jazeera

Research Area: Media and Human Rights

Faculty Mentor(s): HyeRyoung Ok,

Abstract:

Al Jazeera, the pan-Arab 24-hour satellite news channel located in Doha, Qatar, has faced major discontent due to its news coverage that is controversial to some countries in the Middle East and abroad. In a region where the press is predominantly controlled by the state, Al Jazeera aims to have a freedom of the press to educate the Arab nation on subjects that prompt discussions and open debates about critical issues. However, this has had major repercussion for the channel as it has been banned from many countries in the region. During the Iraq war, the pan-Arab news channel has also faced critiques from the United States for creating anti-American sentiment towards its viewers in the Middle East. Since the Gulf war, many journalists from the channel has faced life-threatening challenges due to the news that was being broadcasted which were against the political opinions of many of the powerful regimes in the region. Many journalists have been imprisoned in Egypt since 2013 due to allegations of causing unrest in their nation by providing the people with news that is pro Muslim Brotherhood. This research will be focusing on the challenges faced by the news company, how it is benefitting the middle east through their freedom of the press and also creating danger for its journalists by broadcasting controversial issues. It will also look at the ways Al Jazeera portrays the news and where its real intentions lie when it is trying to convey the story to its viewers.

JACOB BIEKER – PHYSICS, COMPUTER AND INFORMATION SCIENCE

POSTER 47 Title: Using 3D Visualization to Study Immune Cell Distribution in Larval Zebrafish

Research Area: Physical Science

Faculty Mentor(s): Raghu Parthasarathy,

Funding: Presidential Undergraduate Research Scholarship

Abstract:

Advances in microscopy and data visualization are enabling fundamental insights into a wide variety of biological processes. During the early development of zebrafish, a popular model organism, immune cells grow and migrate. How the distribution of immune cells in the organism changes with age, however, has been unclear. We therefore used light-sheet microscopy to image fluorescent neutrophils, a type of immune cell, in larval zebrafish during the first few days of the cells' development. We then combined the imaging data with new three-dimensional visualization techniques using virtual reality to develop insights into the spatial organization of these cells. The virtual reality system is widely applicable and accessible, with the ability to run on common cell phones and work with various input types of input data. The use of virtual reality coupled with live imaging data shows the promise of three-dimensional visualization as an avenue for exploring biological data.

JACOB BIEKER – PHYSICS, COMPUTER AND INFORMATION SCIENCE

POSTER 37 Title: Using Machine Learning for Source Detection at the First G-APD Cherenkov Telescope (FACT)

Research Area: Physical Science

Faculty Mentor(s): Tim Cohen

Funding: DAAD Research Internships in Science and Engineering (RISE)

Abstract:

Finding gamma-ray sources is of paramount importance for Imaging Air Cherenkov Telescopes (IACT). This study looks at using deep neural networks on data from the First G-APD Cherenkov Telescope (FACT) as a proof-of-concept of finding gamma-ray sources with deep learning for the upcoming Cherenkov Telescope Array (CTA). In this study, FACT's individual photon level observation data from the last 5 years was used with convolutional neural networks to determine if one or more sources were present. The output from the neural networks were compared using the default method of finding sources as a baseline. The neural networks used various architectures to determine which architectures were most successful in finding sources. Neural networks offer a promising method for finding gamma-ray sources for IACTs. With further improvement and modifications, they offer a compelling method for source detection for the next generation of IACTs.

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MARIAH BLOOM – BIOLOGICAL ANTHROPOLOGY

POSTER 127 Title: Swiping for Sex: The Use of Dating Apps and Their Effect on the Evolutionary Costs and Benefits of Human Mating Strategies

Research Area: Social Science

Faculty Mentor(s): Lawrence Sugiyama, Frances White

Abstract:

Human reproduction is costly, involving both mating (e.g., finding, acquiring, and guarding a mate) and parental effort. The minimal parental investment necessary for women includes egg production, gestation and lactation. Even after weaning, human children require support over an extended period of juvenile dependence. In ancestral contexts this could not be provided by the mother (or any individual) alone. Women are thus expected to have adaptations motivating them to seek

mates who are likely willing and able to invest in her offspring, as well as to seek high genetic quality mates. Women thus deploy complex mating strategies to optimize these qualities, including a strategic mix of both long and short-term mating. The emergence of dating apps may affect the costs of women's mating effort by allowing them to pre-screen potential mates, with cheaper and easier access to, communication with, and selection among potential long and short-term mates. Sex bias in the number of men and women users may also affect women's mating strategies. Interestingly, there is limited evolutionarily informed research on how these dating apps have affected women's mating behavior. This research reviews the literature on women's use of dating apps & websites through an evolutionary lens: who uses them and why, changing views toward their use, the main mating costs and benefits of their use, and how their use might change women's sexual behavior over time. Review of this literature will form the basis for generating hypotheses to be tested in the authors senior honors thesis next year.

CAITLYN BOATMAN – BIOLOGY

POSTER 54 Title: Variation in Tooth Size and Shape In Species of Pinniped

Research Area: Biology

Faculty Mentor(s): Samantha Hopkins,

Abstract:

Animals that maintain constant internal body temperatures have high energy requirements. In a resource limited ecosystem, efficient food processing is vital to ensure that these animals extract enough energy from their food to heat their bodies. Tooth size and shape, along with the precise contact between top and bottom teeth (occlusion), are adaptations that allow for efficient food processing. Because of this relationship between energy extraction and tooth function, the size of those teeth with precise occlusion are often highly conserved in terrestrial species like bears and foxes. Some work has been done on studying dental variation in terrestrial animals with precisely occluding cheek teeth, such as the carnassial pair in some carnivores. However, few studies have investigated dental variation in aquatic carnivores with homodont (homogenous), non-occluding cheek teeth. To fill this gap, I investigated dental variation in pinnipeds, a clade of aquatic carnivores with homodont (identical) cheek teeth that are not used for processing food. Studying these species allowed me to determine if various measures of tooth size are conserved in species that swallow their food whole. Specifically, I examined how tooth number, individual tooth area and size, total tooth area, tooth row length, and shearing-blade length vary within species, across species, and across families in clade pinniped. I used the program ImageJ to make my measurements. I determined that variation is high in pinniped dentition compared to the dentition of terrestrial mammals. These results suggest that tooth shape and size are not evolutionary constrained in pinnipeds.

EMILY BORK – ENVIRONMENTAL SCIENCE, MARINE BIOLOGY

Co presenter(s): Bren Catt, Lachlan Addicott, Elizabeth Baach, Brianna Ashley, Madeline Cowen, Drew Donahue, Hailey Gilliland, Alice Gregg, Philip Hou, Harrison Satterthwaite

ORAL SESSION 4CS Title: 2018 Native Revegetation and Restoration at Goose Creek

Research Area: natural science

Faculty Mentor(s): Peg Boulay, Alejandro Brambila

Funding: University of Oregon's Environmental Studies Program

Abstract:

Goose Creek runs through Whitewater Ranch, an organic blueberry farm and timber harvester that is adjacent to the McKenzie River. Since 2014, the Environmental Leadership Program's (ELP) Riparian Restoration team has been working to reverse the deleterious effects of past livestock grazing along Goose Creek. The overall goal of the restoration project is to replant disturbed native vegetation along Goose Creek, which will revitalize pollinator habitats, control the spread of invasive plant species, and increase stream health via a reduction in temperature. We will monitor these variables by using a variety of methods, including photopoint monitoring, vegetation survival and percent cover, pollinator surveys, stream temperature measurements, and aquatic macroinvertebrate surveys. After restoration, we expect to observe greater populations of native plant communities and native pollinators, less non-native plant species, and an overall improvement of stream health represented by a decrease in temperature and the presence of sensitive macroinvertebrate species. This year's restoration efforts will augment the overall health of the McKenzie River Watershed and will provide valuable monitoring data for future ELP teams. These protocols will serve as useful guidelines for other agricultural areas that would like to restore native habitat and increase the health of riparian systems.

JOSHUA BRAUNSTEIN – BIOLOGY**POSTER 83 Title: Short Range Sonic Hedgehog Signaling Promotes Heterotypic Cell Interactions Underlying Branching Morphogenesis of the Zebrafish Fin Skeleton****Research Area: Developmental Biology****Faculty Mentor(s): Kryn Stankunas, Scott Stewart****Funding: ESPRIT****IMB Summer Scholarship Award****Alden Award****Abstract:**

Zebrafish remarkably regenerate severed fins, perfectly restoring their original size and branched skeletal pattern. Sonic hedgehog a (Shha)-expressing epidermal cells mediate ray branching during regeneration by guiding localization of the pre-osteoblasts (pObs) while migrating and splitting into two populations. However, mechanisms of shha induction, the splitting of shha+ epidermal cells, and the mechanisms underlying epidermal to pObs interactions remain unresolved. Towards answering these questions, we explored if Hh/Smo signaling and epidermal dynamics also underlie developmental ray branching. We found that shha is expressed initially in basal epidermal cells along the entire length of forming fin bones in juvenile fish. As bones progressively mature, shha becomes distally restricted to epidermal cells neighboring Runx2+ pObs. We used TgBAC(ptch2:Kaede) fish and photoconversion to show Hh/Smo signaling is restricted to these pObs and immediately adjacent epidermal cells. shha+ epidermal cells split into two groups immediately preceding ray branching. By live imaging, we found these basal epidermal cells migrate distally over the pObs, cease Hh/Smo signaling, and are then shed. Small molecule inhibition of Hh/Smo using BMS-833923 increased epidermal migration speed, suggesting Hh/Smo signaling typically restricts the rate of migration by adhering epidermal cells to the pObs. Additional small molecule trials show the pathway is largely dedicated to ray branching during fin development. We conclude that instructive shha+ epidermal movements and Shh/Smo-promoted adhesion between epidermal cells and pObs direct branching morphogenesis to pattern the fin skeleton during both development and regeneration.

CAROLYN BREWSTER – BIOLOGY, MATH AND COMPUTER SCIENCE**POSTER 51 Title: Investigating How Light Regulates Protein Synthesis in Chloroplasts****Research Area: Natural/Physical Science****Faculty Mentor(s): Alice Barkan,****Funding: O'Day Fellowship****Abstract:**

Photosynthesis provides the fuel for earth's biomes. The protein PsbA is essential for photosynthesis but is also damaged as a consequence of photosynthesis; PsbA must therefore be constantly replaced to maintain photosynthetic activity. Accordingly, PsbA synthesis increases dramatically within minutes after shifting plants from dark to light. The mechanisms underlying this response are not known. We are investigating these mechanisms with a two-pronged approach: we are studying proteins that we suspect may be involved in PsbA light-regulation, and we are designing protein "tags" to isolate potential regulators that are attached to PsbA mRNA. We identified two candidate regulators, HCF244 and TPJ1, based on their patterns of gene expression. Using a combination of techniques, we discovered that HCF244 is required for PsbA synthesis whereas TPJ1 is not. We found that TPJ1 activates production of a different protein involved in photosynthesis. Thus, HCF244 is a good candidate for regulating PsbA synthesis in response to light, but TPJ1 is not. In the second approach, we designed a method to engineer proteins to bind specifically to the PsbA RNA. We expressed these engineered proteins in plants and confirmed that they bind specifically to PsbA RNA in vivo. We are using these proteins as "hooks" to purify PsbA RNA and the proteins bound to it. These will be evaluated for their role in PsbA regulation. In addition to elucidating mechanisms that regulate production of the photosynthetic apparatus, this is the first demonstration that proteins can be designed to purify specific RNA-protein particles from an organism.

SYDNEY BRIGHT – HUMAN PHYSIOLOGY**POSTER 25 Title: Implementation of Artificial Intelligence in Motor Learning****Research Area: Human Physiology****Faculty Mentor(s): Mike Hahn****Abstract:**

Motor control of the forearm flexors and extensors can be impaired due to trauma, such as a stroke, which can hinder the ability to perform daily tasks. In this study, the effects of an Artificial Intelligence (AI) controller on the ability of healthy subjects to learn a novel computer game control task were examined. By using the electromyography sensors of a Myoband in tandem with a Scratch program of Flappy bird, a program was created that adapts to player specific skills. Purpose: The purpose of this experiment was to determine the motor learning outcomes given an adaptive AI motor learning environment. Hypothesis: It was hypothesized that an adaptive AI will result in less motor learning. Methods: Subjects played a modified

Flappy Bird game with a multi-channel EMG sensor that fits around the forearm (Myoband). The experiment requires two consecutive days of participation. During the first day, subjects had a 2-minute warm up period followed by 20 rounds of playing the game. The second day consisted of a similar 2-minute warm up period followed by 3 rounds of the game. Results: 46 of 48 subjects have been recorded. So far, the AI group has an average 17 point improvement, linear group has 31 points and the random group has 33 point improvement. Discussion: No statistical test have been done, but from preliminary analysis of the data, the hypothesis seems to be supported.

INDIA BROCK – BIOLOGICAL ANTHROPOLOGY, ENVIRONMENTAL SCIENCE

ORAL SESSION 4S Title: Assessing The Role Of Crossing Structures In Primate Conservation

Research Area: Primate Conservation

Faculty Mentor(s): Frances White, Larry Ulibarri

Funding: CAS Continuing Student Scholarship

Abstract:

Anthropogenic modification of natural landscapes is an increasing problem for wildlife, including primates. Infrastructure, including roads, have direct and indirect impacts on wildlife and landscapes. Specifically, mortality from collisions with vehicles and dissection of habitats may reduce population sizes, reduce genetic diversity, and increase genetic differentiation. Road ecology is concerned with understanding and mitigating the effects of roads on wildlife. While this research has focused on a number of taxa, research on primates is particularly scarce. Here, we review the literature for studies on crossing structures as a conservation strategy in wild primate populations. We identified 10 publications on this subject that focused on lemurs (N=1), New World monkeys (N=5), Old World monkeys (N=3), and apes (N=1). We also include data on two unpublished studies. Four bridge designs were used in these studies that varied in their dimensions, construction material, and usage across taxonomic categories. We highlight differences in monitoring and usage across each of these studies. This review highlights a paucity of literature on this oft recommended conservation strategy and an inability to collectively build on previous work from lack of publication. We contend that long-term monitoring of crossing structures be integral to studies on crossing structure. A conceptual framework is proposed for the standardization of crossing structure studies include components for designing purpose-built crossing structures, and avenues for appropriately evaluating bridge effectiveness. We urge the scientific and primatologic communities that primate crossing structure use and effectiveness must be scientifically based.

INDIA BROCK – BIOLOGICAL ANTHROPOLOGY, ENVIRONMENTAL SCIENCE

Co presenter(s): Nora Sawyer

POSTER 6 Title: Dominance Hierarchies Are Not Linear in Semi-Free Ranging Black and White Ruffed Lemurs (*Varecia variegata*)

Research Area: Primate Behavioral Ecology

Faculty Mentor(s): Frances White, Colin Brand

Abstract:

Dominance rank and the linearity of social hierarchies have important consequences for social behavior in many species, including many primates. Of particular interest are lemurs, which are the only taxonomic primate group that exhibits female feeding priority and social dominance in multiple genera, including *Varecia*. Previous research has revealed significantly linear dominance hierarchies in some female dominant species (*Lemur catta*) but not others (*Propithecus verreauxi*). Here, we investigate the dominance linearity of another female dominant lemur species: the black and white ruffed lemur. We predicted the dominance hierarchy to be significantly linear both before and after rank changes. We collected behavioral data on semi-free ranging ruffed lemurs (N=8) housed at the Duke Primate Center. We used all-occurrence sampling to record interactions between individuals between Sep 1991 and Mar 1993. We constructed dominance matrices using decided interactions and split the data into one of three time periods based on the eviction of a dominant female. We calculated the dominance linearity (h') for each time period. Contrary to our prediction, we found no significance difference in linearity across any of the time periods: Pre-Event ($h'=0.37$, ns), Event ($h'=0.33$, ns) Post-Event ($h'=0.33$, ns). This study demonstrates that ruffed lemurs exhibit a more shallow hierarchy more similar to *P. verreauxi* than to *L. catta*.

SOPHIA BROCKIE – HUMAN PHYSIOLOGY

Co presenter(s): Isaac Leve, Rae Fitzpatrick, Claire Guidinger, Gina Williamson

POSTER 90 Title: Internalization of Muscular Appearance Ideals are Associated with Drive for Muscularity in African American Men

Research Area: Prevention Science

Faculty Mentor(s): Nichole Kelly, Gina Williamson

Abstract:

Theoretical and qualitative data suggest that African American men experience significant gender- and ethnic-related

pressures to obtain a large, muscular body type. Few studies have investigated these associations using quantitative data. The purpose of this study was to explore the association between Black identity and drive for muscularity in a large sample of young African American men. Internalization of muscular appearance ideals was evaluated as a potential moderator. Participants (N=254, 18-30y, Mage=23.72, SD=3.47y) completed an online survey and reported on aspects of Black racial identity (Multidimensional Inventory of Black Identity Scale), drive for muscularity (Drive for Muscularity Scale), internalization of muscular ideals (Sociocultural Attitudes Towards Appearance Questionnaire-4) and general demographic characteristics. The Multidimensional Inventory of Black Identity scale assesses both centrality (the degree of importance of Black racial identity) and assimilation (existing knowledge of Black racial identity). Linear regression models were conducted, controlling for income, education, presence of a psychiatric diagnosis, and body mass index. Black identity was not associated with drive for muscularity ($p=.81$). While internalization of muscular appearance ideals did not function as a moderator, it was positively associated with drive for muscularity ($p<.001$). These data suggest that body image ideals may play a more important role in drive for muscularity than Black identity among young, African American men. Future research on drive for muscularity in African American men could explore the influence of other aspects of identity, such as masculinity, on body image ideals.

DENAE BROCKSMITH – DANCE

CREATIVE WORK SESSION 4 Title: Dance and Camera

Research Area: Performing arts, Film/Media

Faculty Mentor(s): Shannon Mockli

Funding: UROP Mini-grant

Abstract:

Screendance is an emergent medium that is the marriage between the arts of choreography and film. With support from a UROP mini-grant, I was able to attend a workshop presented by renown filmmaker and composer Thierry de Mey in Salt Lake City. The workshop focused on how the processes of capturing movement and editing film can add to the artistic process of choreography. With this fresh knowledge, I began creating a screendance with a local production team headed by Jake Reynolds of Reyn Photography and FPW Media. For this project, beyond the workshop, the research is in the practice and process. I have investigated what it is to create a film from a choreographic perspective, and the relationships between choreographer, camera man, director, sound engineer, editor, music composer, dancer, and costume designer/coordinator. Within the practice of choreographing and creating a screendance, I've created a piece with a subject that explores theories of how we accept our inevitable end, death. The research on this subject matter stems from being reawakened to these concepts and theories as dear elderly loved ones come near the end of their lives. For me, this project is not only practical research, but personal exploration as well.

CLAIRE BUI – HUMAN PHYSIOLOGY

POSTER 84 Title: Engrailed (En) Determines the Morphology of Neurons from Neuroblasts (NB) Lineages of the Ventral Nerve Cord (VNC) in Drosophila

Research Area: Natural Science

Faculty Mentor(s): Sonia Sen,

Funding: National Institutes of Health (NIH)

Abstract:

In *Drosophila*, neuroblasts (NBs) give rise to neurons and glia that make up the central nervous system (CNS). Each NB is characterized by a unique set of molecular markers that are dependent on spatial patterning cues. Spatial pattern is the position of the NB, which determine its cell fate. These patterning cues are crucial for the structure and function of the NBs within cell lineage, the generation of neural diversity, and the proper functioning of the CNS. Previous studies have shown that the transcription factors (TFs) Gooseberry (Gsb) and Engrailed (En) regulate cell fate of neuroblast progeny within the cell lineage. The activation of the Gsb gene has been shown to specify NB 5-6 cell lineage. In contrast, the En gene is expressed in different NBs: 7-1 and 7-4. My research focuses on two different NB cell lineages (5-6, 7-4) and two spatial TF (Gsb & En). En is normally not expressed in 5-6, so I have expressed it in NB 5-6 to see if it is transformed into 7-1 or 7-4. In this experiment, we used molecular markers to quantify NB and neuronal identity at early and late stages of *Drosophila* embryos. Our data suggested En caused a down-regulation of molecular markers specific to NBs 5-6 and changed the overall morphology of the cell lineage. These findings suggest En regulates the identity of neuronal progeny and provide critical insights into the spatial pattern as a mechanism of generating neuronal morphology.

FIONA BYRNE – FAMILY AND HUMAN SERVICES

ORAL SESSION 1S Title: How Experience Gets Under The Skin: An Examination Of Potential Correlation Between Childhood Adversity And Respiratory Sinus Arrhythmia

Research Area: Psychology/Humanities

Faculty Mentor(s): Elizabeth Skowron, Shoshana Kerewsky

Abstract:

Exposure to adversity in childhood is shown to be a significant risk factor for negative physical and mental health outcomes in adulthood. What remains to be explored is the impact of adverse childhood experiences on emotional regulation as measured by parasympathetic nervous system activity via respiratory sinus arrhythmia. The present study examines the relationship between Adverse Childhood Experiences Survey (ACES) scores and resting respiratory sinus arrhythmia (RSA) within a population of 65 child maltreating (CM) adult female caregivers. ACE scores were collected through a standardized self report survey. RSA was collected through electrocardiogram leads while participants were seated watching a neutral video. No significant correlation was found within the total population. However, results are encouraging for further study with a larger population, which would allow for an examination of potential correlation by socioeconomic status, number of adverse childhood experiences, and education level attained, to learn more about how early adversity can impact health and behavioral outcomes.

RICHELLE ANN CABATIC – PHYSICS

POSTER 2 Title: Quantifying Ocean Dynamics through Iceberg Tracking in Ilulissat Fjord

Research Area: Natural/Physical Sciences

Faculty Mentor(s): David Sutherland, Kristin Schild

Funding: NSF Iceberg Grant - Sutherland Lab

Abstract:

When Greenland's tidewater glaciers reach the ocean, they break off numerous icebergs into fjords. These icebergs travel through the fjord and out into the ocean. All the while different types of water circulate through the fjord, meeting with the glacier's terminus and affecting it's stability. The tidewater glacier, Jakobshavn Isbrae, and it's accompanying fjord, Ilulissat Fjord, is of particular interest due to its very active export of icebergs. Many studies have addressed Jakobshavn's glacial front, but little is known about Ilulissat's ocean circulation due to the difficulty of collecting field measurements in the ice-choked region. Through our study, we deploy transmitting GPS units on icebergs in Ilulissat Fjord, thereby tracking iceberg movement and, in part, the region's ocean circulation. Using icebergs as proxies for surface circulation thus provides an alternative to deploying marine instruments that have minimal likelihood for survival in the treacherous fjord environment. Preliminary results of our study show that: at a distance of 35km away from the glacier terminus, iceberg movement is no longer dominated by glacial calving events; there are eddy circulation patterns at fjord widening locations; and, that the studied icebergs move at an average speed of 0.8 km/hr. This study has the potential to help oceanographers and engineers learn more about the Ilulissat system's circulation dynamics, and inform glaciologists about how Jakobshavn Glacier melt rates and acceleration is affected by the circulation.

ANNALISE CAMERON – SOCIOLOGY

POSTER 99 Title: Emotional Experiences of Women with Chronic Pelvic Pain

Research Area: Social Science

Faculty Mentor(s): CJ Pascoe

Abstract:

This study explores the highly complex emotional experiences of women who have chronic pelvic pain. Women who suffer from chronic pelvic pain disorders or undiagnosed chronic pelvic pain, often face many obstacles in their medical care, close relationships, emotional health, and life in general. The purpose of this study is to examine the experiences of women with chronic pelvic pain and attempt to draw commonalities in their emotional dispositions. Through original semi-structured interviews with 25 women, this study successfully identified commonalities that in turn have sociological meaning. While there were commonalities in almost all areas that are complicated by pelvic pain, the most striking findings come from an analysis of female sexual identity in the context of this pain, and the emotional dispositions stemming from this female sexual identity specifically. This research contributes to the limited body of work concerning this topic, and holds value as a resource to women who experience this type of pain, the people close to them, the medical community, and society in general.

DYLAN CARLINI – GEOLOGY**POSTER 9 Title: Fossils of Oregon: Mammalian Body Mass Communities in the Miocene****Research Area: Earth and Biological science****Faculty Mentor(s): Samantha Hopkins, Dana Reuter****Funding: Presidential Undergraduate Research Scholarship****UROP Mini-Grant****Abstract:**

The size of an organism relates to a host of other characteristics about a species such as diet, metabolism, and trophic level. Changes in body mass through deep time are often the result of changing environments and climates. Previous research has examined how the patterns of mammalian body size at a community scale are shaped by the environments the organisms inhabit. However, the fossil record of Eastern Oregon has never been investigated through that lens. The extensive fossil record and well-studied long-term environmental shifts in Eastern Oregon make it an ideal location to study the effects of environmental changes on mammalian body masses. This study intends to classify and quantify the effects of the spread of grasslands on body size structure of mammals in the Miocene. I estimated body mass for Miocene mammals using measurements from fossil teeth as a proxy. These estimates derive from measurements taken with digital calipers and from the computer program Image J. I then organized the body masses into size categories and compared the changes in size structures as Oregon developed from a closed woodland in the middle Miocene to a more open, grassland environment in the late Miocene. If a pattern is discovered, it could help inform biologists and ecologists which varieties of mammal are at the greatest risk of climate-change related extinction in the near future.

DYLAN CARLINI – GEOLOGY**ORAL SESSION 40 Title: Identifying Fossils: Horses of Kyrgyzstan in the Miocene****Research Area: Earth and Biological science****Faculty Mentor(s): Samantha Hopkins, Win McLaughlin****Abstract:**

In paleontology, correct identification of fossils is of paramount importance to the scientific process. In locations with sparse fossil records and little preexisting literature, such as Kyrgyzstan, fossil identification can be particularly difficult. For this study, I identified two previously unidentified specimens from the University of Oregon Kyrgyz fossil collection as a mandible and a cheek tooth from the genus *Hipparion*, a member of family Equidae. Following a review of relevant paleontological literature, I used digital calipers to gather precise measurements of the specimens and conducted a careful analysis of tooth cusp morphology in order to make the determination. While the two specimens cannot be definitively attributed to the same individual, I determined that both came from adult individuals of the genus *Hipparion*. Using tooth morphology from the mandible, I also estimated the age of the individual at the time of death. These identifications add to our knowledge of the biodiversity of Miocene central Asia. Additionally, this study serves to demonstrate the process of fossil identification.

Gino Carrillo – Physics, Mathematics**POSTER 14 Title: Transforming the Electron Microscope into an Electron Interferometer****Research Area: Physics****Faculty Mentor(s): Benjamin McMorran****Abstract:**

In 1924 during the birth of quantum mechanics, Louis de Broglie proposed that microscopic particles such as the electron exhibit wave-like characteristics. Within a few years, electron scattering experiments were being conducted which led to the confirmation of de Broglie's matter wave hypothesis. This discovery led to the birth of electron optics which includes electron microscopy and interferometry. Arguably the most important component in either field is the electron source. Electron interferometry in particular requires a high quality electron source. Therefore, much work has been devoted to developing the electron source. Instead of improving the electron source, another approach can be taken which is more cost effective. By combining the fields of electron microscopy and interferometry, I will demonstrate that it is possible to conduct electron interferometric experiments within a low coherence Transmission Electron Microscope (TEM). This implies that TEM's all around the world with lower quality sources can be used for new applications, thus extending its capabilities in a cost effective manner. This is accomplished by using nanofabricated gratings which are installed in the TEM to act as the interferometer's beam splitter. The optics within the TEM are then used to interfere the diffracted beams giving rise to a path separated interferometer.

LILLIAN CARROLL – BIOLOGY**ORAL SESSION 4S Title: Inflammatory Phenotypes Of Zebrafish Enteric Nervous System Mutants****Research Area: Natural Science****Faculty Mentor(s): Judith Eisen, Kristi Hamilton****Funding: OURS Program****Abstract:**

Intestinal health depends on the microbial community within the dynamic intestinal environment. The enteric nervous system (ENS) innervates the intestine and modulates the microbial community composition. ENS reduction causes Hirschsprung disease (HSCR), resulting in intestinal dysmotility. Many HSCR patients develop potentially life-threatening intestinal inflammation. HSCR is genetically complex, with multiple HSCR genetic loci. The zebrafish is an excellent model in which to study the relationship between inflammation and genes linked to HSCR. Zebrafish with a mutation in the HSCR gene, *sox10*, have fewer enteric neurons, increased intestinal epithelial cell proliferation, and develop microbiota-dependent intestinal inflammation. Zebrafish with a mutation in another HSCR gene, *ret*, also have fewer ENS neurons but do not exhibit increased intestinal inflammation. *sox10* acts in neural crest cells that form the ENS and *ret* acts within ENS cells, thus, I hypothesized that the intestinal phenotype of *sox10;ret* double mutants would be similar to the phenotype of *sox10* mutants. To test this hypothesis, I analyzed the phenotypes of double mutants. I used PCR to identify mutants and quantified inflammation by counting intestinal neutrophils and recently-proliferated intestinal epithelial cells, and by determining the intestinal bacterial abundance. Surprisingly, and contrary to my hypothesis, *sox10;ret* double mutants did not exhibit increased intestinal inflammation or cell proliferation compared to wild-types. These results prompt me to reconsider the potential interactions of the mutated genes, which will provide insights into the role of the ENS as a crucial regulator of the intestinal microbial community and its function in the maintenance of intestinal health.

ELISA CARVALLO – SPANISH**ORAL SESSION 3O Title: La Mulata: In Her Own Words****Research Area: Latin American Studies****Faculty Mentor(s): Lanie Millar****Abstract:**

La mulata has been a topic of fascination in the Afro-Latin American Literature for more than two centuries. In the Caribbean poetry of the nineteenth and twentieth centuries, la mulata has served as a muse to many poets. In the eyes of the white men, la mulata was an exotic seductress. On the contrary, in the eyes of mulato men, she would never be as pure as a white woman. No matter the poet's opinion of her, la mulata continued appearing as a subject of conversation and inspiration in many of their works. These poets had much to say about her, but what did la mulata think of herself? Of course, due to the patriarchal hierarchy that dominated the Caribbean culture at the time, many mulata poets did not have the opportunity to write, let alone publish their own works. But, those who were able to, provided a new image of la mulata who had not yet been able to emerge. Poems about la mulata, written by mulatas, allow readers to take a look at the self-image that la mulata struggled to understand and accept. These works go beyond the physical and biological traits of la mulata and expose her mind and soul.

BRIAN CHASTAIN – GENERAL SCIENCE**POSTER 21 Title: The Effect of Different Substituents on the Optoelectronic Properties of Diindenoanthracene****Research Area: Natural/Physical Science (Synthetic Organic Chemistry)****Faculty Mentor(s): Michael Haley, Justin Dressler****Funding: University of Oregon Summit Scholarship, OSEA Guy Davis Scholarship, General Chemistry Achievement Award****Abstract:**

The properties of molecules containing unpaired electrons have been of interest to chemists ever since the first known diradical species was synthesized in 1907. More recently in 2016, the diradical molecule diindenoanthracene (DIAn) was synthesized by the Haley group. This species is of interest because of its marked stability for a molecule exhibiting diradical character. Additionally, the ability to form a dione intermediate that can react with a wide range of nucleophiles enables us to conduct a similar study to that performed by Chase et. al. on the parent indeno[1,2-b]fluorene. In this study it was discovered that the inclusion of different groups could have strong effects on the optoelectronic properties of the molecule. Here, we explore the effect of the addition of electron-withdrawing and donating groups to DIAn, specifically examining the change in the magnitude of the HOMO-LUMO energy gap, and thus the wavelength of maximum absorption in the electronic absorption spectrum. To test the effect of the groups on the properties of DIAn, nucleophilic addition reactions have been utilized to substitute the apical carbon with electron-withdrawing and donating groups. This will allow us to determine if there are similar trends in the optoelectronic properties between the parent indeno[1,2-b]fluorene and the anthracene extended DIAn. This study will provide insight that will allow us to further refine our design principles for the preparation of organic semiconducting molecules.

SIERRA CHING – ENVIRONMENTAL SCIENCE**ORAL SESSION 4CS Title: Quantifying Vegetation, Structure, and Canopy Density at 'Alalā Release Site****Research Area: Restoration Ecology****Faculty Mentor(s): Peg Boulay,****Funding: National Science Foundation Research Experience for Undergraduates, University of Hawai'i at Hilo, Americorps Kupu Hawai'i, Pacific Internship Programs for Exploring Sciences****Abstract:**

Worldwide, bird populations suffer from habitat loss, invasive species, and disease. Avian keystone species are vital to conserve in the wild because of their strong roles in ecosystems in which they live. The 'Alalā (*Corvus hawaiiensis*) is a keystone species in the Hawaiian Islands because of its seed dispersal and germination capabilities, which are vital for the restoration of wet and mesic forests. The 'Alalā went extinct in the wild in 2002 and its reintroduction into the wild is supported by the San Diego Zoo Institute for Conservation Research's Hawai'i Endangered Bird Conservation Program. The current reintroduction site is located at the Pu'u Maka'ala Natural Area Reserve on the Island of Hawai'i. My project analyzed the composition between two adjacent geological substrates at the reintroduction site. I used haphazard sampling to collect data for species composition, vegetation structure, and canopy density through a Braun-Blanquet categorical system. The results did not find significant differences therefore neither substrate was considered to have more of the variables studied than the other.

CORDELL CLARK – BIOLOGY**POSTER 73 Title: SMC-5/6 Facilitates Efficient DSB Repair During Meiosis in *C. elegans*****Research Area: Biological Science****Faculty Mentor(s): Diana Libuda, Erik Toraason****Funding: OURS Program Summer 2017, Dr. Diana Libuda's laboratory is funded in part by an NICHD grant****Abstract:**

Sexually reproducing organisms depend upon meiosis to form haploid sex cells necessary for reproduction. Despite the inherent risks of DNA damage to genome integrity, meiotic cells intentionally induce double strand DNA breaks (DSBs) throughout the genome. A specific and limited number of DSBs must be repaired as crossovers with the homologous chromosome to promote proper chromosome segregation. DSBs are induced in excess of the permitted number of crossovers. DSBs not repaired as crossovers must be repaired to maintain genomic integrity. In the Libuda lab, we have designed an assay to determine the repair outcome of a single induced DSB. We have demonstrated that in addition to the homologous chromosome, the sister chromatid is used as a repair template during DSB repair in *C. elegans* meiosis. My research aims to uncover the mechanisms that facilitate intersister repair, which are currently unknown. Experiments in multiple species have demonstrated that SUMOylation is required for crossover formation. Our preliminary immunofluorescence experiments in SUMO deficient mutants reveal SUMOylation is required for DSB repair in *C. elegans* oocytes. Prior research has hypothesized that the SMC5/6 complex, which contains a SUMO ligase subunit (NSE-2), facilitates intersister recombination. Using our intersister repair assay, I have demonstrated that the SMC5/6 complex is required for efficient intersister repair and intersister crossovers. My ongoing experiments are directly testing whether the SMC5/6 complex promotes intersister recombination via the NSE-2 SUMO ligase subunit. Overall, our studies are defining the mechanisms that facilitate intersister recombination to ensure genome integrity during sperm and egg development.

CORDELL CLARK – BIOLOGY**ORAL SESSION 3M Title: SMC-5/6 Facilitates Efficient DSB Repair During Meiosis in *C. elegans*****Research Area: Biological Science****Faculty Mentor(s): Diana Libuda, Erik Toraason****Funding: OURS Program Summer 2017, Dr. Diana Libuda's laboratory is funded in part by an NICHD grant****Abstract:**

Sexually reproducing organisms depend upon meiosis to form haploid sex cells necessary for reproduction. Despite the inherent risks of DNA damage to genome integrity, meiotic cells intentionally induce double strand DNA breaks (DSBs) throughout the genome. A specific and limited number of DSBs must be repaired as crossovers with the homologous chromosome to promote proper chromosome segregation. DSBs are induced in excess of the permitted number of crossovers. DSBs not repaired as crossovers must be repaired to maintain genomic integrity. In the Libuda lab, we have designed an assay to determine the repair outcome of a single induced DSB. We have demonstrated that in addition to the homologous chromosome, the sister chromatid is used as a repair template during DSB repair in *C. elegans* meiosis. My research aims to uncover the mechanisms that facilitate intersister repair, which are currently unknown. Experiments in multiple species have demonstrated that SUMOylation is required for crossover formation. Our preliminary immunofluorescence experiments in SUMO deficient mutants reveal SUMOylation is required for DSB repair in *C. elegans* oocytes. Prior research has hypothesized that the SMC5/6 complex, which contains a SUMO ligase subunit (NSE-2), facilitates intersister recombination.

Using our intersister repair assay, I have demonstrated that the SMC5/6 complex is required for efficient intersister repair and intersister crossovers. My ongoing experiments are directly testing whether the SMC5/6 complex promotes intersister recombination via the NSE-2 SUMO ligase subunit. Overall, our studies are defining the mechanisms that facilitate intersister recombination to ensure genome integrity during sperm and egg development.

RACHAEL CLEVELAND – ENVIRONMENTAL SCIENCE

POSTER 66 Title: Mercury Concentration and Speciation in Sediments throughout the Watershed Below Black Butte Mine in Oregon

Research Area: Natural/Physical Science

Faculty Mentor(s): Matthew Polizzotto

Funding: UROP mini-grant

Abstract:

The history of mining in Oregon has left a legacy of contaminated and abandoned sites that threatens environmental and human health. The goal of this research is to better understand mercury (Hg) cycling within an Oregon watershed that is being contaminated by an abandoned mine. The chosen site is the Superfund site at Black Butte Mine, where contaminated sediment has washed down a series of streams that drain into Cottage Grove Reservoir. The specific objectives of this work are to determine how Hg sediment concentrations, forms, and reactivity change from the mine site to the reservoir and how these factors change within the different areas of the reservoir. Sediment sampling was conducted at the Black Butte Mine site, along drainage creeks and streams, and throughout the Cottage Grove Reservoir. Sediment composites were collected and used for total Hg and speciation analysis. Based on previous studies about Hg cycling in the environment, the concentrations of mercury are expected to decrease with distance from the mine site until reaching the reservoir, where it will increase due to Hg deposition and accumulation. Mercury in sediment should become progressively more reactive from the mine site to the reservoir. Within the reservoir, reactivity and concentrations of Hg are expected to be higher in the floodplains that experience seasonal variations than the permanently inundated areas. This information, particularly the forms of mercury found, has significant implications for Hg bioaccumulation and the resulting safety of humans and species that live within the watershed.

MIRA COHEN – HISTORY

ORAL SESSION 3SW Title: Prostitution in the Frontier West

Research Area: History

Faculty Mentor(s): Jamie Bufalino, Marsha Weisiger

Abstract:

The popular history of the American Frontier West is replete with stereotypical characters: miners, farmers, ranchers, railroad workers, and even prostitutes. While women were brought out west so the men could marry and have a family, many women travelled out to the West to seek their fortune and escape the restrictive Victorian American culture of the East. Some women, already prostitutes, went west planning to continue their trade, free of the judgments of Eastern morality. Other women went west and eventually resorted to prostitution in order to provide for themselves. Both types discovered financial advantages along with more social and political freedom compared to any other women in the country. While some historians overlooked the influence women had in shaping the Old west, my research suggests that women played a significant role, as women accumulated property and therefore became influential members of cities and towns. My research project focuses on the gendered nature of economic and political power in the United States during the 19th century, using evidence from research papers and books other scholars have done on prostitution and women in the Old west, diary entries, personal accounts, and books written about sexual morality. Based on these sources and personal narratives, readers and other scholars can learn that women during this time period had the most personal freedom in the entire country.

CHEYENNE COLLINS – ANTHROPOLOGY

POSTER 132 Title: Preliminary Decomposition Study within the Willamette Valley of Oregon: Multi-Regional Comparison and Sharp Force Trauma Effects

Research Area: Social Science

Faculty Mentor(s): Jeanne McLaughlin

**Funding: Extraordinary Expense Thesis Research Grant from the Robert D. Clark Honors College
Ronald E. McNair Scholars Program**

Abstract:

Determining time since death (post-mortem interval or PMI) is an essential part of medico-legal death investigations. PMI can give investigators important information about time of death and may help answer questions about the events leading up to death. The purpose of this study is to collect decompositional data from an understudied region (Oregon), and compare these data to better studied regions such as Tennessee, in order to characterize the effects of regional variation on decomposition

and taphonomy. Six pig heads will be exposed to the natural environment in the Willamette Valley of Oregon for sixty days. Three of these pig heads will undergo sharp force trauma infliction (SFT) in order to compare rate of decay with remains that have a singular SFT wound. Stage of decomposition, temperature, precipitation, and preliminary entomological data will be collected throughout the sixty-day observation period. These data will be used to calculate Accumulated Degree Days (ADD); evaluate variation between similar studies involving different North American regions; compare and contrast similar studies within the Willamette Valley of Oregon; and analyze the effects of sharp force trauma (SFT) on decomposition rates and insect activity.

TAYLOR CONTRERAS – PHYSICS

ORAL SESSION 2S **Title: Clustering Algorithm Performance Studies for the ATLAS Trigger System at the HL-LHC**

Research Area: Physics

Faculty Mentor(s): Stephanie Majewski

Funding: PURS, McNair

Abstract:

The Large Hadron Collider (LHC) at CERN is a particle accelerator providing massive amounts of data which can reveal new physics about fundamental particles and forces. An upgrade to the LHC that will increase the luminosity will be enacted in 2026, called the High-Luminosity LHC (HL-LHC). The higher luminosity will increase the rate of proton-proton interactions in detectors like ATLAS, thus these detectors must increase the speed of sorting through data. This sorting is performed by the ATLAS Trigger System, which decides whether an interaction is interesting enough to keep within about ten microseconds. Our group is studying the efficiency of different algorithms that cluster energy for implementation on a Field Programmable Gate Array (FPGA) in the Global Trigger. These algorithms cluster the most energetic cells in multiple layers of the detector to reconstruct particle showers. We have implemented the algorithms used on the FPGA in python in order to validate the performance of the FPGA, analyze the background rejection and trigger efficiency of the clustering algorithms, and compare these quantities between different algorithms.

WILL CURTIS – HISTORY

POSTER 119 **Title: The World War II Correspondence of Billy and Bonnie Amend**

Research Area: History

Faculty Mentor(s): Alexander Dracobly, Julie Hessler

Abstract:

For just short of three years, from June 1942 to August 1945, my great-grandparents, newlyweds Billy and Bonnie Amend, did not see each other or hear one another's voice. Billy was a Major in the 190th Field Artillery, stationed in England until the Allied invasion of Western Europe on June 6, 1944. During the years he was gone, the Amends communicated exclusively through letters. They each wrote almost one a day for the duration of the war. My thesis examines just one year of this correspondence, 1944, during which Billy saw some of the most violent combat of the war, including the Battle of the Bulge. Meanwhile, Bonnie was left to struggle through daily life and care for my grandmother back home in Hugo, Oklahoma. Through examination and careful reading of just over one thousand pages of their original letters, my thesis evaluates how the Amends persisted through World War II and how the letters they exchanged helped them to do so. Primarily, the letters served to maintain the bond between Billy and Bonnie. While they spent ink discussing the war itself, the letters are largely dedicated to summaries of day-to-day life, and expressions of each other's desire to finally be together again. However far apart they were and however much danger Bonnie imagined Billy to be in, the letters they wrote back and forth seemed to lessen their separation, and mitigate some of that danger. Though my thesis only examines the correspondence of Billy and Bonnie, their experience was one had by millions of Americans during the war. They provide a direct account of what was on the minds of families separated by the deadliest war the world has ever known, and detail just how they were able to come out on the other side.

ANSON DANG – BIOCHEMISTRY

POSTER 19 **Title: Mapping Interactions Of Single-Stranded (Ss) DNA With the Ss-DNA Binding Protein (Gp32) of the T4 DNA Replication Complex at Specific Nucleotide Residue Positions**

Research Area: Natural Science, Biochemistry

Faculty Mentor(s): Pete von Hippel

Funding: Dreyfus Undergraduate Mentorships

Abstract:

The single-stranded (ss)DNA binding protein (gp32) of bacteriophage T4 plays a central role in regulating the functions and integration of the helicase, polymerase and primase components of the T4 DNA replication system. To understand how gp32 interacts with itself and with the other regulatory proteins and sub-assemblies of the T4 replication complex, we must first understand the structural details of how this protein binds to ssDNA lattices, both as isolated monomer subunits and as

cooperatively bound gp32 clusters. We have explored these issues by monitoring differences in the fluorescence and circular dichroism (CD) spectra of site-specifically positioned monomers and dimer-pairs of 2-aminopurine (2-AP) probes located at various ssDNA positions within the binding site. In its cooperatively bound form gp32 spans 7 nucleotide residues per protein subunit, and by mapping spectral changes on binding to ssDNA lattices that are exact multiples of 7 residues in length we have been able to characterize interactions at defined positions within the gp32 binding cleft. We have extended these studies using acrylamide quenching and permanganate foot-printing assays to monitor degrees of base exposure at various lattice positions. Our results show that gp32 binds randomly at low concentrations, and then shifts toward preferential binding at the 5'-ends of the lattice as cooperatively bound gp32 clusters form at higher gp32 concentrations. Bases located near the middle of a gp32 binding site display lower solvent accessibility than those near the ends of the site. These differences in base 'shielding' may reflect deeper burial of the middle bases within the electropositive binding cleft, while bases at the ends may be made more accessible by fluctuations of the C- and N-terminal regulatory sub-domains of the protein. Insights into gp32-ssDNA interactions involved in controlling the functions of the T4 DNA replication complex that result from these studies will be discussed.

COURTNE DAUM – PSYCHOLOGY

POSTER 100 Title: The Origins of Empathy During Infancy: Links to Theory of Mind and Prosocial Behavior at Age 5

Research Area: Psychology

Faculty Mentor(s): Jennifer Ablow, Jeffrey Measelle

Abstract:

Researchers examining the developmental origins of empathy report that infants as young as 17 months show early indices of empathic behavior in the form of concern for others, positive affect, and emotional distress (Zahn-Waxler, & Robinson, 2005). In turn, a vast amount of research demonstrates the long-term outcomes of empathic children, such as prosocial development, high self-esteem, few externalizing problems and a positive disposition (Eisenberg, Fabes & Spinard, 2015). In addition, early empathic tendencies predict earlier onset of Theory of Mind, which is the ability to attribute beliefs and desires to self and others (Laranjo et al., 2010). Evidence suggests that ToM develops within the context of the parenting relationship during infancy (Laranjo et al., 2010), through parenting mechanisms such as Maternal Mind-mindedness, which is the ability to treat children as their own entities' with minds through appropriate mind related language. Though there is vast literature on the outcomes of early indices of empathy expressed in infancy, there is little research on the development of empathy prior to 17 months. Given links between Maternal Mind-mindedness in infancy and early onset of ToM, and links between early indices of empathy and ToM, this study examines Maternal Mind Mindedness at 5 months predicting indices of infant empathy at 17 months, which in turn predicts ToM, empathy, and prosocial behaviors at 5 years.

RACHEL DAVID – BIOCHEMISTRY

ORAL SESSION 3M Title: Investigating the Role Of Genomic Positioning in Directing Meiotic Double-Strand DNA Break Repair

Research Area: Biological Sciences

Faculty Mentor(s): Diana Libuda, Erik Toraason

Funding: UO Alden Scholar Research Award, NICHD Grant

Abstract:

During meiosis, the specialized form of cell division that produces gametes, cells utilize recombination to maintain genomic integrity and promote proper chromosome segregation, ensuring fertility. Double-strand DNA breaks (DSBs), which serve as substrates for homologous recombination, are intentionally induced during meiosis. A fraction of DSBs must be repaired as crossover recombination events with the homologous chromosome to forge a physical connection required to facilitate proper chromosome segregation. Although DSBs are induced across the genome, crossovers in *C. elegans* are preferentially formed along chromosome arms and not the center of chromosomes. What determines this crossover preference along chromosome arms is not well known. Intriguingly, previous studies in *C. elegans* have indicated that the crossover landscape is not determined by chromatin marks or specific sequence motifs. However, proximity of a DSB to the synaptonemal complex (SC), a meiosis-specific proteinaceous structure that connects homologous chromosomes together, has been suggested to influence DSB repair outcomes. To determine how genomic positioning of a DSB affects its repair outcome, I am exploiting genetic assays developed by the Libuda lab that enable controlled induction of a single DSB at a known genomic location and assess how that induced DSB was repaired. Utilizing CRISPR/Cas9 genome editing, I have targeted these assays to four unique loci that differ in position both along the chromosome length and in proximity to the SC. Together, our studies will elucidate how the position of a DSB within the genome influences how it is repaired to maintain genome integrity.

JOHN DECHERT – MATHEMATICS, REEES**ORAL SESSION 3SW Title: Russia's Experiment in Scouting: 1909-1922****Research Area: History****Faculty Mentor(s): Julie Hessler****Abstract:**

In 1909, Oleg Ivanovich Pantyukhoff, a colonel in the Russian army who was inspired by Robert Baden-Powell's scouting program in Great Britain, founded the Russian wing of the worldwide scouting movement, known as the "Razvyedchiki" in Russian, and would lead the program to great successes within pre-revolutionary Russian society. Pantyukhoff and many of his scouts left memoirs of their involvement with the scouting movement, which provide a unique and personal perspective into the dealings of the movement. Additionally, Soviet leaders spoke of the scouting movement, and its counter-revolutionary flavor, frequently, and provide another interesting perspective into the movement's history. Scouting, however, was not an activity born in isolation. During the late 19th and early 20th century, Russia underwent a fundamental shift in policies and priorities as a result of modernization, liberalism, and nationalism, and the Russian people bought wholesale into the trappings of "civil society." They formed men's and women's groups, charity organizations, book clubs, literary societies, and the like. The study of Russian civil society before the World War I has been of growing interest to Russian historians since the fall of the Soviet Union, and studies of pre-war organizations are ever rising in number. Unfortunately, the Russian scouting movement has been left out of this general trend. The purpose of this study is to bridge that gap and contribute to the body of knowledge by examining the course of Russian scouting during the turbulent years of World War I, the Russian Revolution and Civil War, and how the scouting movement fit in to Russian civil society.

AMELIA DELGADO – BIOLOGICAL ANTHROPOLOGY**POSTER 128 Title: What's in the Box: Using a Comparative Collection to Identify Mystery Avian Bones****Research Area: Social Science****Faculty Mentor(s): Frances White, Madonna Moss****Abstract:**

The UO Primate Osteology Lab had an unmarked collection of bird bones in need of identification. The bones, which were associated with an Excel database, were found to be a project begun by a past graduate student, Brendon Culleton. Many of the bones were labeled with a number and where they were found, however a majority lacked identifications to genus. All bones were collected between 1997 and 1999 from California State Parks such as: Waddell Creek Beach, Golden Gate National Recreation Area, Natural Bridges State Beach, Nisene Marks State Forest, Moss Landing State Beach, Point Lobos Reserve, and Zmudowski State Beach.

For this collection, I worked with Madonna Moss in the Zooarchaeology Lab to learn basic bird anatomy and how to identify the bones with the use of the lab's avian comparative collection. Learning these skills allowed me to gain experience in curating a researchable collection. This collection was found to include humeri, femora, carpometacarpi and other specialized bird bones, which I identified to genus and organized into an Excel database for future use. Identifications revealed that there were at least 12 species of coastal birds such as scoters, gulls, and western grebes present in the box. Upon completion of this project, this avian bone collection can be utilized for potential teaching aspects of fundamental anatomy of coastal birds.

ALEX DENTON – HUMAN PHYSIOLOGY**POSTER 26 Title: Correlation of Ground Reaction Force Transient Impact Peak and Peak Lower Limb Acceleration in Elite Endurance Athletes****Research Area: Biomechanics****Faculty Mentor(s): Michael Hahn****Abstract:**

Stress fractures are the result of repetitive high impact loading on the skeletal system followed by insufficient recovery. Elite endurance athletes, such as competitive cross-country runners, are inherently at risk of developing stress fractures in the lower extremities. The purpose of this study was to identify the relationships between peak lower limb acceleration and ground reaction force (GRF) transient impact peak, as well as peak lower limb acceleration and GRF loading rate. It was hypothesized that both GRF transient impact peak and GRF loading rate would correlate with peak lower limb acceleration. Data was collected from 8 competitive endurance athletes using an instrumented split belt treadmill and three inertial measurements units (IMUs) placed on both shanks and superficial to the sacrum. Data were analyzed using a Matlab script to conclude peak lower limb acceleration is moderately associated with GRF transient impact peak, but peak lower limb acceleration is not associated with GRF loading rate. Further analysis of additional subjects is necessary to identify a quantitative abnormality in order to prevent stress fractures before they occur.

Word Count: 175

ALLISON DONA – GENERAL SCIENCE, SPANISH

POSTER 62 Title: Inflammation as a Mediator of Depression and Diabetes in the Study on global AGEing and adult health (SAGE)

Research Area: Natural Science

Faculty Mentor(s): Josh Snodgrass, Alicia DeLouize

Funding: NIH NIA Interagency Agreement; Ministry of Health in Mexico; University of Oregon Bray Fellowship

Abstract:

Diabetes and depression are major global health concerns, affecting over 400 million and 300 million worldwide, respectively. Numerous studies have found that these diseases are commonly comorbid, suggesting the possibility of an underlying shared physiological process such as an inflammatory pathway. As a biomarker of inflammation, C-reactive protein (CRP) has not been consistently linked to these conditions, despite the fact that diabetes and depression have both been linked to inflammatory mechanisms. This study uses Mexico Wave 1 data from the Study on global AGEing and adult health (SAGE) to examine if CRP mediates the relationship between depression and diabetes risk. It is hypothesized that, in participants 50-plus, inflammation will mediate the effect between the two conditions. Depression was estimated using a behavior-based diagnostic algorithm, inflammation was assessed using dried blood spot (DBS) CRP, and diabetes risk was assessed using DBS glycated hemoglobin (HbA_{1c}). The association between depression and diabetes risk was partially mediated by inflammation. The presence of depression is associated with increased CRP, which is associated with increased HbA_{1c}. This suggests that inflammation may be associated with the comorbidity of depression and diabetes. This may be the first study to use a large sample of older adults in a middle-income nation with high-resolution biomarker information to investigate physiological processes that might be involved in both conditions, an understanding of which could lead to better treatments.

GENEVIEVE DORRELL – BIOLOGY, COMPUTER SCIENCE

Co presenter(s): Daria Wonderlick

POSTER 11 Title: Can we Predict the Evolution of Protein Function

Research Area: Evolutionary Biophysics

Faculty Mentor(s): Mike Harms, Anneliese Morrison

Abstract:

Proteins evolve new functions by acquiring mutations. Understanding this process is critical to combating antibiotic and pesticide resistance. Studies have shown that the effects of mutations alone versus in combination are not always equal. This is called epistasis, and it impedes our ability to predict protein evolution. Our project aims to understand one biophysical source of epistasis. Previous theoretical work in the Harms lab revealed that epistasis could arise from the existence of multiple conformations of a protein. To probe this, we are manipulating the number of conformations available to the lac repressor protein. We are using drugs that shift the lac repressor into either its DNA-bound or DNA-unbound conformation. We perform a colorimetric assay to quantitatively detect which conformations are favored by lac repressor mutants, and then infer epistasis between mutations on these functional readouts. If we limit the number of conformations a protein can adopt and see a proportional change in epistasis, we will have evidence to support that epistasis arises from this intrinsic biophysical property of proteins.

ASHLEY DRESEN – PSYCHOLOGY

ORAL SESSION 2SW Title: Enhancing Low Frequency Rhythms in the Motor Cortex of Humans

Research Area: Cognitive Psychology

Faculty Mentor(s): Michael Posner, Pascale Voelker

Funding: ONR Grant N00014-15-1-2148 to the University of Oregon

Abstract:

Theta frequencies are associated with internalized attention and positive emotional states. In our laboratory, mice receiving theta frequency stimulation of the anterior cingulate cortex (ACC) showed increased myelin and improved connectivity as measured by g-ratio (axon diameter/axon diameter + myelin). To extend these results to humans, we stimulated the ACC by applying electrical stimulation at a theta frequency (6Hz) to a set of scalp electrodes overlying that area. Following stimulation, we found enhanced low frequency power in ACC sites compared to baseline, and this power increased when a task known to stimulate the ACC was performed. To test whether this method could be applied to other brain areas, we chose a task activating the hand region of the primary motor cortex and electrodes stimulating the motor area. We are testing 12 undergraduates using a generic set of electrodes known to stimulate the motor area, and comparing this with electrodes selected for each person based on structural brain images. We plan to determine if stimulation increases low frequency theta rhythms during non-stimulated periods, and whether the electrodes chosen individually produce superior effects to the generic ones. We are currently summarizing the results from 12 subjects. We expect that intrinsic theta will be increased in the motor area in the minute following electrical stimulation and this will be greater when performing the task. We expect these effects to be larger for individually selected electrodes. If results are as expected, it will suggest that many cortical and

subcortical areas show increased theta following stimulation and allow us to test whether long term use of such stimulation can alter white matter connectivity as found in our mouse model.

BLAKE DRESSEL – ECONOMICS

Co presenter(s): Natalie Valent

ORAL SESSION 3S Title: A Comparison of Market Based and Government Enforcement Environmental Policies across US States to Observe How Oregon Employment Rates are Impacted

Research Area: Social Science

Faculty Mentor(s): Bill Harbaugh

Abstract:

In an effort to combat climate change, the Oregon State legislature has proposed a cap-and-invest program that establishes a ceiling on total anthropogenic greenhouse gas emissions through covered entities and a market-based compliance mechanism. The mechanism will promote carbon sequestration, adaptation and resilience in the face of climate change and ocean acidification. The legislation establishes a Climate Investment Fund, Just Transition Fund, and a Transportation Decarbonized Fund, which allocates permit funds. The program funding should be allocated in a way that is feasible, cost-effective, and consistent with the law. To find changes in employment rates across Oregon economic sectors, we classify United States (US) state policies as either command-and-control, market-based, or information instruments with the goal of increasing renewable energy development. This data comes from the Database of State Incentives for Renewables and Efficiency (DSIRE). Furthermore, the paper uses a difference-in-difference-in-difference (D3) econometric estimator, which compares environmental conditions before and after policy implementation, that looks to compare various policy types across US states, across economic sector, and over time with the goal of estimating changes in employment. The employment data comes from the US Bureau of Economic Analysis (BEA). Based on the literature and data gathered from other US states' laws, we propose measures that reflect the most cost effective abatement instruments. We then examine changes in emissions through policies to observe changes in employment in Oregon. This information helps inform the analysis of Oregon energy and environmental policies.

MARIA DRESSER – PHYSICS, MATHEMATICS

POSTER 13 Title: Chemotaxis Expansion Waves in E. Coli

Research Area: Biophysics

Faculty Mentor(s): Tristan Ursell, Daniel Shoup

Funding: Presidential Undergraduate Research Scholars (PURS) recipient

Abstract:

Communities of bacteria respond to environmental changes as a group with the combined behaviors of individual bacteria giving rise to unique collective behaviors that facilitate the growth and dispersal of bacteria. In particular, bacteria undergo a process called chemotaxis which utilizes a run and tumble method to move towards higher concentrations within a given chemical gradient. In liquid environments, collective consumption and chemotaxis towards nutrients results in a collective behavior known as an expansion wave which facilitates rapid range expansion. How environmental properties dictate the attributes of expansion waves is poorly understood yet critically important as expansion waves drive invasiveness, colonization, and may help bacteria define their interspecies boundaries in complex communities. Here we study the expansion of E. Coli in capillary tubes to replicate a one dimensional expansion environment. The use of various concentrations of galactose and three amino acids give rise to different expression profiles and observable behaviors. After inoculating cells into capillary tubes containing different nutrient media, we image the tubes using bright field microscopy and measure the wave speed and number of waves in each tube. Wave speed allows us to understand how quickly bacteria enter a new region and how this is affected by nutrient concentration. Because different waves may exhibit different phenotypic states such as consuming different nutrients and undergoing cell division at different rates, we are interested in understanding what nutrient concentrations give rise to multiple waves. We hypothesize that slower waves are undergoing cell division more rapidly, thus devoting more energy to division than to consumption. Results thus far show that expansion rate is constant until a threshold is met, and lower initial cell concentrations give rise to more waves.

CASSANDRA DUKES – PSYCHOLOGY

POSTER 108 Title: Dissociative Experiences Associated with Parasympathetic Nervous System Activation of Expectant Mothers During Trauma Recollection

Research Area: Clinical Psychology

Faculty Mentor(s): Jennifer Ablow, Jeffrey Measelle

Abstract:

Trauma, defined by the DMS-5 as “exposure to actual or threatened death, serious injury, or sexual violence” can be associated with levels of dissociation when triggered by recollection (Shauer & Elbert, 2010). The Polyvagal Theory, developed by Stephen

Porges (1995), suggests that dissociation, a form of immobilization, is a defense used as a coping mechanism to confront an inescapable fear or danger. In keeping with this, research has shown through investigating heart rate that dissociation activates the parasympathetic nervous system (PNS) (Koopman et al., 2004). Respiratory sinus arrhythmia (RSA) is an important measurement of the PNS that relates to heart rate variation and respiration (Sack, Hopper, & Lamprecht, 2004). Although research has shown associations between heart rate and dissociation during stressful or triggering interviews, there is limited knowledge of dissociation correlating with RSA during personal trauma recall. This study recorded continuous RSA of eighty-two pregnant women discussing trauma during the Adult Attachment Interview (AAI) then involved them filling out several questionnaires including the Brief Betrayal Trauma Survey (BBTS), Childhood Trauma Questionnaire (CTQ), Trauma Symptoms Checklist (TSC), and Dissociative Experiences Scale (DES-II). After data was recorded, it was analyzed using a paired-sample t-test and regressions. It is predicted that as scores on the DES-II increase, RSA will increase during trauma recollection. If the results are consistent with these hypotheses, it will further support the idea of dissociation as a form of coping mechanism and a way to counteract the autonomic nervous system dysfunction normally caused by experiencing trauma. In doing so, researchers can better understand how dissociation helps individuals regulate stress and emotions during stressful situations and why this might be a common symptom of PTSD.

ZANE EDDY – GEOGRAPHY

POSTER 35 Title: **Analysis of the Planning and Efficacy of Dams in the Willamette Valley**

Research Area: Physical/Social Science

Faculty Mentor(s): Alexander Murphy, Eric Sproles

Abstract:

The Willamette Valley has had a long history of flooding due to the physical geography of the region. In the 1930s, planning for flood control in the valley began. A plan for construction of a system of dams was approved in 1938, and construction of the first dam was completed in December of 1941. Over the following three decades, twelve more dams were constructed in the Southern Willamette Valley. In addition to flood control, the dams were supposed to help with irrigation. My research focuses on two main questions relating to the dam system: what went into the approval of the project during the 1930s and whether the project goals of flood control and improved irrigation were successful. To answer the first question, I looked at a variety of historic record and secondary sources relating to the project. Through these sources I was able to put together a narrative of the early project for a variety of different viewpoints. I analyzed streamflow data to answer the second question. I analyzed peak streamflow rates to determine the efficacy of flood control and at monthly average streamflow to determine the success of improving irrigation. I looked at data from before and after the dam were built and above and below the dams on the waterways to evaluate the effects of the dams. I concluded that the dams were effective at both of the stated goals.

WILLIAM EDGELL – BIOCHEMISTRY

POSTER 69 Title: **Synthesis of Alkyne Substituted Cycloparaphenylenes for Conjugated Polymers**

Research Area: Organic Synthetic Chemistry

Faculty Mentor(s): Ramesh Jasti

Funding: Undergraduate Research Opportunities Program (UROP)

Abstract:

Conjugated polymers possess excellent conductive properties that could facilitate the construction of light weight flexible electronics. This potential application makes an efficient route to conjugated polymers synthetically desirable. The current barrier to large-scale synthesis of these molecules is an inversely proportional relationship between solubility and conductivity. The sought-after conductivity is due to charge transfer across a conjugated π system within the polymer. This affords the polymers with electronic properties atypical of organic molecules. Unfortunately, intermolecular stacking of these π systems leads to poor solubility. Cycloparaphenylenes (CPPs) offer a solution for this conflict between solubility and charge transfer. CPPs are large hoops of strained benzene rings which possess a conjugated π system without a clear avenue for π stacking. A CPP polymer would form a sort of molecular necklace; with large bulky hoops hanging off the polymer backbone, the potential polymers would not stack well with each other, thus reducing chance of aggregation. Utilization of the CPPs as monomers for polymer synthesis could produce a polymer chain with the ideal electrical properties without diminishing the solubility. To this end, this research project focuses on the synthesis of the CPP monomers to be used for the polymer reaction. Creating this highly strained hoop requires a series of reactions to form a string of benzene rings that will be coupled to a single alkyne functionalized benzene. Previous work shows challenges in the route that yields the eight ring CPP. Current work has yielded successful synthesis of functionalized six ring cycloparaphenylene.

LIZZY ELKINS – INTERNATIONAL STUDIES, WOMEN’S AND GENDER STUDIES

ORAL SESSION 3C Title: Spitting Bars and Subverting Heteronormativity: An Analysis of Frank Ocean and Tyler, the Creator’s Departures From Heteronormativity, Traditional Concepts Of Masculinity, And The Gender Binary
Research Area: Gender/Sexuality studies

Abstract:

This paper seeks to investigate an emerging musical movement of rap and pop artists who actively subvert structures of the gender binary and heteronormativity through their music. The main artists considered in this research are Frank Ocean, a pop/rap/R&B artist who ascended to his peak fame in the past decade, and Tyler, the Creator, a rap artist who has also claimed fame relatively recently. Artists like Ocean and Tyler make intentional disclosures from heteronormativity and the gender binary, combat concepts such as ‘toxic masculinity’, and hint through differing levels of ambiguity the possibilities for normalization and destigmatization of straying from the gender binary in more ways than one: through lyrics, metaphysical expressions, physical embodiments of gender, expression of fluid/non-heteronormative sexualities, and disregard for labels in their sexual and gendered identities. In the following research, I discuss the history and context around music as an agent for social change and address the privileging of the black heterosexual cisgender man as the central voice to pop/rap/R&B. This project will draw on Beauvoirian philosophy regarding gender as well as contemporary sources of media like Genius, record sale statistics, and album lyrics. By illustrating and evaluating how these artists subvert traditional concepts of gender and sexuality, I hope to also shine a light on how their music - which reaches millions of people who are not familiar with ideas outside of the gender binary - is a catalyst for social change and how it is significant in this current political moment.

CHRISTINA ELLISON – MARINE BIOLOGY

POSTER 59 Title: Do Chiton Larvae Have Kidney Stones? Unidentified Crystal Structures in the Larval Development Of Mopalia Hindsii
Research Area: Natural Science
Faculty Mentor(s): Richard Emlet
Funding: National Science Fund (REU program)

Abstract:

Chitons are marine molluscs in the class Polyplacophora. Like many marine organisms, chitons have a pelagic, dispersive larval stage which settles and metamorphoses into an adult form that lives on the benthos. During development, chitons must acquire structures that enable them to function in each of these environmental contexts. While many features of development have been well documented, one structure has yet to be reported. Chiton larvae consistently form a pair of birefringent, crystalline structures, best viewed with cross-polarized light. What they are made of and their function in the animal are unknown. The location and timing of these structures appear consistent with the “larval kidneys” as described by Baeumler et. al 2011, so we hypothesized they could be involved in kidney function. The purpose of this study was to establish a developmental timeline for these structures, to determine their chemical composition, and to record morphological data concerning their appearance (size, shape, number, location). This was achieved by raising chiton larvae and monitoring their development through microscopy. Calcein-tagging, fluorescence microscopy, and a murexide test were used to infer chemical composition. Our results suggest the structures form 4 days post-fertilization and persist at least 5 days after metamorphosis. The structures are composed of many small, calcium-containing crystals. They have been observed in 7 species across 2 suborders and may be a universal feature of chiton development. Our findings are consistent with possible kidney involvement, but functional studies must be done to further support this idea.

Ravahn Enayati – Human Physiology

POSTER 28 Title: Gait Stability Deficiencies In Veterans With Chronic mTBI
Research Area: Physical Science
Faculty Mentor(s): Li-Shan Chou, Will Pitt

Abstract:

While mTBI, or concussion, is typically associated with athletics, head trauma is widespread in the battlefield and combat training, as evidenced by 294,010 documented cases of mTBI in the Department of Defense between 2000 and 2016. It has been shown that veteran subjects with chronic mTBI continue to suffer from subjective symptoms. It is reasonable to believe they may also continue to exhibit impairment in their gait stability when tested under a dual-task condition. Eight veteran subjects diagnosed with chronic mTBI (1F; 32.3 6.5 years old) had their gait imbalance tested. Each subject walked barefoot in two conditions. The first condition involved each veteran providing their undivided attention toward their movements (single-task). The second condition had each subject concurrently completing a continuous auditory Stroop test, which consisted of the individual listening to different auditory stimuli and attempting to correctly identify the pitch (dual-task). A camera motion analysis system was used to collect imaging of each subject’s movements during both conditions. The results were then compared with those of an acutely concussed group of athletes which had a statistically significant gait deficit. The one-time test of the veteran group was compared with five different time points from the acute sample. The results found

that in the dual-task condition, there was no statistically significant difference between the medial-lateral sway of the chronic veterans and the acutely concussed athletes. This indicates that the veterans that suffer from chronic mTBI suffer similar gait imbalance as the acutely concussed athletes.

TUCKER ENGLE – ENGLISH

ORAL SESSION 2CS Title: Finding Self in Key West and a Red Wheelbarrow

Research Area: Humanities

Faculty Mentor(s): Devin Fitzpatrick

Abstract:

The modern poetry of William Carlos Williams and Wallace Stevens evokes the postmodern idea of blurring the subject/object dichotomy. Their poetry brings to the forefront the cruciality of the environment (and its individual artifacts) to the formation of an image, an experience, and the self. Key to this project is that third component: how the natural world and distinct components of that world play a role in the construction of selfhood. Utilizing Heidegger's notions of reflection and poiesis, along with modern environmentalism, I take an ecophenomenologist approach to navigate the relationship between the individual and the environment. My project aims to demonstrate how the juncture of the two disciplines of phenomenology and ecology points to self formation existing as a process inextricable from the environment in which it occurs, then show how this phenomenon works in the poetry of Stevens and Williams.

ELEANOR ESTREICH – ENGLISH, ECONOMICS

ORAL SESSION 1C Title: A Rhetorical Analysis Of Reports About Mass Atrocities: Rwanda, Bosnia, Syria, And Myanmar

Research Area: Humanities - Rhetorical Analysis

Faculty Mentor(s): David Frank

Abstract:

Speaking from Beirut in February 2018, the United Nations' regional humanitarian coordinator for the Syria crisis, Panos Moutziz, said that "Humanitarian diplomacy is failing..We are not able to reach the conscience or the ears of politicians, of decision makers, of people in power" (NYTimes). Moutziz also "wondered what level of violence it would take to shock the world into action" (NYTimes). The prevalence of mass atrocities should demand our attention, yet moving decision makers to pay attention or act on mass atrocities remains a significant problem. This problem is magnified by the sheer number of victims in modern wars, and pervasive psychological barriers that often prevent decision makers from being able to comprehend the meaning of distant human lives underlying statistical description. Given these issues, this thesis formulates a response to a broad request by Charles J. Brown, a practitioner in Washington D.C., to study messaging strategies in reports about atrocities. Reports are a widely used communicative practice for the US government and other institutions, so this thesis considers reports that present data and information about atrocities to decision makers, rather than a broad journalistic readership. In order to reach the conscience of those in power, and strive to elicit better decision-making processes about atrocities, rhetorical analysis is used to identify more effective ways of selecting and presenting input data about atrocities for decision makers. Building from the research of Paul Slovic, who identifies the role of dual-process theories of thinking in our psychological responses to atrocities, this analysis also focuses on how the psychological underpinnings of reports should guide writing recommendations. The first chapter uses qualitative rhetorical analysis to evaluate the effectiveness of three reports issued about Rwanda and Bosnia. The second chapter interrogates US discourse around al-Assad's use of chemical weapons in Syria, which was comprised of argumentation for and against military intervention. The purpose of the second chapter is to identify how the larger discourse might direct argument invention in the report-writing process. Preliminary findings suggest that reports fail to capture the attention of decision makers when they use inconsistent scaling mechanisms for representing statistical deaths, and that risk is usually framed in terms of intervention (rather than nonintervention), to the detriment of the decision-making processes that follow.

*Nytimes: <https://www.nytimes.com/2018/02/06/world/middleeast/syria-bombing-damascus-united-nations.html?action=click&contentCollection=Opinion&module=RelatedCoverage®ion=Marginalia&pgtype=article>

HALEY FARINGER – ENVIRONMENTAL SCIENCE

Co presenter(s): Rulon Hardy, Christina Ellison

POSTER 60 Title: Ontogenetic Shifts in Resource Use And Behavior in the Striped Parrotfish, *Scarus Iseri*, on a Patch Reef in Bocas Del Toro, Panama

Research Area: Natural/Physical Science, Marine Biology, Ecology

Faculty Mentor(s): Richard Emlet, Jan Hodder

Abstract:

Scarus iseri, the striped parrotfish, is among the most abundant parrotfish on Caribbean coral reefs. As grazing herbivores, they shape community structure by transmitting primary production up the food chain, regulating algal biomass, and

facilitating benthic settlers in the process of removing patches of algae. *S. iseri* are protogynous hermaphrodites with 3 life stages (juvenile, initial and terminal) identifiable in the field. Our study investigates differences in range size, habitat utilization, and behavior between the juvenile and terminal phases. Through this research, we hoped to gain a better understanding of how these fish utilize their habitat as they grow, and how resources are partitioned among members of a population.

Our research was conducted at House Reef, near the Smithsonian's Tropical Research Institute in Bocas del Toro, Panama. We followed 6 focal individuals of each life stage for a 15-minute period to establish their range. These parameters were chosen due to time constraints of the study period. We only had 4 days to complete the research, including data analysis, and wanted to maximize both the amount of time we followed each fish, and the number of replicates for each life stage. The numbers we chose reflect a compromise between these two variables. Using survey flags and transect-tape, we calculated the area of each range and drew a map of its shape.

Before conducting surveys in the field, we constructed an ethogram, or a table of observed behaviors for the fish. Then for 5 minutes of the 15-minute period we observed and recorded behaviors of the fish according to our ethogram. This allowed us to gain insight about feeding frequency, substrate used for feeding (e.g. sediment, sponge, sand, etc.), the proportion of each type of substrate used, and social behavior within a population.

Our results suggest that range size increases with more advanced life stage. Time allocations for feeding and non-feeding behaviors are similar between the two stages and both life stages utilize the same substrate types for feeding, in similar proportions. Juveniles frequently form groups, while terminal phase individuals are often found alone.

Because *Scarus iseri* is so prominent in the Caribbean Ocean, it has an increased ability to transfer nutrients through trophic levels. Not only is it important to understand how resource utilization within this species is affected by life stage, but how this resource utilization affects nutrient levels and habitat availability for other species on reefs of the Caribbean Ocean. With the recognition of variable social behaviors and range sizes between juveniles and terminal adults, we hope to better understand the nature of these fish's relationship with each other and other stakeholders on the reef. The data collected is important because it can be used to inform the management of marine protected areas aimed at preserving this important group of fish.

SARA FATIMAH – INTERNTIONAL STUDIES

POSTER 122 Title: How Climate Change Has Affected Food Production in Afghanistan and Therefore Added to the Number of Afghan Refugees Seeking Asylum in the United States Between 2001-2016

Research Area: Social Science

Faculty Mentor(s): Kathie Carpenter, Leigh Johnson

Funding: Global Studies Undergraduate Award; Undergraduate Studies; International Studies; DC Ducks Alumni Award

Abstract:

Afghanistan is the second largest source country of refugees with one-tenth of its population applying for asylum in 2015 alone (UNHCR, 2016). Already plagued with conflict, violence, and war, Afghanistan was also ranked second at most risk of risk of water shortage, conflict and displacement of people on the 2014 Global Climate Risk Index. This research investigates how climate change has affected food production in Afghanistan and therefore added to the number of Afghan refugees seeking asylum in the United States between 2001-2016. Four-fifths of Afghans depend on rain-fed agriculture and cattle grazing; the country's main water sources are glacier-fed rivers and rainfall causing Afghans to face many climate risks in securing their livelihoods. In 2017, I collected data on more than 30 individuals to investigate the relationship between climate change, conflict, and out-migration from Afghanistan. I reached out to members of the Afghan refugee community living in Maryland, Washington DC and Virginia to learn about challenges created by climate change. The results showed that they faced plenty of hardships in farming over the past 15 years. A consistently recurring theme across interviews was the lack of water available to farmers due to unsustainable water management and the constant occurrence of droughts over the past decade. My results show a strong correlation between livelihood security and climate change, and therefore serves as a case-study for lawyers, policymakers and environmental activists to obtain additional evidence on the close relationship between climate change and outmigration. This research contributes to the Intergovernmental Panel on Climate Change (IPCC) 5th Assessment Report's plea for more comprehensive evidence, collected across multiple locations, to test theories about relationships between climate change and livelihoods, culture, migration, and conflict. As currently, UNHCR's international protection mandate does not recognize climate refugees.

ADELINE FECKER – BIOLOGY**POSTER 43 Title: Forebrain Control Of Social Behavior In Zebrafish Model****Research Area: Natural Sciences****Faculty Mentor(s): Sarah Stednitz****Abstract:**

The zebrafish animal model provides valuable insight into social behavior and social impairments. Zebrafish exhibit a stereotyped orienting pattern called shulling when they interact with another fish. Our goal is to identify the neurons involved in this social behavior. We control the shulling behavior by placing one fish on each side of a clear divider. This assay allows us to track their shulling pattern and control the duration of the interaction. After running a social behavior test in zebrafish, the brain is immediately dissected, cleared and stained for activity. This procedure labels the neurons that were recently active during the social behavior condition. Activity was labeled on three channels: GFP, ERK, and phospho ERK. We used zebrafish bred with the GFP transgene and stained the dissected brains with ERK and phospho ERK antibodies. The brains of fish who received no social stimulation were also dissected and stained as a control. The lateral septum of the forebrain is highly active in the stimulated condition. In a follow-up experiment, ablations of the lateral septum revealed social deficits in the behavior tests. This suggests the lateral septum is important for social behavior. Similar research on mammalian models supports the importance of the forebrain in social behavior. Our finding not only strengthens the validity of the fish model but also has implications for the localization of social deficits in autism and schizophrenia.

Troi Feinberg – General Science**POSTER 65 Title: Abundance, Density, and Diet of Duikers at Lomako, DRC****Research Area: Natural Science****Faculty Mentor(s): Frances White, Colin Brand****Abstract:**

Duikers are a widespread family of tiny forest-living antelope that occur across sub-Saharan Africa. While approximately 22 species have been identified, little is known about the biology and behavior of many of these species due to their solitary and reclusive nature. Additionally, these species are sensitive to human disturbance and are often among the first species to be hunted and relocate. The objective of this study was to characterize the abundance and density of duikers inhabiting the forest near the N'dele field site in the Lomako Forest Reserve, Democratic Republic of Congo. Auditory or visual observation of duikers was recorded using all-occurrence sampling over nine months from 1983-1984. We also analyzed stomach contents of animals taken by hunters from outside the study area to gain insight on their diets. We encountered three species of duiker at the field site: *Cephalophus weynsi*, *Cephalophus silvicultor*, and *Philantomba monticola*. We detected *C. weynsi* 63 times, *C. silvicultor* once, and *P. monticola* 35 times. A preliminary estimate of overall density was 4.075 per sq. km. across all species. This result is comparable to duiker densities in other protected areas. Analyses of stomach contents (N=6) revealed that *C. weynsi* consumed at least 23 different plant species, including the following most prevalent food items: *Celtis tessmanii*, *Dialium* sp., and *Landolphia congolensis*. These data contribute to our broader understanding of duiker biology and are useful for monitoring trends in population size and density at this location over time.

ROXANNE FIELDHOUSE – BIOLOGY**POSTER 58 Title: Bacterial and Fungal Community Composition Within Corn Seed****Research Area: Natural Science****Faculty Mentor(s): Lucas Nebert, Brendan Bohannon****Funding: UnderGrEBES Research Award****Abstract:**

All plants contain within them an associated microbial community, functioning similar to the human gut community. These plant associated bacteria and fungi have recently come into focus as an important factor in fitness, helping to aid plants by increasing drought resistance, increasing limiting macronutrients available, and providing pathogen resistance. Importantly, many of these beneficial microbes can be inherited in the seed. Because some species can become pathogenic when the plant comes under stress, agricultural communities look to sterilize their seed of these complex communities. Little is known about the ecology of seedborne bacteria and fungi. The objective was to evaluate the microbial community of corn seeds, determine significant environmental factors, such as seed type, climate, and farm, affecting the microbial community composition. Additionally, we attempt to separate these environment-microbe interactions from the microbe-microbe interactions happening within the seed. We hoped to find microorganisms that negatively affect the presence of pathogenic microbes, specifically *Fusarium*, a genus of fungi that contains multiple species of corn pathogens. These fungi are relevant to human health because they produce a mycotoxin, fumonisin, which negatively impacts neurological development and liver function. Preliminary results have shown type of corn is a significant environmental factor in determining the composition of the microbial community and that significant microbe-microbe associations occur within a subset of the data. This research could allow future investigators to more clearly understand how host microbe interactions operate and reinforces the importance of

a diverse microbiota.

RAE FITZPATRICK – FAMILY AND HUMAN SERVICES

Co presenter(s): Claire Guidinger, Gina Williamson, Isaac Leve, Sophie Brockie

POSTER 94 Title: Emotion Dysregulation Moderates the Association Between Perceived Ethnic Discrimination and Loss of Control Eating in Asian/Asian American Men

Research Area: Health Psychology And Prevention Science

Faculty Mentor(s): Nichole Kelly

Abstract:

The current study examined the association between perceived ethnic discrimination and loss of control (LOC) eating in Asian/Asian American men. Six aspects of emotion dysregulation were explored as moderators. Participants (N=266; 18-30y; Mage=24.4±3.6) completed an online survey assessing demographic variables; perceived ethnic discrimination (including both experiences with racism and microaggressions); emotion dysregulation; and LOC eating frequency in the last 28 days. After controlling for body mass index, education, income, and presence of a psychiatric diagnosis, negative binomial regression models revealed that perceived ethnic discrimination in the form of experiences with microaggressions was positively associated with LOC eating frequency, $p < .05$. Everyday experiences with racism, however, was not significantly associated with LOC eating frequency. All six domains of emotion dysregulation were significantly and positively associated with LOC eating frequency, $ps < .001-.02$. Follow-up moderation models revealed that limited access to emotion regulation strategies, non-acceptance of emotional responses, and lack of emotional clarity moderated the relationship between both perceived microaggressions and LOC eating, and every day experiences with racism and LOC eating. In plotting the moderation effects, it was determined that these maladaptive emotion regulation strategies generally superseded any experiences with microaggressions and racism, with respect to their association with more frequent LOC eating. These findings support an established body of literature identifying emotion dysregulation as a risk factor for disordered eating behavior. Moreover, the positive association between perceived experiences with microaggressions and LOC eating frequency adds to the growing body of evidence linking experiences with microaggressions to poor mental health outcomes.

KRIS GALAGO – ETHNIC STUDIES

CREATIVE WORK SESSION 4 Title: The Loss Of Native Hawaiian Culture Resulting from Migration to the Pacific Northwest

Research Area: Ethnic Studies

Faculty Mentor(s): Stephanie Lani Teves, Sharon Luk

Abstract:

In the past 20 years a significant number of Pacific Islanders have moved away from their Pacific island homelands to the continental United States for perceived 'better opportunities'. In that migration, some Native Hawaiian cultural traditions were not perpetuated. From a survey of discourse on colonialism in Hawaii in both literary studies and history, the erasure of Native Hawaiian culture grounds much of the theory and analysis about Native Hawaiian migration to the mainland and the loss of culture when this occurs. I analyze general themes prominent in scholarly literature most grounded in Native Hawaiian colonial studies: experience of relocation, perpetuation of culture, loss of culture, connection to land and family and institutional racism.

I investigate the ways that the Pacific Islander cultures are being practiced and perpetuated in the continental United States. Participant interviews make up the majority of my research data along with insight gained from attending, observing and participating in various community event in the Pacific Northwest centered around the Native Hawaiian culture and arts. A close examination of archival records obtained from two key archival sources: The Office of Hawaiian Affairs demographic data on diaspora of Native Hawaiians, and the U.S. Census information on Native Hawaiian/Pacific Islanders will also be key to understanding the rate and frequency of Native Hawaiian migration away from Hawaii. I conclude by sharing insight as to whether the decision to perpetuate the Native Hawaiian culture in the Pacific Northwest is a conscious one or not.

SCOUT GALASH – BIOLOGY, HUMAN PHYSIOLOGY

Co presenter(s): Fountane Chan

POSTER 97 Title: Inconclusive Results of Autism Spectrum Disorder Research Could Be Due to Broad Subject Criteria

Research Area: Social Science

Faculty Mentor(s): Robert Chavez

Abstract:

One in sixty-eight U.S. children is diagnosed with autism. The latest version of the DSM, updated in 2013, provides diagnostic criteria for an all-inclusive autism spectrum disorder (ASD). These criteria include mild to severe social and developmental delays among a variety of other symptoms. In recent years, a surge in diagnoses due to increased awareness of autism and its symptoms has resulted in what appears to be an autism epidemic. The broadened definition of autism has ultimately

placed a broad range of etiologies under the same diagnosis. Research has indicated that the causes of autism spectrum disorders could range from a point mutation in a variety of seemingly nonspecific genes to insufficient synaptic pruning. The heterogeneity of individuals with a professional diagnosis of autism spectrum disorder and the discrepancies in what researchers have attributed to be the cause of ASD pose the question of whether autism is a spectrum of disorders or distinct, non-overlapping conditions. If the latter is true, research seeking to determine the causes of ASD must create more specific and discrete criteria for their subjects rather than studying all who fall under an umbrella diagnosis. Our research aims to investigate the potential for an array of disorders that, up to this point, have been diagnosed as an all-encompassing ASD. To do so, we will conduct a systematic review of autism research with ambiguous or inconclusive results. By analyzing the subject criteria of these studies, we hope to identify possible factors contributing to ambiguous results within autism research.

CARINA GARCIA – INTERNATIONAL STUDIES, SOCIOLOGY

POSTER 126 Title: Esperanza y Determinación (Hope And Determination): Conceptualizing Themes in Transit Migrant Narratives

Research Area: social science

Faculty Mentor(s): Kristin Yarris, Ellen Scott

Funding: McNair Scholarship

Abstract:

Mexican out-migration has traditionally received significant attention in news and scholarly writing. However, South and Central Americans migrating through Mexico to the United States have been less studied. Its geographical location makes Mexico an intermediary destination along migratory routes for Central and South Americans looking to gain access into the US. This research explores common themes in migrants' experiences while transiting through Mexico en-route to the United States. The role of Mexico as a primarily migrant sending country has shifted to a much more complex state of transit and receiving migratory routes, yet we know little of the experience of migrants traveling through Mexico seeking to settle in the United States. Using interviews with migrants collected in Mazatlán, Sinaloa Mexico, this research will explore what migrants say about those experiences, and how those experiences differ from or are similar to those of Mexican migrants. The results clearly show a need for a better response to humanitarian needs and addressing widespread violence against migrants. Overall, these findings contribute to the growing knowledge of changing migration patterns of contemporary Americas.

ANA GARIBAY MARES – INTERNATIONAL STUDIES, PLANNING, PUBLIC POLICY AND MANAGEMENT, AND CHINESE

POSTER 121 Title: Benefit Corporations for the Environment: Avenues for Chinese Belt and Road Initiative in the Pacific

Research Area: Social Science

Faculty Mentor(s): Yvonne Braun, Kathie Carpenter

Funding: Ford Family Foundation Scholarship (funding provided for the independent study period, including travel), and Women's, Gender and Sexuality Studies (employment to continue to pursue relevant research).

Abstract:

China's unprecedented economic growth has raised concerns about the world's natural resource reserves; as small island developing states, Pacific Island nations bind in solidarity to address concerns regarding their economic and environmental vulnerabilities as well. This is the era where merging the Chinese State-Owned Enterprise (SOE) model with Benefit Corporations (B Corps) will help facilitate China's push for green economic growth along the Belt and Road Initiative (BRI). This unique combination can strategically address the triple bottom line that green economies are applauded for: social, economic, and environmental growth. The BRI offers opportunities for China and the Pacific to use SOE funding to address sustainability goals under a B Corp business model. More specifically, the Maritime Silk Road, which forms part of China's Belt and Road Initiative (BRI), offers opportunities for China and the Pacific to promote a holistic sense of development, reduce the island's loan dependency, and propel the island nations towards self-sufficiency. This model equates economic growth to both social and environmental capital. In other words, Chinese SOEs can help standardize green economies by merging the BRI with B Corps to tackle mutual concerns in the Asia-Pacific region.

AIDA GOMA PETIT – ANTHROPOLOGY (DOUBLE CONCENTRATION IN BIOLOGICAL ANTHROPOLOGY AND ARCHAEOLOGY)

POSTER 95 Title: Examining Variables Associated With the Underdiagnoses Of Depression in Mexico

Research Area: Anthropology, Global Health, Depression, Global Mental Health

Faculty Mentor(s): Josh Snodgrass , Alicia DeLouize

Abstract:

Depression is a leading contributor to disease burden worldwide. Although there are known and effective treatments for depression, far fewer than half of those affected by the disease will receive treatment, in part due to barriers in health care

access contributing to underdiagnosis. Using the World Health Organization's Study on global AGEing and adult health (SAGE) Wave 1 dataset, this study examines older adults (50+ years old) in Mexico (n = 1,725) to determine factors that may lead to depression as determined by a symptom-based algorithm, but not self-reported clinical depression diagnosis. We hypothesized that men were more likely to have depression without a self-reported clinical diagnosis. Hierarchical logistic regression analysis was utilized to examine the effects of sex, age, education, wealth, marital status, social relationships, and residence location (urban vs. rural) on depression diagnosis. Model 1 showed that females were, in fact, more likely than males to have depression without a self-reported diagnosis ($\beta = 0.60$, $p = 0.006$), but age ($\beta = 0.00$, $p = 0.71$) was not significant. In model 2, being female was still a significant predictor of depression without a diagnosis ($\beta = 0.62$, $p = 0.007$) despite controlling for lower education ($\beta = -0.03$, $p = 0.005$) and more difficulty with interpersonal relationships ($\beta = 0.45$, $p < 0.001$). Age, wealth, marital status, and residence location (urban/rural) were not associated with undiagnosed depression. These findings highlight the importance of evaluating gender differences, improving education, and ameliorating social barriers to provide proper diagnosis and care for depression.

LIBARDO GOMEZ – BIOLOGY

POSTER 40 Title: Comparing Post-Mortem and Osteological Measures Of Primate 2D:4D Digit Ratios for Sex Determination

Research Area: Natural/Physical Science

Faculty Mentor(s): Frances White

Abstract:

The length ratio of the second digit (2D) to the fourth digit (4D) changes with an individual's exposure to certain hormones prenatally, specifically testosterone (Manning 2002). Scientists therefore use 2D:4D as a proxy for an individual's testosterone exposure in the uterus; a lower ratio demonstrates higher levels of prenatal testosterone exposure, and a higher ratio demonstrates lower levels of prenatal testosterone exposure (Manning 2002). In primates, testosterone plays a significant role in male-male competition and is therefore higher in males than in females. To collect the most accurate 2D:4D measurements, hands need to be in a fully fleshed state; due to the limited access to fully fleshed hands, my colleagues and I developed a method to assess accurate 2D:4D ratios post mortem was developed, with results showing articulated bone measurements to have the closest 2D:4D ratio to fleshy skin measurements. Drawing on the many studies that have shown that finger length ratios might be characteristic that can be related to sexual dimorphism (Gillam 2018). We hypothesize that the 2D:4D ratio will be higher in male than female rhesus macaque (*Macaca mulatta*) and could be used to estimate male from female skeletons. Because rhesus macaques are one of the main non-human primates studied for biological research, this study hopes to expand the body of literature on 2D:4D ratios and prenatal environment effects on bone. Preliminary results show higher male ratios (2D 0.93, 4D 1.14) than in female (2D 0.80, 4D 1.02) promising support of this hypothesis.

ADRIAN GORDON – CHEMISTRY

POSTER 38 Title: Energetic Loss From the Use of Hole Scavengers to Measure Photoelectrochemical Cell Efficiency Limits

Research Area: Natural/Physical Science

Faculty Mentor(s): Shannon Boettcher,

Funding: Vice President for Research and Innovation (VPRI) Undergraduate Fellowship

Abstract:

Photoelectrochemical cells, which split water into hydrogen, a clean fuel, and oxygen, have shown great potential for efficiently storing solar energy. In these cells, the oxygen evolution half reaction (OER) limits the efficiency of the entire solar water splitting process. Therefore, accurate OER efficiency measurements are critical in evaluating electrode catalyst materials. Currently efficiency is measured using solution species known as hole scavengers. These species are assumed to collect all photogenerated holes, and thus indicate the energy conversion efficiency of the system. However, this assumption does not hold true for an entire class of OER catalysts, including two promising catalysts, nickel and iron, because of their "conductivity switching" behavior. Hole scavengers introduce energetic losses in these electrodes.

To quantify these energetic losses, in situ electrical measurements were taken to isolate electronic properties of the catalyst from those of the semiconductor on model photoanodes. Dual Working Electrode technique was used to collect data on two model systems: silicon and hematite coated with impermeable and permeable catalysts, respectively. It was found that hole scavengers hold surface catalysts, such as Ni, in their reduced state, thus creating an extraction barrier for holes generated in the semiconductor, and lowering the efficiency of electrochemical cells.

CLARA GORMAN – HISTORY

ORAL SESSION 1M **Title: Inter-Tribal Dynamics of the Warm Springs and Grand Ronde Reservations: A Historical Legacy of Discrimination, Prejudice, and Settler-Colonialism**

Research Area: Humanities

Faculty Mentor(s): Jennifer O’Neal, Kevin Hatfield

Funding: Vice President for Research and Innovation Undergraduate Research Fellowship (2017)

Abstract:

In 2016, Northern Paiute tribal elder Myra Johnson-Orange stated, “Before the coming of the white man, there were peaceful feelings among the tribes that are now, what I call, inter-tribal racism.” Myra’s statement seamlessly captures the central research question I am pursuing, comprised of two interconnected components. The first part examines how Oregon’s tribal history of the Western Slope and Northern Great Basin regions, specifically historical tribal animosities and alliances, has shaped and characterized contemporary inter-tribal dynamics on the Warm Springs and Grand Ronde Reservations. The second part explores what these contemporary inter-tribal dynamics look like in regards to cultural fusion, tribal and inter-tribal identity, cultural politics, and inter-tribal discrimination. There currently exists little academic or historical research that specifically examines the cultural inter-tribal dynamics of either The Confederated Tribes of Warm Springs or The Confederated Tribes of Grand Ronde. With the creation of the Indian Reservation System, historically hostile tribes are forced to live together as one representative sovereign nation. The dominant discourse assumes that inter-tribal dynamics are characterized by a notion of unity and a semblance of tribal equality. However, this widespread assumption fails to recognize the individuality of each tribe and tribal member, limiting equal tribal representation on a political, social, and cultural level. In an attempt to record Native history from an exclusively Native perspective, I plan to conduct my research using a methodology of oral history within a framework of decolonization. Ultimately, my research will be discussed in a comparative framework, examining similarities and differences in tribal history and contemporary inter-tribal relations that exist on the two Reservations. I anticipate that the different geographic locations of each Reservation and the various levels of historical tribal engagement with the Bureau of Indian Affairs will indicate some degree of existing inter-tribal prejudice and discrimination in both communities.

Ashley Goussak – Communication Disorders and Sciences

ORAL SESSION 1S **Title: Electronic Media Exposure and Early Vocabulary Acquisition in Spanish-Speaking Homes**

Research Area: Communication Disorders and Sciences

Faculty Mentor(s): Lauren Cycyk

Abstract:

The purpose of this study is to describe the electronic media exposure of young children from Mexican immigrant backgrounds in their home and to investigate the association between media exposure and children’s vocabulary development. Thirty children between the ages of 15 and 24 months participated. Audio recordings of children’s home environment were completed through LENA technology and information on children’s productive vocabulary was collected through the MacArthur Bates Communicative Development Inventory and MacArthur Inventario Del Desarrollo de Habilidades Comunicativas (Inventario). The electronic media captured on the audio recordings was categorized by frequency (i.e., percentage of total minutes of recording time), type of programming (i.e., child directed versus adult directed, cartoons, or educational child-directed media), and language (i.e., Spanish or English). These characteristics of children’s media exposure were described. Then, the association of these characteristics to children’s English and Spanish productive vocabulary was examined through nonparametric, rank order correlation analyses. The findings indicated that children were more likely to be exposed to adult directed electronic media rather than child directed media and were more likely to be exposed to programs in Spanish than English. No significant associations were found between children’s vocabulary and any characteristic of electronic media exposure for toddlers from these backgrounds. Overall, this study contributes to the understanding of the development of language for bilingual Spanish-English speakers and helps speech-language pathologists best understand clients from these linguistic backgrounds.

AIDAN GREALISH – ART & TECHNOLOGY, GENERAL SCIENCE

CREATIVE WORK SESSION 3 **Title: The Body Electronic: Exploring the Permeability of the Self in the Age of Wearable Computing**

Research Area: Art & Technology

Faculty Mentor(s): Colin Ives

Funding: Vice President for Research and Innovation (VPRI) Undergraduate Fellowship

Abstract:

Steve Mann once said that the “goal of wearable computing is to position or contextualize the computer in such a way that the human and computer are inextricably intertwined.” My project will engage with the entanglement of body and technology

through the production of a series of wearable computing accessories that explore the permeability of the self and the computer in the age of the internet. Specifically, I will ask 1) How has the development of portable computing and ubiquitous internet softened the borders of self-identity? 2) To what degree must technology interact with the physical body to become a meaningful part of it? 3) Since we use these technologies as extensions of ourselves, how does our engagement with them—both in their design and use—impart agency onto the technology itself? My research and practice contributes to the quickly-growing field of human-computer interaction design. Though rapid innovation in the tech sector has produced incredible breakthroughs in computing, there is a need for alternative perspectives from outside the discipline; as technology becomes part of our very identities we must engage it with a critical and humanitarian eye. Visual arts practice is the ideal methodology for this engagement because the artist participates in every step of the design, execution, and communication of their work, allowing for a self-reflective analysis of the decisions and methodologies that contribute to the production of objects. This project will result in three end products: a collection of wearable computing objects, a production journal documenting my design and fabrication process, and a final manuscript detailing my findings for dissemination. My research-based practice will provide insight into human engagement with technological tools and will inspire discussion about the conception of self and the place of visual arts in the high-tech future.

ADRIAN GUTIERREZ – PHYSICS AND MATHEMATICS

POSTER 12 **Title: Implementing Sobel Filtering Algorithm to Search for Particle Signatures In Proton-Proton Collisions at the Large Hadron Collider**

Research Area: Physics

Faculty Mentor(s): Stephanie Majewski

Abstract:

ATLAS is one of four particle detector experiments constructed at the Large Hadron Collider (LHC) at CERN in Geneva, Switzerland. The experiment is designed to take advantage of the high-energy proton-proton collisions to search for rare, interesting events. Each collision produces different types of particles that will deposit energy in the detector; the interactions between these particles are described by the Standard Model of particle physics. At the High Luminosity LHC, planned for 2026, the ATLAS trigger system must select these interesting events amidst 200 background collisions per proton-proton bunch crossing within 10 microseconds. In order to detect interesting events among the large amount of data collected, a filtering method is needed. Such techniques can exploit the unique type of signature that each elementary particle has. A technique that has shown to give promising results is edge detection, in particular a Sobel filter. Applying a Sobel filter to the energy depositions in our events defines boundaries around so-called “jets”, or splashes of energies in our detector. The main goal of my study is the application of edge filtering techniques which can be implemented in our trigger system to look for areas of topological interest in our detector in hope that it will shed light on new particles or forces beyond the Standard Model.

ALISON HAMILTON – ENGLISH

ORAL SESSION 30 **Title: A River Runs Through: An Analysis Of Ken Kesey's *Sometimes A Great Notion* Exploring the Mirroring of a Fictional River to the Flow of the Novel Through Syntax and Form**

Research Area: Humanities, Literature

Faculty Mentor(s): Corbett Upton

Abstract:

In this project I will be analyzing Ken Kesey's novel *Sometimes A Great Notion*, and discussing how his stylistic choices and singular form bring the world of the novel to life, and highlight the significance of the river within the novel. This story finds its own flow and cohesion using first person, second person, and third person narration, while also switching between many different characters. Almost every character in the novel has their consciousness explored as we see the story from their perspective. We also encounter an omniscient third person noncharacter narrator who begins each section of the novel and occasionally interjects with their own thoughts. Throughout the novel Kesey changes his syntax and appearance of sentences and paragraphs to show the changes in character, perspective, and time. A glance at any page of the novel shows an abundance of differing appearances of the text: from italics, to parentheses, to punctuation, to font size. Using these tools Kesey gives the readers visual cues to who is speaking, what time it is, and what perspective is being presented. In *Sometimes A Great Notion*, Kesey has managed to create a portrait of a town and its people. He shows how a river can connect people far and wide and through time, and he creates that river through his unique structure and narrative choices. I will show how the flow of the novel itself emulates the flow of the river within the story.

LETICIA HAYES – PSYCHOLOGY**POSTER 98 Title: Examining Treatment of Race in the Relationship between C-reactive protein and Depression****Research Area: Social Science****Faculty Mentor(s): Sarah Horn****Abstract:**

Background: Race is increasingly recognized as a significant moderator in the relationship between inflammation and major depressive disorder (MDD). However, race is often unreported or treated as a nuisance variable. Methods: A systematic review was conducted to explore how race was treated in studies examining the inflammatory marker C-reactive protein (CRP) and MDD using key search terms (e.g., CRP, depression). A total of 192 articles were yielded through PubMed and Google Scholar. Studies were coded for several themes including effect size and race. A meta-analytic approach was also employed to explore the strength of and levels of heterogeneity in the association between CRP and MDD across major geographic areas (e.g., North America, Asia). Results: A total of 143 studies did not report the race and ethnicity break-down of their sample or only reported the country in which the study was conducted. Only 13.5% of studies explicitly controlled for race in their model and one study excluded African-American participants. Most studies were conducted in Western European countries (55%) with predominantly Caucasian populations or in the United States (US; 30%). Aggregated effect sizes were small ($r=.06$), but comparable across geographic areas; however, heterogeneity varied widely. Conclusion: Race is often unreported in studies testing associations between CRP and MDD and only a small subset of studies statistically adjusted for race effects in the various models. Further, the majority of the studies were conducted in Western countries. It is imperative that future research collect, report, and consider race in models examining inflammation and MDD.

KYLE HEINER – JOURNALISM: ADVERTISING**ORAL SESSION 2C Title: The Power of America's Most Watched Show: How Entertainment Television Can Change Social Behaviors****Research Area: Media Studies and Advertising****Faculty Mentor(s): Kim Sheehan, Erin Hanna****Abstract:**

This thesis examines the effects entertainment television can have on audiences beyond simply making them laugh, scream, or cry. In an era where the public has become increasingly untrustworthy of traditional broadcast news and advertising, I argue that ideas that prompt social change can be communicated through entertainment television, specifically, America's most watched shows. In this thesis, I focus on how America's current highest rated show, *The Big Bang Theory*, a scientifically-accurate sitcom centered around a group of young male scientists and their new blonde neighbor, can incorporate the United Nations Sustainable Development Goals into its storyline to promote their message to a majority of Americans. Using theories such as Uses and Gratifications, Parasocial Interaction, and Agenda Setting, as well as analyzing case studies about product placement, public service announcements, and media partnerships, the study suggests that integration with television storylines can increase knowledge and spur action among audiences. Importantly, I argue that episodes that contain a message central to the storyline, ease seamlessly into the narrative, and are open with their external partnership, are the most successful in getting their message across. A 'spec' script, which is a speculative screenplay for a series written by someone outside of the production, that illustrates these techniques is provided.

AIMEE HERUBIN – ANTHROPOLOGY**POSTER 76 Title: Asymmetry of the Dental Arcade in Six Populations from the Indian Sub-Continent****Research Area: Physical science****Faculty Mentor(s): Jeanne McLaughlin, Frances White****Abstract:**

Deviations from symmetry that arise during development are defined as fluctuating asymmetry (FA). Greater asymmetry is often related to differences in genetic and environmental factors experienced during development with males showing more asymmetry than females. We measured FA in human dental arcades from different Indian social castes. We hypothesized that men and women would have differing degrees of asymmetry as well as individuals in different castes. We measured samples from the John R. Lukacs Dental Cast Collection at the University of Oregon. Our sample consisted of 177 paired mandibles and maxillae (57 females, 120 males). Individuals were from one of six social castes. Permanent dentition was measured in a three-dimensional plane at the cervix between the first incisors and on the distal surface of premolars and molars. 13 landmarks were digitized using a microscribe-3DX© following the protocol of Frost et al (2003). Dental FA was measured by calculating the Procrustes' distance between each individual and its mirror image. We compared mean asymmetry by sex and caste using a two-way ANOVA. We found significant differences in both the maxilla and mandible FA between castes ($F=51.28$, $DF=5$, $p<0.0001$ and $F=19.40$, $DF=5$, $p<0.0001$, respectively) but not between sexes with no significant interaction term. Our

hypothesis that there would be a difference in asymmetry between sexes was not supported, however, our hypothesis that there would be differences in levels of asymmetry between castes was supported. This suggests that there may be genetic or environmental factors influencing dental arcade development differently in different castes.

KATARINA HILTON – ENVIRONMENTAL STUDIES

POSTER 117 Title: Apple’s Impact: Life Cycle Assessment of an iPhone 6

Research Area: Environmental Studies

Faculty Mentor(s): Galen Martin

Abstract:

Apple iPhones have been transforming over 11 generations since becoming a breakthrough technology in 2007. This product has led to mass amounts of electronic waste, as older devices are traded in for the newest phone. As part of a life cycle assessment, this study focuses on the raw materials that comprise an iPhone 6. My research considers the countries of origin as well as the human and environmental impact of the extraction and production processes of the device’s components. I conclude by promoting consumer action, policy changes and design elements that could, if adopted, reduce the overall environmental impact of this popular electronic product.

CALI HODGE – EDUCATIONAL FOUNDATIONS

ORAL SESSION 2M Title: The Impact of Dangerous Minds in Teacher Education: Exploring the Use of the Representation of School in Film to Raise Critical Consciousness in Preservice Teachers

Research Area: Education

Faculty Mentor(s): Alison Schmitke, Asilia Franklin-Phipps

Abstract:

This investigation highlights how the representation of schools, teachers, students in the film *Dangerous Minds* interacts with societal perspectives of race, gender, and class as they pertain to the education system. By supplementing my analysis of this film with the existing literature on the broader trend of representations of school in film, I will attempt to answer the following research questions: (1) How does *Dangerous Minds* operate within a broad pattern of film representation to inform the viewers understanding of race, class, and gender within schools? (2) To what extent does a study of film representation within the University of Oregon’s College of Education impact the critical consciousness of future educators? Through my research, I hope to demonstrate that this film contributes to inaccurate stereotypes that negatively impact the perception of schools, as well as individuals involved in the education system. I additionally aim to explore how teacher education programs attempt to disrupt the perpetuation of these stereotypes, highlighting the University of Oregon’s Educational Foundations program as one example of this approach. I will complete my research through a case study analysis of *Dangerous Minds*, as well as conducting interviews with instructors and students within the College of Education. Through this investigation, I hope to add to the existing literature in the field of education studies by exploring how this film chooses to represent schools, teachers, and students, and how teacher education programs can support preservice teachers and their future in education by interrupting the perpetuation of these stereotypes.

SARAH HOVET – ENGLISH, JOURNALISM

ORAL SESSION 2O Title: Beyond Muses: Feminism and Gender in Modern Irish Literature (1880 – Present) from Augusta Gregory to Eavan Boland

Research Area: Humanities

Faculty Mentor(s): Barbara Mossberg

Funding: Vice President for Research and Innovation (VPRI) Undergraduate Fellowship, Sigma Tau Delta Study Abroad Scholarship, GEO Ambassador Scholarship, Tims Ellis Endowed Scholarship

Abstract:

In the largely male-dominated Irish literary arts scene, the role of women has historically been confined to muses for men’s work. (Examples include James Joyce’s usage of his wife Nora as inspiration for Ulysses and Pulitzer Prize-winning poet Paul Muldoon’s treatment of his former partner Mary Farl Powers in his poem “Incantata.”) The particular masculine-coded “genius” of Irish writers like James Joyce, William Butler Yeats, Samuel Beckett, and J.M. Synge; the perceived role of women as iconography for the nation and not creators, and the Irish constitution itself contribute to the absence of women from the Irish canon. However, today’s Irish writing scene fosters a critical mass of female-identifying Irish writers through whom one can trace matrilineal literary influence from contemporary writers including Mary Lavin, Edna O’Brien, and Eavan Boland back to their modern predecessors, such as folklorist, playwright, and National Theatre co-founder Lady Augusta Gregory. My research begins by establishing an academic foundation from critical and historical works, then expands to archival research in the Edna O’Brien papers at University College of Dublin and feminist Attic Press collection at National University of Ireland Galway. My work intends to establish that today’s female Irish writers, from Claire Louise-Bennett to Nuala Ni Dhomhnaill, produce significant models of female consciousness, exploring sexuality, motherhood, and more with a frankness significant

for a culture prevalently Catholic and feeling the effects of censorship laws late into the 20th century, as well as with formal innovation. Furthermore, their vibrant voices comprise the natural evolution of what is actually a long tradition of meritorious female Irish writers who have been eclipsed due to sociohistorical factors, thus bringing these women's history back into the light for new criticism, and creating a more complex understanding of modern Irish literature as a whole.

SARAH HOVET – ENGLISH, JOURNALISM

ORAL SESSION 1SW Title: Sense of Place in Contemporary Female American Poets: Indigenous and Immigrant Voices

Research Area: Humanities

Faculty Mentor(s): Corbett Upton

Funding: Humanities Undergraduate Research Fellowship

Abstract:

In current national discourse, what it means to be “American” has become a polarizing issue. In a country built on immigrant labor, the otherness of immigrants has become a point of extreme xenophobia, while indigenous culture continues to be erased. In this context, my research intends to explore the poetics of three Asian-American, Latinx, and indigenous American female poets, respectively, to determine how they construct senses of place in contemporary America and, in the words of Wilbur Zelinsky, how these women “see beyond the dominant culture” and establish counter-places within it. Focusing on Louise Erdrich, Ada Limón, and Aimee Nezhukumatathil as three case-studies, all poets well-recognized for the role of place within their work, this project will apply an array of lenses, political, environmental, and social, to determine the intersections of identity and place these poets trace. This project will examine the intersections of ethnicity and gender in order to understand how these poets present a particularly social or communal sense of place. Critical sources include selections from Wendell Berry's *Home Economics* on environmentalism; texts devoted to an indigenous sense of place, such as Louise Erdrich's *Books and Islands in Ojibwe Country* and works by Leslie Marmon Silko and Winona LaDuke; and essays by Doreen Massey and Janice Monk that address the role of gender in the construction of a sense of place. The purpose of my research is to create a richer and more inclusive understanding of the spectrum of American identity in contemporary poetics.

JACQUELINE HUAMAN – JAPANESE, ASIAN STUDIES

ORAL SESSION 1SW Title: Japanese Gendered Language, Idols, and the Ideal Female Romantic Partner

Research Area: Humanities

Faculty Mentor(s): Kaori Idemaru

Funding: HURF (Humanities Undergraduate Research Fellowship), UROP Mini-Grant

Abstract:

The goal of my honors thesis is to explore how gendered language, or lack thereof, is utilized in Japanese society to perpetuate feminine ideals in the media. Specifically, I want to focus on how the ideal female romantic partner is portrayed in modern media through the use of language. Japanese has been considered a very gendered language. However, more recent research has questioned whether the description of gendered features in Japanese reflects language ideology or language reality. For example, in 2004, Janet Shibamoto-Smith investigated language and its use as a cultural model for romance, specifically looking at how language was used by the protagonists of romance novels in the 1980s and 1990s in Japan. Similarly, I want to explore how idol music and popular television shows serve as models for romance and ideal female partners in contemporary society. Following the methodology set up by Shibamoto-Smith, I will develop a retrospective study and a corpus study to investigate language use in the media of the 2000s and 2010s in order to analyze the linguistic representations of an ideal female partner. I expect to find the use of gendered markers, and lack thereof, to correlate with the type of ideal being portrayed in the media, as substantiated by the society in which this media exists.

Nicholas Jahahn – General Science

ORAL SESSION 4S Title: Characterization of Lrig1 Positive Stem Cells During Colitis Recovery

Research Area: Natural/Physical Science

Faculty Mentor(s): Annie Zemper

Funding: National Institute of Diabetes and Digestive and Kidney Diseases, OURS program at the university of Oregon through NIH award

Abstract:

The intestine is a highly regenerative organ in humans and mice. Within the epithelium, structures called crypts contain epithelial stem cells that repopulate the intestinal mucosa. Lrig1 is an ErbB negative regulator that marks a population of stem cells in the base of the intestinal crypts. To study intestinal epithelium in a disease state, Dextran sodium sulfate (DSS) was used to induce ulcerative colitis in mice, characterized by inflammation of the distal colon epithelia. Here we examined the role of Lrig1 positive stem cells in colitis recovery. To accomplish this, we utilized transgenic mice that expressed Cre recombinase protein from the Lrig1 promoter and expressed YFP protein from the ROSA locus. Lineage tracing was carried out

to observe what stem cells give rise to when the mouse is treated with DSS. Immunofluorescent analysis was conducted to visualize the localization of Lrig1 positive stem cells and their progeny in the wound healing process for comparison between homeostasis and different durations of recovery. It was observed that at both 36 and 48 hours after a weeklong assault of DSS there was a greater percentage of lineage traced cells found higher in the crypt compared to homeostatic conditions. We further observed that proliferation of the lineage traced cells followed the same trend. These results indicate that Lrig1 stem cells do actively participate in the recovery process. Where exactly the Lrig1 stem cells that participate in recovery originate from will be addressed with further lineage tracing closer to the time of cessation of DSS.

JACOB JANSEN – CULTURAL ANTHROPOLOGY

ORAL SESSION 4CS Title: Complicating Autonomy through Empowering Agency: Honeybees at the Center of Conflict

Research Area: Social Science

Faculty Mentor(s): Ana-Maurine Lara

Abstract:

It is argued that as we are shaped, so too are the animals that come into contact with our interests. By positioning honeybee identity in the context of environmental conflict, we can see through and with biological objectives, including social matters which actively influence our relationship to honeybees. When we question the autonomy of honeybees, we reveal the agency that has been deeply imbedded in this organism's relationship with humans. To see the manifestations and human interest of this agency, the shaping of honeybees must be considered in a physical and social context. Through empowering nature, an idea originally brought forth by Anna Tsing, we can associate familiarities that allow us to position honeybees in an entangled human-animal complex. By questioning autonomy, we dust off the normality of Western honeybee culture, asking us to challenge the ways through which we're associated to this animal's identity.

LEANNE JOHNSON – SOCIOLOGY

ORAL SESSION 2CS Title: The Structure and Culture of Greek Life and Its Impacts on Identity

Research Area: Social Science

Faculty Mentor(s): CJ Pascoe

Abstract:

The prevalence of greek life and its integration on college campuses throughout time contributed to the emergence of a culture specific to those communities, guided by values that are reflective of and enforced by the structure of fraternities and sororities. This research aims to identify the ways in which the structure and culture of greek life impacts the identities of members. Utilizing a qualitative approach, this study employs techniques of both participant observation and 30-60 minute in-depth qualitative interviews, using an open-ended interview guide as a means of distinguishing commonality amongst interviews but recognizing new trends produced by respondent follow-up and probing. I have found that fraternities and sororities are demanding in terms of expectations and time, leading members to spend a significant amount of personal time and commitment to meet those demands. I argue that due to the regulation of behavior through various mechanism such as mandatory attendance of events, expectations of presentation, and constraints on individual action; individuals in the greek community compromise aspects of personal identity to gain membership to a fraternity or sorority. Understanding the ways in which joining this form of community can impact individual experiences is important in evaluating their placement on college campuses. Being able to recognize these patterns serve as a framework for looking into the culture and structure of other demanding organizations that can similarly impact the ways individuals cultivate and understand their own identities.

ELLIE JONES – MARINE BIOLOGY

Co presenter(s): Emily Bork

POSTER 78 Title: Abundance & Composition of Sponges, Algae, and Oysters on Mangrove Prop Roots: Effects of Location in Bocas Del Toro, Panama

Research Area: Marine Biology

Faculty Mentor(s): Richard Emlet

Funding: Global Education Oregon Mills Scholarship

Abstract:

Mangrove forests create an important community at the interface of land and sea. Since 1980, 20-35% of global mangrove area has been lost due to deforestation, aquaculture, and pollution. Degradation or loss also impacts the marine communities living on the prop roots. In this research, we studied mangrove communities near the Bocas Research Station of the Smithsonian Tropical Research Institute (BRS-STRI) in Panama to determine if the abundance and composition of prop root epibionts vary with proximity to human development. We hypothesized that sponge, algal, and oyster abundance will increase with proximity to human development due to higher nutrient content, but sponge species richness will decrease due to conditions that can only be tolerated by one or a few dominant species. We took water quality and biological measurements

from a village site, adjacent to a human-occupied shoreline, and a reserve site, in the vicinity of BRS-STRI. Water quality measurements included temperature, salinity, pH, water clarity, and organic matter. Biological measurements included sponge, algae, and oyster abundance, as well as sponge color and morphotype. There were a greater number of sponge species at the reserve than the village site. Temperature was higher at the reserve site, but no other abiotic factors differed. Turf algae was more abundant at the village site, but no other epibionts differed. Our work is significant because mangrove communities are particularly vulnerable to environmental stressors. It is important to identify potential bioindicators of environmental stress in these ecosystems to be able to adequately monitor further change.

GUY JONES – PSYCHOLOGY

ORAL SESSION 20 Title: The More it Looks Like Queer Street, The More I Ask

Research Area: Literature

Faculty Mentor(s): Mai-Lin Cheng

Abstract:

The infamous Mr. Hyde from Robert Louis Stevenson's novella "Strange Case of Dr Jekyll and Mr Hyde" is remembered by most as monstrous, however one of Hyde's most interesting qualities is his incredibly average, normal appearance. If Hyde functioned as a reflection of that which the Victorian populace feared, this begs the question of what his common appearance represented to the audience at the time of publication. The Victorian era was marked by increasingly nationalist sentiments and a great deal of insecurity regarding unseen foreign invaders polluting the purity of Londoners' lineages. These invisible intruders were largely grouped under the term degenerate, popularized by Cesare Lombroso around the 1850s, and believed to be inherently evil. Among these degenerates were foreigners, the mentally ill, and homosexuals. These deviant identities were heavily interconnected as foreigners were believed to be the origins of homosexuality and other so-called mental illnesses. The subtle depiction of Hyde mimics the Victorian understanding of these supposed degenerates as documented in primary sources and in research done by Historians on the time period. Enfield, on page 14, declared that "the more it looks like Queer Street, the less I ask" however, anyone can admit a name like Queer Street demands questions.

SADIE KAVALIER – ACCOUNTING

ORAL SESSION 3SW Title: William Morris as Collector: Analyzing Two Volumes in the Special Collections

University Archives

Research Area: History

Faculty Mentor(s): Vera Keller

Abstract:

William Morris wore many hats: publisher, socialist advocate, craftsman, poet. However, Morris' private library remains one of the most understudied aspects of his illustrious career. We hold two volumes from his own library in our SCUA collection, which spawned this research into the driving factors behind his choice of books for his personal collection. Through an analysis of both these volumes and those that Morris printed himself at the Kelmscott Press, I have taken a holistic approach to analyzing these copies for their content, typography, and imagery. Further analysis revealed that the type of these books is similar with Morris' gothic preferences and that the main reason for his purchase of them was an affinity for the style of their respective publishers, Wynkyn de Worde and Johannes Mentelin. This research offers a glimpse into the mind of William Morris as collector and helps illuminate the preferences that drove the selection of his private library.

LILA KAYE – BIOLOGY, EMPHASIS IN CELLULAR AND MOLECULAR

POSTER 50 Title: Novel Bacterial Protein AimA Promotes Mutualism by Increasing Commensal Fitness and Reducing Inflammation in the Host

Research Area: Microbiology

Faculty Mentor(s): Karen Guillemin, Kristi Hamilton

Funding: SPUR 2016, VPRI 2017, Meta, NIH

Abstract:

The microbiota of the gastrointestinal tract is critical for the development and regulation of the host immune system. Some bacterial genera are associated with health and homeostasis, while others have been linked to inflammation and disease. There have been many studies in recent literature investigating the potential role of commensal microbes in autoimmune and gastrointestinal diseases, both preventative and pathogenic. Much less is known, however, about how interactions with the immune system benefit resident microbes. Here I used the zebrafish, *Danio rerio*, as a powerful gnotobiotic model for investigating host-microbe symbiosis. I investigated the novel immunoregulatory protein aimA, produced by the zebrafish commensal *Aeromonas*, and show that it facilitates mutualism with the host by reducing gastrointestinal inflammation and increasing bacterial intestinal colonization in both monoassociations and co-inoculation with pro-inflammatory species *Vibrio*. Using GFP-tagged neutrophils as a reporter for inflammation, I showed that a deletion mutant lacking the gene for AimA (Δ aimA) is unable to regulate host immune response and cannot colonize the gut as robustly. Inoculation

into immunocompromised MyD88-/-hosts having decreased intestinal inflammation rescues the colonization defect suffered in the absence of aimA, demonstrating reciprocity between control of the host biology and control of the resident bacterial biology. Identification of bacterial products involved in establishing a healthy symbiosis with the host is crucial for understanding how commensal communities are assembled and maintained.

Lucy Kelly – Geography

POSTER 55 Title: Ethanol Tolerance in Caenorhabditis elegans

Research Area: Biological Science

Faculty Mentor(s): Alex De Verteuil, Patrick Phillips

Funding: Knight Campus Funding

Abstract:

SCORE (Students of Color Opportunities in Research Enrichment) is a mentorship program aimed at engaging underrepresented groups with original scientific research. To this end, we utilized an established biological model system to investigate an unexplored question. The nematode *C. elegans* is a classic genetic system, and its well-defined stress response network makes it ideal for evaluating the effects of ethanol on stress responses. In *C. elegans*, *daf-16* is a transcription factor critical for regulating stress-response genes. In addition, at high concentrations, ethanol absorption leads to high rates of lethality in nematodes. It is then possible that *daf-16* is critical for surviving this stress. To investigate this, we exposed both wild-type and *daf-16* mutant animals to an acute ethanol stress following pre-exposure to a low concentration ethanol solution and measured survivorship. Additionally, we measured survivorship in both genotypes across multiple ethanol concentrations. In our conditions, high concentration ethanol exposure promotes widespread mortality in both *daf-16* and wild-type animals. Furthermore, we found no significant difference in ethanol-induced mortality between genotypes at any ethanol concentration. These results suggest that *daf-16* may not be implicated in ethanol-induced stress-responses. Here, programs like SCORE can achieve their educational missions while concurrently making advances in original research.

MADDIE KELM – PSYCHOLOGY, SPANISH

POSTER 120 Title: Perpetuating Otherness Through Sexualization: a Study of the Representation of Immigrants in American Television

Research Area: Humanities (Spanish)

Faculty Mentor(s): Mariko Plescia

Abstract:

Throughout the history of the United States, immigration has been a topic of contention. Today, this tension persists in an American society which is characterized by xenophobia and anti-immigrant sentiment. This paper considers the manner in which the sexualization or desexualization of immigrant characters in American television series contribute to the perceived otherness of immigrants in the United States. By analyzing the representation of immigrant characters in the acclaimed television series *That 70's Show* and *Modern Family*, this paper demonstrates that the valorization of immigrant characters is often based on their perceived sexuality. This paper argues that immigrant characters are sexualized (if they are women) or desexualized (if they are men) in order to maintain entrenched hierarchies: social, racial, and economic. Through its examination of popular media, this paper engages readers in a study of the subtle yet insidious injustices which are being perpetuated against immigrants via mainstream American television.

RENNIE KENDRICK – BIOLOGY

ORAL SESSION 1M Title: Climate Change, Water Policy, and Society in the Peruvian Andes

Research Area: Social Science/Humanities

Faculty Mentor(s): Mark Carey

Abstract:

Climate change has posed a threat to fresh water supplies, which has worsened conflicts over water. Simultaneously, corporations have strategically offered water privatization schemes as a solution to climate change problems. Although privatization may benefit key economic interests, a review of literature examining its impact on water users in Peru as a case study and its impact on the environment at large, calls into question the viability of this model. I argue that water privatization in Peru has produced negative social impacts on water access, including reduced water access for certain groups, violation of traditional meanings of water, and changes to water's legal character. More broadly, the privatization of water resources represents a larger flaw in current approaches to climate change, which often rely on market-based solutions over governmental regulation. Because market-based solutions rely on the integrity of private actors, these private actors may, and often do, make decisions that further undermine the natural environment. An understanding of both the negative social and environmental impacts of water privatization will eventually lead to creation of new forms of water governance in the face of climate change and social inequities.

RENNIE KENDRICK – BIOLOGY**POSTER 32 Title: The Effect of Blocked and Interleaved Training on Associative Inference****Research Area: Cognitive neuroscience****Faculty Mentor(s): Dasa Zeithamova, Caitlin Bowman****Abstract:**

Memory allows us to link across multiple experiences to derive new information. For example, if we see a person walking a dalmatian, and later see another person walking the same dalmation, we may infer that the two people are married. There are two models of how we accomplish this associative inference. According to the flexible retrieval model, individuals retrieve separate memories (person 1-dalmatian; person 2-dalmation) and infer about their relationship (person 1-person 2) when needed. According to the integrative encoding model, we retrieve the memory of the first person we saw with the dalmation while seeing the second, and form an integrated memory that links the two. I hypothesize that how readily we integrate older memories with new experience depends on how well established the prior knowledge is. To test this hypothesis, participants encoded object pairs (AB and BC) that shared an object B (e.g., banana-clock, clock-keyboard). Each pair was repeated three times. Half of the AB and BC pairs were presented in a blocked format (AB, AB, AB, BC, BC, BC) and half in an interleaved format (AB, BC, AB, BC, AB, BC). Later, participants were tested on the indirect AC association (banana-keyboard). I predicted that participants would infer more quickly in the interleaved condition because the two episodes were already linked at encoding via integrative encoding. Preliminary data show faster inference in the interleaved condition. Further investigation into the effect of blocked vs. interleaved training on learning could lead to enhanced teaching methods.

ASHLEY KIM – BIOLOGY, ENVIRONMENTAL SCIENCE**ORAL SESSION 30 Title: Text to Table: Everything Is About Lemon Meringue Pie****Research Area: Humanities****Faculty Mentor(s): Barbara Mossberg****Abstract:**

Food sustains all human life. It allows the human body to function in its most basic form, but can also bring joy with the right combination of ingredients. In Dr. Barbara Mossberg's "Helpful Banana Bread", she explores the role of nature in food through cooking, but also the role of humans in the food cycle of nature itself. By allowing the audience to share her recipes, experiences in the kitchen, and memories of nature, she gives readers new insight to the seemingly simple acts of cooking and eating. All life on Earth works together to maintain the complex environment that sustains human life itself. Bringing the experiences in this book to an audience in a non-traditional format (in this case, food) will help them share in the moments that the author came to her realizations about the relationship of nature and food. In turn, the audience has the opportunity to come to these realizations themselves. Since the author describes her memories of eating and cooking in such vivid detail, just reading these experiences make the audience feel as if they were experiencing it themselves. Physically being able to taste and smell the same foods she enjoys in the same manner she suggests elevates the audience's experience of the book and the world around them. This translation is much more immersive than solely reading traditional literature because it allows the audience to have the experiences as the author, allowing them to understand the human role and impact on nature through food.

HA EUN KIM – PSYCHOLOGY**POSTER 31 Title: Cortical Thickness: An Introduction and Comprehensive Review of the Current Literature****Research Area: Neuroscience****Faculty Mentor(s): Don Tucher, Ariel Wightman****Abstract:**

Cortical thickness of the cerebral cortex provides valuable information about normal and abnormal brain anatomy. For the past 30 years, much research and studies have revealed the association of cortical thickness and various neurodevelopmental disorders as well as regional differences in normal brain function. In light of this research, it is crucial to understand and summarize what has been discovered so far. The aim of this review was to examine all available published cortical thickness research on Google Scholar and to provide a comprehensive summary of current studies. The literature search encompassed all relevant cortical thickness studies published until January 2017 on Google Scholar. Through several inspections, initially found 134 papers were narrowed down to 119 papers. The papers were inspected twice and were categorized into five different groups according to the paper's relevant topics in terms of cortical thickness as follows: I, brief summary of the different cortical thickness extraction mechanisms; II, studies in healthy normal participants; III, studies in neurodevelopmental disorders; IV, studies in neuropathological disorders and V, studies in all other disorders. Summaries of research on more specific disorders were addressed in each subcategory. These outcomes indicate the importance of cortical thickness research and need for further analysis in the future.

HADEN KINGREY – ANTHROPOLOGY, HISTORY**POSTER 10 Title: Exploring Manufacturing Variability in Calcareous Sand Tempered Pottery on Yap, Western Caroline Islands****Research Area: Archaeology****Faculty Mentor(s): Matthew Napolitano, Scott Fitzpatrick****Funding: National Geographic, UO Global Studies Institute, Edna English Trust for Archaeological Research, and the Center for Asian and Pacific Studies****Abstract:**

The oldest identified sites on Yap are identified by presence calcareous sand tempered (CST) pottery from deeply stratified deposits. With few exceptions, CST pottery, made from locally produced clay, has been recovered from Rungluw and Pemrang, two sites in southern Yap, western Micronesia (northwest tropical Pacific). Although poor preservation conditions and small sample sizes make it difficult to reconstruct vessel size, detailed analysis of sherds demonstrates at least two sub-types. Recent excavations at Pemrang have yielded the largest sample of CST pottery ever recovered and allow for inter- and intra-site comparison. Results will help us understand the poorly understood early settlement of Yap.

HELENA KLEIN – BIOLOGY**POSTER 85 Title: Experimental Evolution of a Bacterial Symbiont to its Host's Environment****Research Area: Natural/Physical Science****Faculty Mentor(s): Karen Guillemin, Cathy Robinson****Funding: META Grant****Abstract:**

The bacteria that live in our guts, and those of other vertebrates, affect our health in a myriad of ways, from aiding in digestion to training our immune system. However, how bacteria first colonize the gut is little-understood. In particular, environment seems to play an important role in host colonization, especially in aquatic organisms. I proposed investigating environmental adaptation to find novel mechanisms for host colonization. I hypothesized that adaptation of a bacterial symbiont to its host's environment increases host colonization. I tested this hypothesis via experimental evolution by serially passaging a strain of *Aeromonas veronii*, a zebrafish gut isolate, in fish-conditioned water to quickly and non-specifically find new genes that could affect host colonization. Surprisingly, I found that while the evolved strains grew to higher population densities in the water than the ancestor, these strains had variable gut colonization fitness. In fact, one strain had significantly reduced gut colonization fitness. Genome sequencing revealed that this strain had mutations affecting motility and Type I secretion system membrane protein genes. I recreated the latter mutation in the wildtype bacterial strain and found that it increased *Aeromonas* fitness in fish water, however gut colonization was comparable to the wildtype. This suggests that other mutations in the evolved isolate, presumably those in the motility genes, are responsible for the reduced host colonization. Future work will further investigate motility mutations among others. This work contributes to our understanding of host colonization dynamics and can lead to the development of probiotics to improve human health.

PEACE KOTAMNIVES – PHYSICS, MATHEMATICS**POSTER 77 Title: Search for Di-Higgs Resonance at the ATLAS Experiment****Research Area: Physical Science****Faculty Mentor(s): Eric Torrence****Funding: Vice President for Research and Innovation (VPRI) Undergraduate Fellowship****Abstract:**

With the question remaining whether there is only one Higgs boson or several, our research studies how a heavier Higgs boson could be found in the ATLAS data at the LHC. By the pure Standard Model phenomenon, we expect to find production of two SM Higgs bosons from the tri-linear Higgs coupling. However, the rate at which this will happen is far below what we will be able to see for many years at the LHC. As the discovered Higgs boson can decay to different pairs of particles, and the rate is expected to be proportional to the mass of the decay particle involved, the most likely decay channel is $H \rightarrow b\bar{b}$ at 33%, and the second most likely channel is $H \rightarrow W\bar{W}$ at 25%. Therefore, $HH \rightarrow b\bar{b}b\bar{b}$ channel has the highest rate of production, but $HH \rightarrow W\bar{W}b\bar{b}$ channel is chosen due to higher backgrounds in the four-b channel. In addition, two W bosons could decay into two quarks, one lepton and its neutrino. The performance of identifying $HH \rightarrow W\bar{W}b\bar{b}$ events for large heavy Higgs mass has studied specifically by using boosted object tagging. From the detector, we expect collimated jets from b quarks merging into a fat jet. By applying the relativistic kinematics theory and reducing some major backgrounds, we compare our alternative algorithms with the current algorithm in reconstructing the $W \rightarrow qq$ candidate. With the improved sensitivity, our expectation is to see a bump on top of the mass distribution indicating the new physics particle that we are searching for.

KEVIN LANCE – POLITICAL SCIENCE, SOCIOLOGY**POSTER 125 Title: Taxes in Oregon: How a Liberal State Gets a (Somewhat) Conservative Tax Code****Research Area: Social Sciences****Faculty Mentor(s): Matthew Norton, C.J. Pascoe****Funding: Apex, Wayne Morse****Abstract:**

This paper researches the history of Oregon's tax code and examines the reasons why the tax code remains relatively conservative in comparison to most other liberal states. In order to do this, I have examined the roots of Oregon's current income and property taxes, as well as its historic resistance to a sales tax. I have paired this research with qualitative interviews with taxpayers who work full time and own property, as well as a few business owners to see the influence of small business and corporate taxes. I have interviewed an even spread of liberals, moderates, and conservatives to get a wide range of perspectives that better represents Oregon politics. My preliminary findings have shown two major themes. The first is an intense distrust of government amongst all sides of the political spectrum and the second is a "Robin Hood" style of discourse between liberals and conservatives that permeates discussions across all areas of taxation, as both seem to contribute to Oregon's tax code being lower in comparison to other states. I believe these two factors combined makes it easier for certain taxes, like income, to be relatively high and other taxes, like the sales and business taxes, to be very low or nonexistent. I argue that Oregon's current tax code is bound to its history and the emotions of its voters, as these two factors contribute to a culture clash, creating a tax code that is very quirky in nature.

CONNOR LANE – BIOLOGY**POSTER 86 Title: Parallel Evolution of Floral Adaptation In Mimulus Aurantiacus****Research Area: Science****Faculty Mentor(s): Matt Streisfeld****Abstract:**

It is common to find that the same traits have evolved independently across different species, a phenomenon referred to as parallel evolution. Diverse examples of parallelism exist across all domains of life, including the multiple appearances of wings in mammals, insects, and birds. *Mimulus aurantiacus*, the bush monkeyflower, is an excellent system for studying parallel evolution, because differences in the color, shape, and size of flowers are maintained due to natural selection by animal pollinators. However, flowers that are visually similar across two regions of southern California (San Diego and Orange Counties) are genetically distinct, suggesting that the same floral differences evolved independently in both regions. We hypothesize that these genetic differences exist due to an historical geographic barrier that prevented genetic exchange between the regions. We measured several traits such as the length, width, and color of flowers from plants in different populations native to the Camp Pendleton Marine Base, which lies in between San Diego and Orange Counties. My results show that flowers with intermediate characteristics are common in Camp Pendleton that are likely the product of hybridization between genetically distinct plants. Ongoing analyses that combine these data with genomic information test for the presence of a barrier to genetic exchange that previously isolated these populations. Understanding the mechanisms that drive parallel evolution of trait differences in San Diego and Orange Counties will yield insights into the role that natural selection plays in creating the amazing diversity of life on earth.

I

NDIGO LARSON – PLANNING PUBLIC POLICY AND MANAGEMENT**ORAL SESSION 4M Title: A Feasibility Report on the Use of Urine Diverting Container-Based Sanitation Toilets in Post-Earthquake Disaster Scenarios****Research Area: Disaster Planning, Sanitation Management****Faculty Mentor(s): Kory Russel, Josh Bruce****Abstract:**

This project investigates the feasibility of using container-based sanitation (CBS) toilets in place of standard toilet and sewer systems in the event of major earthquakes. Container-based sanitation refers to a system where toilets collect human excreta, are sealed and then are transported to a treatment facility. The focus of this project is urine diversion toilets, in which urine and feces are collected in separate sealable containers to be treated separately. Though these toilets were originally implemented in communities where running water is not common, there is evidence to support the idea that these toilets have direct application in the post-earthquake disaster scenarios. The Eugene, Oregon post-Cascadia Subduction Zone earthquake scenario projects that piped water systems will be unusable for upwards of a year. Through an examination of the use of these and similar toilets in case studies in Japan, New Zealand and Haiti after large earthquakes, it is clear that urine diverting container based toilets are a viable solution for post-earthquake sanitation management . Researching and understanding proper sanitation management techniques for after natural disasters is crucial for successful public health and

environmental and human dignity protection in a particularly vulnerable time. Container-based toilets have the potential to facilitate safe, easy and cost effective sanitation management during disaster recovery periods after major earthquakes in Eugene and throughout the world.

MITRA LEBUHN LEBUHN – INTERNATIONAL STUDIES

ORAL SESSION 1C Title: Picture This: The Role of Digital Storytelling in Motivating Action for Refugee Relief

Research Area: Humanitarian Communication, International Studies, Psychology, Social Science

Faculty Mentor(s): Melissa Graboyes, Stephen Wooten

Funding: Presidential Scholarship, Summit Scholarship, SIT study abroad scholarship

Abstract:

It is often assumed that powerful photographs and film footage have the ability to move viewers in the developed population to action. Frank Fournier, the photographer who captured the face of 13-year-old Omayra Sanchez in her last hours of life, said, “I believe the photo helped raise money from around the world in aid and helped highlight the irresponsibility and lack of courage of the country’s leaders (BBC, 2005).” His statement encompasses the common perspective that imagery can motivate action, but there is a lack in data regarding this transition from emotion to action. This study is concerned with the effectiveness of various digital storytelling appeals (shock effect, positive images, and post-humanitarian communication) in encouraging agency in refugee relief efforts. Refugees are perhaps more distant from the donor population than any other victimized group, and have struggled through periods of severe anti-refugee sentiments that have made the collection of aid and process of reintegration challenging. The extreme discourse between populations and the ever-growing number of displaced persons makes refugees the ideal population to study. This study asks what in a digital story, particularly the imagery, motivates developed populations to not only react emotionally towards refugee issues but also make contributive action for refugee relief efforts? Through literature and interviews regarding image-evoked empathy, identity, and group influenced responding, and the analysis of photographs and digital storytelling platforms that unpack various imagery appeals, it is evident that image use for humanitarian campaigns has evolved to it’s most effective form yet. This study explores how advancements in technology have brought forth digital storytelling, which combined with the implementation of the post-humanitarian communication appeal generates evocative and accessible campaigns that fit the framework necessary to motivate action for refugees relief more effectively and ethically than has been done in the past.

JENNIFER LEE – PSYCHOLOGY

POSTER 133 Title: The Role of Adults in Limiting Peer Rejection and Aggression in Children

Research Area: Social Science

Faculty Mentor(s): Eric Pakulak

Abstract:

Peer relationships that support the development of prosocial skills and psychological well-being are vital to the healthy development of well-adjusted and competent adults. Reversely, peer rejection and aggression can prevent the critical positive development and practice of prosocial skills which causes an unforgiving cycle of rejection, aggression, and poor social learning. The negative effects of peer rejection and aggression on children’s ability to build their self-esteem and practice pro-social skills can greatly effect their success later in life in terms of social relationships as well as in the workplace or as a general member of society. Literature on peer relationships, peer rejection, peer aggression, and socio-psychological adjustment were reviewed in order to find a practical solution for helping children who are struggling with peer rejection and aggression. Seven peer-reviewed articles were found on PsychNet and investigated based on their relevance to the impact of peer rejection and aggression on children’s social development and well-being, the influence of adults on peer rejection and aggression in children, and the consequences seen in adults who experienced peer rejection and aggression as children. When all of this information was compiled, it was clear that due to the nature of peer relationships in children and adolescents, it is incredibly difficult for a child to help themselves out of this vicious cycle. Thus, it becomes clear that preventing and intervening in peer rejection and aggression is the necessary and rightful responsibility of adults. We hypothesize that adults can limit peer rejection and aggression behaviors in children by modeling positive behavior, being able to recognize vulnerable children, and understanding the root of rejection and aggression. This research has implications for what kind of education that parents and teachers should receive about peer relationships, how to increase awareness and enactment of early intervention programs, and the ability to support the well-being of children and adolescents struggling with peer rejection and aggression.

AARON LEFORE – ENVIRONMENTAL SCIENCE**POSTER 71 Title: Determining Soil Organic Carbon Values in Association With Vegetation Community Types in the Chewaucan River Basin****Research Area: Physical Science****Faculty Mentor(s): Lucas Silva, Schyler Reis****Abstract:**

The terrestrial carbon pool, especially soils, have the potential to sequester large amounts of carbon by way of below ground carbon flux. However, the degree of carbon sequestration into soils is dependent upon the structure of the vegetation communities inhabiting them and the unique qualities of the soil itself. This study focuses on below ground carbon concentrations, specifically soil organic carbon (SOC), in relation to vegetation communities in the Chewaucan River Basin in southern Oregon. Over time, management practices within the Chewaucan site have resulted in major vegetation shifts, defined by woody Juniper encroachment, cheatgrass invasion, and dryland agriculture practices. To calculate SOC, cores from the top 10cm of soil were taken from different vegetation community plots across the site that included Juniper, Ponderosa Pine, sagebrush, Juniper/Pine, and alfalfa. Samples were dried to determine bulk density, texture, and Munsell color system rating. Soil sieving separated samples into coarse earth (>2.00mm) and fine earth fractions (< 2.00mm). A loss on ignition (LOI) test was completed on 5.00g fine earth from each sample to determine SOC values. Simple calculations show woody species (Ponderosa, and Juniper) plots having slightly elevated SOC concentrations than shallow rooted species (sagebrush, alfalfa). However, more complex analytical procedures will be completed using R statistical computing that account for multiple variables across all plots. This study has the potential to quantify SOC concentrations of soils that have not previously been analyzed. More importantly, this research could predict changes in SOC within rapidly changing ecosystems like the Chewaucan River Basin.

ISAAC LEVE – EDUCATION FOUNDATIONS**Co presenter(s): Gina Williamson, Claire Guidinger, Sophia-Kate Brockie, Rae Fitzpatrick****POSTER 89 Title: Body Image Concerns are Associated with Compulsive Exercise Behavior in African American Men****Research Area: Health Psychology****Faculty Mentor(s): Nichole Kelly****Abstract:**

According to extant research, body image concerns are generally lower among African American men relative to their Caucasian peers. However, qualitative data suggest that athleticism and physical strength are defining characteristics of being a successful African American man. As such, men who do not fit these ideals may experience body image concerns and engage in excessive exercise to obtain an athletic physique, particularly if they internalize these appearance ideals. The current study examined the associations among body image concerns, internalization of appearance ideals, and compulsive exercise in 255 young African American men (18-30y, Mage = 23.72y). Participants completed an online survey and reported on body image concerns (Revised Male Body Image Attitudes Scale); internalization of appearance ideals (Sociocultural Attitudes Towards Appearance Questionnaire-4); compulsive exercise beliefs and behaviors (Exercise Dependence Scale); and general demographic characteristics. Linear regression models were conducted, controlling for income, education, presence of a psychiatric diagnosis, and body mass index. Body image concerns were positively associated with compulsive exercise ($p < .001$); internalization of appearance ideals did not moderate this association. However, internalization of appearance ideals demonstrated a positive association with excessive exercise ($ps < .001$). These findings suggest that body image concerns and internalization of appearance ideals are independently associated with excessive exercise symptoms in African American men, but that they do not function jointly to exacerbate these symptoms. Prospective research is needed to determine if body image concerns and internalization of body ideals represent unique risk factors for compulsive exercise symptoms in African American men.

HANNAH LEWMAN – ADVERTISING**POSTER 114 Title: A Regional Approach to Climate Communications****Research Area: Strategic Communications****Faculty Mentor(s): Kim Sheehan****Funding: Clark Honors College Thesis Research Grant****Abstract:**

The disconnect between scientific certainty in the existence and causes of climate change and public belief in climate change shows the need for better communication to the American public. While this type of communication is a rich area of study for social scientists who study everything from how the distance of an event impacts how people think about climate change to the word-level significance of phrases like “climate change” and “global warming,” many communicators are not social scientists. They’re professional creatives. My thesis will combine social science research on framing and identity with

advertising techniques to show how agencies can create tailored campaigns for different regions of the United States. I will also test if this regionally-segmented approach to climate communications is more effective than trying to target the entire United States with one campaign. Testing the potential of regionally-targeted campaigns opens the door to future research that fine-tunes messages for each area of the country.

HAOZHE LI – INTERNATIONAL STUDIES

POSTER 131 Title: Is The Far East Too Far? Explore the Relationship Between Chinese International Students and University Of Oregon Career Services Offices

Research Area: Social Science

Faculty Mentor(s): Dennis Galvan

Abstract:

The number of Chinese international students in the US has increased dramatically. Are they using the career services, or does an American degree leads to a dream job? My initial hypothesis is small number of Chinese students use the career services because of the cultural differences and the services are on American standards. This research project assesses the career needs, job search mindset, and cultural differences the Chinese students have, and builds on this information to recommend potential service models and solutions for US universities to be more strategically and inclusively on serving this population. The study uses a quantitative research method by analyzing online survey responses from a randomized sample of University of Oregon (UO) Chinese international students. It also draws on semi-structured interviews with Chinese students, and with staff from the career services offices. The results from the survey indicated Chinese international students at the UO have different understandings of career services. Most student value and try to get US work experience, yet, many feel not career ready after obtaining the degree. More respondents would rather go to graduate school than work. The main challenges Chinese students face are language and visa/work authorization. Suggestions to the career services offices on supporting Chinese international students include exploring career options early, invoking motivation early, building experience early, intentional skills building, and knowing not all Chinese students want to work in the US after graduation; therefore, have the support system on helping with career planning globally or graduate school preparation.

MIKAYLA LINDSEY – COMMUNICATION DISORDERS AND SCIENCES, SOCIOLOGY

POSTER 134 Title: Latinx Perceptions of Their Environment: The Examination of Neighborhood Walkability by Region in a National Latinx Sample.

Research Area: Social Science

Faculty Mentor(s): Tasia Smith, Jonathon Pedroza

Abstract:

According to the Center for Disease Control and Prevention's guidelines, the average adult should engage in 150 minutes of physical activity a week. While many do not meet the requirements, Latinx populations engage in less physical activity than other racial/ethnic groups. A major factor as to why Latinx populations do not engage in enough physical activity is from personal and environmental barriers. Neighborhood walkability, particularly perceived safety and infrastructure, is one barrier that influences physical activity. Research has shown that walkability influences physical activity but was limited to a Mexican American sample in California, while limited research has compared regions of the United States. The purpose of the present study was to determine whether perceptions of neighborhood walkability vary by region in Latinx adults. The national sample of Latinx adults (N = 562; Mage = 39.91 ± 14.70, 59% Female) completed an online survey that assessed regions of the United States and neighborhood walkability. Regional differences of neighborhood walkability were found; $F(3, 558) = 5.54, p = .00$. Bonferroni's post hoc test revealed Latinx in the Midwest and the West perceive their neighborhood walkability as better than those in the South. The findings suggest that Latinx communities in different regions of the United States may have different barriers that prevent them from engaging in sufficient levels of physical activity. Future studies should examine the specific barriers that may be more present in southern states in comparison to the Midwest and the West.

GEENA LITTEL – GEOPHYSICS

POSTER 1 Title: Tectonic Tremor And Seismic-Wave Attenuation in Cascadia

Research Area: Natural/Physical Science

Faculty Mentor(s): Amanda Thomas

Funding: UO Department of Earth Sciences: Walter Youngquist Fellowship, James C. Stovall Fellowship, UROP VPRI Fellowship, UROP Mini Grant

Abstract:

In addition to fast, seismic slip during an earthquake, many subduction zones also host slow, largely aseismic slip. These "slow earthquakes" occur on timescales of weeks to months and are often accompanied by a weak seismic signal known as "tectonic tremor," or simply "tremor." Tremor behaves differently than regular earthquakes in that it is comprised of many small earthquakes that radiate low-frequency seismic energy and originate at the plate interface down dip of where large

earthquakes typically occur. Ground-motion prediction equations (GMPEs) quantify ground-motion during an earthquake, and employ estimates of seismic-wave attenuation, that is, the decrease in amplitude of seismic waves as a function of distance from the earthquake source. Because tremor occurs frequently when compared to regular earthquakes in Cascadia, it presents an opportunity to better refine attenuation parameters for use in GMPEs. Here we quantify seismic-wave attenuation by performing an inversion using tremor ground motion amplitudes from three tectonic tremor episodes to determine the extent of regional variations and frequency dependence of seismic-wave attenuation in Cascadia. Inversion refers to the process of using tremor ground motion amplitudes, and a mathematical formulation relating seismic-wave amplitude and other known parameters, to solve for the unknown parameter- in this case, attenuation. Due to the large amount of tremor data, we can resolve spatial variations in the attenuation parameter along strike in Cascadia. As well, tectonic tremor exhibits the frequency dependence expected for attenuation, as seen in GMPEs developed from moderate to large magnitude earthquakes. Hence, tectonic tremor can be used to provide insight into the geological and physical factors manifested in attenuation and refine estimates of attenuation for ground-motion prediction, thus having important implications for hazard assessment.

ELMIRA LOUIE – COMPARATIVE LITERATURE, ENGLISH

ORAL SESSION 30 **Title: Sa'di and the Safavid: The Material Culture of a Treasured Persian Manuscript Now at UO**

Research Area: Humanities

Faculty Mentor(s): Vera Keller

Abstract:

This talk offers a material cultural analysis of a hitherto unstudied Persian manuscript in UO's collection, identifying the city and cultural context of its production. This manuscript went on an incredible journey. In 1615 CE, the Burgess MS 43 manuscript of Sa'di's *Gulistan and Bustan* was created in Persia. At some point in its life, the manuscript was transported to Europe, where the original Persian leather binding was swapped for a more European style: soft, red velvet with two silver clasps. According to a book seller's catalogue entry, this manuscript once belonged to John Ruskin, the preeminent art theorist of Victorian England; the binding of the manuscript, which is not typical for Persian bindings, suggests the Orientalist lens through which it was once viewed. Using the approaches of material culture studies and the history of the book, this talk recoups the manuscript from its Orientalist past and restores it to its original culture of production and consumption in the Safavid book arts. Taking a journey back to the 17th century Persian context reveals that this manuscript was created by a team of artists, illuminators, and scribes in a Shiraz kitabkhana for a member of the wealthy elite.

SHAYAN LOUIE – BIOCHEMISTRY

POSTER 87 **Title: Synthesis and Characterization of Ru(II) Cycloparaphenylene Complexes**

Research Area: Natural Science

Faculty Mentor(s): Ramesh Jasti, Jeff Van Raden

Funding: Presidential Undergraduate Research Scholars

Abstract:

Ruthenium polypyridyl complexes undergo metal-to-ligand charge transfer (MLCT) in the presence of light, allowing energy from light to be captured in the form of an electron transfer. These molecules possess great potential as catalysts for efficient and clean chemical processes. To develop light-harvesting complexes that perform advanced functions, new ligands, or groups around metal ions, must be made. Cycloparaphenylenes (CPPs) are hoop-shaped photoactive molecules with virtually unexplored roles as ligands. They possess exceptional size-dependent optic and electric properties, and show potential as a new class of macrocycles for supramolecular chemistry, ultimately making them suitable for charge-transfer complexes. Through the incorporation of nitrogen atoms into the backbone of [8]CPP, we found that CPPs act as versatile ligands for a variety of metals including Ru(II). However, the effects of CPP diameter on the electric properties of Ru(II)-based light-harvesting complexes are unknown. We have recently synthesized CPP ligands of various sizes and coordinated them to ruthenium centers, which has allowed for the investigation of size/diameter on these properties.

The optic and electric properties of the complexes have been studied using UV-Vis spectroscopy and cyclic voltammetry. Here, we present our findings.

MAXFIELD LYDUM – ENGLISH

ORAL SESSION 30 **Title: Spectral Prose: Reading the Object in Icelandic and American Literature**

Research Area: Humanities

Faculty Mentor(s): Brian Gazaille

Abstract:

Object-oriented ontology (OOO), a development that has become particularly useful in ecological philosophy, seeks to understand the way in which objects exist and act upon one another. OOO views existence as lying in an irreducible rift between the appearance and essence of objects. Timothy Morton has recently formulated this theory of causality into

a philosophy of ecological awareness in the Anthropocene. Drawing from Morton's recent books *Realist Magic* (Open Humanities 2013), *Dark Ecology* (Columbia 2016), and *Humankind* (Verso 2017), I attempt to unravel the ontological presuppositions that have guided certain trends in the development of western prose writing. Chief among these presuppositions is a view of objects as subservient to the personal, economic, and literary interests of humans, an ontological hierarchy that Morton argues is the greatest barrier to ecological awareness. Tracing a line from the Icelandic family saga tradition into the works of Herman Melville and Ken Kesey, I argue for the long prose form as an environment of ecological attunement, a narrative arena in which objects can exist in the spectral interplay of appearance and essence. By analyzing these seemingly disparate occasions of prose writing under the interpretive lens of OOO, we begin to understand the way in which the existence of objects in the narrative sphere allows for a possible future of ecological awareness.

ALEXANDER LYGO – PHYSICS, CHEMISTRY

POSTER 22 Title: **Properties and Synthesis of Three Component Heterostructure: $(\text{BiSe})_{1+\delta}(\text{Bi}_2\text{Se}_3)_m \delta (\text{BiSe})_{1+\delta} (\text{TiSe}_2)$**

Research Area: Natural/Physical Science

Faculty Mentor(s): David Johnson,

Funding: Vice President for Research and Innovation (VPRI) Undergraduate Fellowship, Presidential Undergraduate Research Scholars program

Abstract:

As potentially applicable in high-performance electronics and quantum computers, topological insulators and heterostructures containing them have recently garnered significant interest by materials scientists. Despite their imagined utility, these compounds have proven difficult to synthesize. In a recent study of a series of compounds, $[\text{BiSe}_{1+\delta}]_m[\text{TiSe}_2]_m$ with $m = 1, 2, 3$, it was observed that, for the $m = 3$ compound, the topological insulator Bi_2Se_3 formed upon deposition and was present at all annealing temperatures. To test if Bi_2Se_3 could be incorporated into a heterostructure, a series of $(\text{BiSe})_3\text{-TiSe}_2$ precursors with varying Bi-Se ratios and layer thicknesses were prepared and annealed at various temperatures for 30 minutes. A combination of specular and in-plane diffraction indicated that select precursors formed a highly crystalline and crystallographically aligned compound containing BiSe, Bi_2Se_3 , and TiSe_2 and high-resolution electron microscopy revealed the stacking sequence of the constituents. X-ray fluorescence measurements reveal that the compound formed readily over a range of Bi-Se ratios. Electron transport measurements revealed metallic behavior and surprisingly high carrier mobility, compared to $\text{BiSe}_{1+\delta} \text{TiSe}_2$. These results provide a synthetic route for preparing a high quality Bi_2Se_3 containing heterostructure with unexpected properties and with further research, a material with properties applicable to electronics or quantum computers may be discovered.

BECCA MARSHALL – ENVIRONMENTAL STUDIES

ORAL SESSION 1SW Title: **Mushroom Justice?: Commercial, Wild Mushroom Harvesting on the Willamette National Forest**

Research Area: Social Science

Faculty Mentor(s): Kathryn Lynch

Funding: Humanities Undergraduate Research Fellowship

Abstract:

This research examines the extent Willamette National Forest's management of commercial, wild mushrooms incorporates environmental justice principles. In Oregon, the edible, wild mushroom industry contributes to a significant portion of the economy, and thousands of harvesters are out picking (Schlosser and Blatner, 1995) The diverse group of people out picking these mushrooms—commercial, wild mushroom harvesters—live on the fringes of society, are highly mobile, politically weak and largely understudied (Arora, 1999; McLain, 2002). Forest Service lands make up a large swath of the land harvesters pick on in Oregon. And the Forest Service, along with other federal agencies, has to make environmental justice part of its mission—the meaningful involvement and fair treatment of all people in policy decisions. Yet, the voices of the harvesters are missing in public planning processes that impact decisions made on the forest and there has been little investment in managing lands for mushrooms along with little research, inventory or basic monitoring by forest managers. For my research, I interviewed harvesters and land managers, and reviewed the Willamette National Forest's natural resource documents for how they manage for wild mushrooms. Themes that emerged include a minimal consideration of the mushrooms and the wild mushroom industry, restricting harvesters' access to the forest, and a focus on managing for timber. All of this suggests an undue burden placed on harvesters because the Willamette NF is not managing for mushrooms. I conclude that the Willamette NF cannot manage the forest in an environmentally just way if they do not consider the commercial, wild mushroom industry and work to involve the harvesters in management decisions.

DYLAN MARTINS – BIOLOGY**POSTER 44 Title: Building Zebrafish Gut Bacterial Communities From the Bottom Up****Research Area: Natural/Physical Science****Faculty Mentor(s): Raghuvveer Parthasarathy****Abstract:**

The intestines of humans and other animals are home to tens of trillions of microbes. These microbial communities play important roles in health and disease, and are composed of dozens to hundreds of interacting species. While the factors that determine a particular species' presence in the gut are largely unknown, both physical and biochemical interactions between species are likely important. Learning about these factors poses challenges due to the difficulty of performing controlled experiments with existing tools.

This project addresses these challenges by constructing five-species microbial communities in zebrafish, a model vertebrate animal to determine whether these model groupings are stable, and what inter-species interactions are evident. We use zebrafish as a model organism because they can live in a bacterially controlled environment and because their larval transparency allows for live microscopy. Experimentally, we introduce commensal intestinal microbes to larval zebrafish, initially raised germ-free to allow introduction of controlled combinations of bacterial species. Using a combination of conventional dissection and plating assays and three-dimensional live imaging, we have been able to demonstrate the existence of stable multi-species communities, and we can test whether outcomes from two-species competitions contain enough information to allow prediction of multi-species abundances and interactions, of key importance to creating predictive models of the human gut. Further, we find that individual species are differentially sensitive to the presence of other species, and that the community stability is sensitive to the presence of certain species. Correlations can also be identified between species and their spatial structure within the fish gut.

The microbiome is important to health and disease, but it is a complex system which is difficult to understand. By constructing a model system in a vertebrate gut that has an interesting and tractable number of species, we gain insights and reveal principles that might apply to the human microbiome.

LEANDRO MARX – BIOLOGY**POSTER 53 Title: Life With White Blood: Histological Analysis of Antarctic Icefish Elucidates its Unique Adaptation to Loss of Hemoglobin, Fueling Inquiry into The Regulatory Role Of Mirnas in Hematopoiesis****Research Area: Biology****Faculty Mentor(s): Thomas Desvignes, John Postlethwait****Funding: University of Oregon Presidential Scholarship, National Science Foundation****Abstract:**

Antarctic icefish (Channichthyidae), belong to a family of ray-finned fish endemic to the Southern Ocean (1). With an astonishing set of adaptations, the enigmatic icefish have inspired curiosity since their discovery in 1927 (2). The defining feature of this 16-species family is their "white blood", which is devoid of hemoglobin -- the iron-containing protein that facilitates oxygen transport throughout the body (3,4). Through a series of histological analyses, genetic analyses, and reverse genetic screens, the aim of this research is to identify phenotypic and genotypic adaptations that mitigate the consequences of the unique physiology of the icefish as well as to understand the role of miRNAs (small, regulatory RNA molecules) in red blood cell production (hematopoiesis). Current questions focus primarily on the regulatory role of miRNAs in hematopoiesis. Through differential analysis of miRNA expression between icefish and other ray-finned species, we will select candidate genes that may be involved in the hematopoietic process. Using these target miRNAs, we will generate genetic knockouts in zebrafish using the CRISPR/Cas-9 system and will observe the effects of these genes on hematopoiesis. Although work is currently in progress, successful completion of this research will develop a greater understanding of the unique physiology of icefish and the role of understudied miRNAs in the genetic regulation of hematopoiesis. In addition to helping us understand the evolution of developmental mechanisms, results may be relevant to human anemia diseases because miRNAs circulating in the bloodstream are thought to be potential disease therapies (5).

WILSON MATHIEU – ANTHROPOLOGY**POSTER 136 Title: The Living Room of Campus: A Post-Occupancy Study of the Erb Memorial Union at the University of Oregon****Research Area: Social Science****Faculty Mentor(s): Laurie Woodward, Renee Delgado-Riley****Abstract:**

The Erb Memorial Union is a vital part of the University of Oregon's vision to create a vibrant community of scholars. As the heart of campus and one of the top places that first-year students identified as feeling they belong (based on information gathered in the College Transition Project), this study aims to explore and understand how people (students, staff, faculty, community members, etc.) use the spaces within the EMU via post-occupancy evaluation and investigation. This study employed behavioral observations conducted from February 10th, 2018 through March 2nd, 2018 in four pre-identified areas of

the building: Student Street, O Lounge, Taylor Lounge, and Fishbowl. Observations we conducted in two hours shifts from 8am until 10pm on weekdays, and 10am until 10pm on weekends (adjusting for altered weekend operational hours), with 2-minute focal data collected. Observers monitored for four main activities (working, playing, socializing, sleeping) and six sub-activities (reading, on phone, computer, eating, drinking, other). A total head count of the area and level of loudness was recorded every 30-minutes. The information gathered in this study will be used to ensure that students are being supported in how they would like the building to be used, to evaluate building performance following recent renovation and expansion, and for future projects.

COLIN MAXWELL – BIOLOGY

ORAL SESSION 3M **Title: Investigating the Role of Transposons in Temperature-Induced DNA Damage During Spermatogenesis**

Research Area: Biological Science

Faculty Mentor(s): Diana Libuda, Nicole Kurhanewicz Codd

Abstract:

Meiosis is a specialized form of cell division that sexually reproducing organisms use to generate haploid sex cells. Developing sperm are particularly sensitive to temperature fluctuations, with some studies indicating that exposure to elevated temperature increases DNA damage in spermatocytes, but not oocytes. Although temperature-induced DNA damage has been observed, the underlying molecular mechanisms remain unknown. DNA transposons are mobile genetic elements that produce double-strand DNA breaks (DSBs) when excised from the genome. Additionally, transposons can excise from the genome under heat stress. I hypothesize that heat stress causes transposon excision which may be observed as a linear relationship between transposon copy number and the quantity of DSBs in developing spermatocytes exposed to elevated temperature. To test this hypothesis, I conducted an immunofluorescence screen of wild type *Caenorhabditis elegans* strains with varying transposon copy numbers. Using deconvolution microscopy, DSBs were visualized via the recombinase RAD-51, a protein involved in the early stages of meiotic DSB repair. Quantification of RAD-51 foci was performed to determine the frequency of temperature-induced DSB formation. Preliminary results demonstrate that the CB4856 strain with ~15 copies of Tc1, a class of transposons active in *C. elegans*, exhibited half the amount of DSBs as the Bristol N2 strain with ~30 copies of Tc1 displayed upon heat shock. In contrast, comparisons of DSB quantities between additional strains with varying Tc1 copy numbers show no clear relationships. Taken together, these results indicate temperature-induced DNA damage in spermatocytes has multiple mechanisms, with excision of Tc1 transposons as one possible mechanism.

NED MAYNARD – ENVIRONMENTAL STUDIES

Co presenter(s): Kiana Seto, Dylan Plummer, Riley Olson, Ariella Dahlin, Kyra Ortiz, Cahill Shpall, Chelsea Sussman, Ned Maynard

ORAL SESSION 4CN **Title: Amongst the Ancients: Place-Based Experiential Education Within the H. J. Andrews Experimental Research Forest**

Research Area: Environmental Education

Faculty Mentor(s): Kathryn Lynch

Abstract:

Canopy Connections 2018: The goal of environmental education is to teach through experiential, place-based activity. Through the Environmental Leadership Program at the University of Oregon, the Canopy Connections program partners with the H. J. Andrews Experimental Research Forest and the Pacific Tree Climbing Institute to create day-long field trips for middle schoolers, bringing the classroom to the forest. Our mission is to serve the community by instilling a sense of place in youth, providing our community partners an avenue to educate students about science, and reinforcing the importance of old growth forests. Our program is built around a central theme of natural cycles within the Pacific Northwest. We incorporate storytelling, tree climbing, local research, and citizen science so the curriculum is interdisciplinary and engaging. In building this curriculum, our team developed four individual activity-based stations that take place within H.J. Andrews, along with a pre-trip lesson taught in the classroom. We help the students move from awareness of their local environment to community action by fostering a sense of stewardship, wonder, and scientific discovery. By the end of spring term, we will have reached 290 students across five middle schools. These students will exit the program with a robust understanding of traditional ecological knowledge and the science of phenology, having learned their relationship through the lens of natural cycles. In order to improve the curriculum's efficacy, we will seek evaluation through methods such as life cycle diagrams, post-trip surveys, and games that assess knowledge retention in the field.

SAMANTHA MCGEE – ANTHROPOLOGY**ORAL SESSION 40 Title: Portrayals of Power: The local Identity of Three Cypriot Sarcophagi from the 5th Century BCE****Research Area: Social Science (Anthropology/Archaeology)****Faculty Mentor(s): Daphne Gallagher****Funding: Honors College Extraordinary Expenses Thesis Grant, Undergraduate Anthropology Award for Research****Abstract:**

Cyprus has been a place of cultural interaction and exchange as long as humans have occupied it. Its location just beneath the Anatolian peninsula has made the island a meeting ground of many of the iconic Mediterranean powers of history, including Greece, Egypt, Assyria, and Persia. There has been a great deal of research on the way Cyprus was influenced by external forces, as well as how these cultural influences were engaged and manipulated on the island. However, more research is needed on the exclusively local identity of Cypriot material culture. This paper focuses on three sarcophagi covered in detailed relief sculpture from the first half of the fifth century BCE, analyzing their place as objects in their local communities. These three objects were chosen because they are similar in date and form, and are from three different cities, providing context for inter-island diversity at a time of extreme political and cultural turmoil on the island. The main focus of this research is the iconography of the relief sculpture; the local context and use of the elements and images is analyzed, as well as how the context of this iconography on the sarcophagus, and its place as an item of funerary ritual might have impacted the understanding of these objects in their local communities. I conclude that the iconography of each sarcophagus is clearly impacted by their local spatial and social context, and is also connected to political and cultural events occurring over the course of the fifth century.

EVELYN MEADOR – GEOLOGIC SCIENCES**POSTER 5 Title: Post-Burn Geomorphic Changes in the Oregon Coast Range****Research Area: Geological Science****Faculty Mentor(s): Joshua Roering****Funding: Presidential Undergraduate Research Scholars****Abstract:**

Wildfires are prevalent in the Oregon coast range, but studies on the post-fire geomorphic changes and hazards are limited in the region. Processes like dry ravel movement, hydrophobicity, and tree root strength decreases are present and contribute to land and mudslides, but the extent of which is not known. By repeatedly visiting the Horse Prairie Fire in the Oregon coast Range and observing and documenting changes and sediment movement, we gained insight into the processes that shape post-burn sites. Water, particularly in the form of precipitation, shapes the land after a burn. The rain in the coast range is seasonal, and the site typically experiences monthly storms of one to two inches. These storms move great amounts of post-fire debris and can cause landslides. The goal of this study is to see if there is a correlation between slope angle and sediment transport, which would greatly help organizations like the United States Geological Survey create accurate hazard maps for the Pacific Northwest.

SHAWN MELENDY – BIOCHEMISTRY**POSTER 75 Title: Assay of Insulin-Stimulated Signaling by Flow Cytometry: Key Points of Regulation****Research Area: Natural/Physical Science****Faculty Mentor(s): Carrie McCurdy, Byron Hetrick****Funding: UROP mini-grant, American Physiological Society Undergraduate Summer Research Fellowship Program****Abstract:**

Type 2 Diabetes, an increasingly prevalent disease worldwide, is partially caused by a progressive loss of insulin response in adipose tissue and skeletal muscle. Multicolor flow cytometry is a powerful tool that can be used to measure multiple signaling events simultaneously in specific cell types within mixed populations. The objective of this study is to design a sensitive and high-throughput assay to measure key points of regulation in the insulin signaling pathway for myocytes using flow cytometry. We have developed a multicolor flow cytometry panel to measure the insulin stimulated phosphorylation of Akt(S473) and the transport of the insulin responsive glucose transporter, GLUT4, to the plasma membrane. C2C12 myoblasts were stained with primary conjugated antibodies for pAkt(S473) and an extracellular region of GLUT4, indicative of translocated GLUT4 present in the plasma membrane. Both C2C12 myoblasts, an immortalized cell line, and primary myoblasts, isolated from non-human primate muscle, responded to insulin with increased pAkt(S473) and plasma membrane GLUT4 with an EC₅₀ of <10nM, similar to physiological response. Future work will expand the panel to measure phosphorylation of insulin receptor substrate and phosphoinositid 3-kinase (PI3K) activity by quantitating phosphoinositid (3,4,5) phosphate (PIP₃) production. The sensitivity of the assay will be demonstrated by inhibiting key insulin-activated kinases including PI3K by Wortmannin, and Akt activation by MK-2206 and measuring insulin signaling at points up and downstream of inhibition. We anticipate that this will provide a powerful method to rapidly dissect the insulin signaling cascade for a specific cell type within mixed populations of cells.

ALEXANDER MILLER – BIOLOGY**ORAL SESSION 3M Title: A Forward Genetic Screen for Genes Required in C. elegans Embryonic Morphogenesis****Research Area: Natural/Physical Sciences****Faculty Mentor(s): Bruce Bowerman, Molly Jud****Funding: NIH funding, Oregon Undergraduate Researchers in SPUR (OURS) summer scholarship****Abstract:**

Our research in the Bowerman laboratory focuses on embryonic morphogenesis in the soil nematode, *Caenorhabditis elegans*. Morphogenesis is the coordinated movement and shape changes of cells that occur during development in all animals. Defects in this process can cause a variety of human disorders, including neural tube closure, vascular, and limb developmental defects. My research involves a forward genetic screen for genes required in *C. elegans* embryonic morphogenesis, utilizing a collection of roughly 1,000 temperature-sensitive embryonic lethal (TS-EL) mutants previously created in the Bowerman laboratory. TS-EL mutants are first terminally phenotyped to identify mutants with penetrant morphogenetic defects, which are then genetically characterized to isolate recessive, loss-of-function, single-mutant alleles. We identify the mutant genes through a combination of SNP-mapping and whole-genome sequencing to find candidate genes, followed by complementation testing with null alleles when available. Mutant strains are sent to our collaborators, the Zhirong Bao laboratory at the Sloan Kettering Cancer Center, for single cell-fate lineaging. This allows us to more accurately distinguish between morphogenesis and cell fate patterning defective mutants. I have terminally-phenotyped nineteen mutants, fourteen of which have penetrant phenotypes (where 70% of embryos display a single phenotype), and genetically characterized six recessive, single mutants. Alleles *or388ts* and *or113ts* have been genetically identified to be mutations in the gene *let-19*, which is a transcriptional coactivation subunit containing Mediator domains. Allele *or542ts* is a mutation in the gene *chaf-1*, a chromatin assembly factor likely regulating gene transcription. Allele *or614ts* is a mutation in the *zwl-1*, which codes for a kinetochore protein. While *let-19* and *chaf-1* fall within the scope of this project, our allele of *zwl-1* is probably a weak cell division-defective instead of a morphogenesis-defective mutant, and thus is no longer being studied. Most of the genes we have identified are involved in gene expression regulation, suggesting there is a preexisting gene regulatory program for morphogenesis. Future work is to be done to expand our and the Bao laboratory's roster of genes known to be required for morphogenesis. This research will help to create a deeper understanding of the basic genetic pathways and cell biological changes required for embryonic morphogenesis in *C. elegans*, thus improving our comprehension of human development.

MICHELLE MILLER – PUBLIC RELATIONS**POSTER 111 Title: Understanding the Wine Industry's Influence on Culture of the Pacific Northwest****Research Area: Public Relations: Circuit of Culture****Faculty Mentor(s): Dean Mundy, Kim Sheehan****Abstract:**

The wine market creates an opportunity for wine regions to produce powerful stories that reflect tradition and characterize a lifestyle. The relationship between wine and culture is a significant factor to identify when exploring the implications these elements play within the wine industry. The specific research question of this project is: How does the wine industry influence the culture of the PNW, in comparison to Italy? This is important because it can provide journalists and researchers with a tool to help further understand the impact of the wine industry on a larger scale. This can interconnect the food and beverage industry and provide a resource for audiences to understand how culture plays an active role in marketing. While this project has a defined research question, I want to understand what differs in terms of wine culture when examining the wine industry among different regions and how wine tourism plays a role in wine culture. Furthermore, I want to explore how the circuit of culture plays a role in influencing the PNW and the Italian wine industry and what attracts consumer engagement to these particular regions. In terms of marketing, it is imperative to evaluate the fundamental differences when comparing the PNW to the Italian wine industry, locally and internationally. Similarly, it is vital to examine if wine tourism and culture are the driving forces behind wine marketing. These explorations will provide support for the question my research will address. I plan to use both Qualitative and Quantitative methods for my research. For my qualitative research, I will create interview questions for individual interviews. Many of the research questions provided will be based on the Circuit of Culture. This will provide perspective in the professional realm within the wine industry. Quantitative data is also fundamental to my research, particularly when referencing factors that deal with the Circuit of Culture. This includes consumption, production, and regulation. I will create a survey using Qualtrics to further understand the PNW and Italian wine region markets. This survey will help me gain general knowledge of behavior based on the circuit of culture. Additionally, I find it important to use a social media audit when observing the wine market. This is particularly significant because I am examining many elements of a domestic and international market. The social media audit will examine wine tourism and wine marketing through the most used platforms in the PNW and Italy. This will support my research and demonstrate how the wine industry is represented to a larger market.

ALEJANDRA MIRANDA – PSYCHOLOGY, SPANISH**ORAL SESSION 2M Title: The Role of Mentoring and Ethnic Identity in Latinx* High School Students****Research Area: Social Science****Faculty Mentor(s): Ellen McWhirter****Funding: McNair Scholarship****Abstract:**

Latinx students remain significantly underrepresented at four-year colleges and universities (Fry & Taylor, 2013). For this reason, examining associations between mentoring, ethnic identity, and postsecondary plans in Latinx students may help to explain the continuing underrepresentation in higher education. This study discovers associations between mentoring, ethnic identity, and post-high school plans (PLANS) in 665 Latinx high school students. Mentoring helps integrate and connect students to academic experiences (Crisp et al., 2017). Unfortunately, many Latinx parents are unable to provide their children with academic support to pursue a higher education due to various factors such as language barriers, work, or lack of education (Ceballo, 2004). Ethnic identity is also found to be a strong predictor of school engagement and school positivity (Booth et al., 2014). In general, Latinx families put great value on education, hard work, and family. In this study, we hypothesize that first, students who report low mentoring and ethnic identity will choose “community/2 year” or “no school” PLANS significantly more than those who have high mentoring and ethnic identity. This study will also examine sex as an additional influential factor, in response to an increase in Latinas pursuing higher education (Gloria et al., 2005). Therefore, our second hypothesis is that females will report more mentoring and ethnic identity than males. Altogether, this study examines mentoring, ethnic identity, and sex impact on PLANS. The present study uses existing data from participants at a regional conference for Latinx high school students. A one-way analysis of variance (ANOVA) analysis is used to examine mentoring and ethnic identity correlation with PLANS. A factorial multivariate analysis of variance (MANOVA) is used to examine differences between PLANS (no school, community/2 year, and 2 plus 4 or 4 years) and dependent variables (mentoring and ethnic identity). Findings yield to a better understanding of the importance of mentoring and ethnic identity in Latinxs future educational plans. *Latinx is a gender-neutral, forward term that encapsulates all individuals and breaks away with the classification of gender.

TRISTAN MISTKAWI – BIOCHEMISTRY**POSTER 74 Title: Synthesis of 7,14-Diarylfluoreno[3,2-b]fluorenes****Research Area: Organic Chemistry (Natural/Physical Science)****Faculty Mentor(s): Josh Barker, Michael Haley****Funding: UROP Mini-grant****Abstract:**

The Haley group is interested in a class of organic molecules, known as the indenofluorene (IF) scaffold, for potential use as organic semiconductors (OSCs) in electronic devices. IFs show great promise as OSCs because of their ability to easily and reversibly accept electrons. Similarly to the well-known class of acene OSCs, we are interested in studying the effect of extending IF scaffold -conjugation to discover trends in electronic properties. While other researchers in the literature have studied compounds with similar properties, no one has performed a rational, systematic study. This work requires exploring the synthesis of several 7,14-diarylfluoreno[3,2-b]fluorenes (FFs) to compare to structurally related molecules in the IF scaffold. Along with affecting the optoelectronic properties of FFs, substituting different aryl groups at specific positions on the molecule is important for crystal engineering, which will help improve our understanding of this novel scaffold. Many derivatives have not been explored yet, and studying solid-state packing interactions may improve device performance and influence our ability to implement these compounds as organic semiconductors.

Sheena Moore – Vocal Performance, Music Education**ORAL SESSION 3C Title: English American Colonial Sacred Music: Rebellion And Egalitarianism****Research Area: Humanities****Faculty Mentor(s): Marc Vanscheewijck, Natascha Reich****Abstract:**

I claim that English American Colonial sacred music was driven by rebellion and egalitarianism. *The Bay Psalm Book* was a direct push against the Ainsworth Psalter. The book argues that psalms should be directly translated from Hebrew and that God intentionally hid the poetic meter and tune settings to allow a setting that fit the vernacular. The antiphonal style of psalm singing found in *The Bay Psalm Book* deteriorated and singing schools developed. William Billings started a singing school and one year later wrote *The New-England Psalm-Singer*. It was written to teach music to an audience that did not have access to anything beyond a rudimentary education. When Regular Singing moved South it developed into Sacred Harp. The singers face inward and form a square with one section forming each side. They take turns leading and picking psalms. This indicated that it is not a music intended for performance and leadership is shared. Rebellion and egalitarianism are woven into our history. These three cultural cornerstones of early English Colonial life will show us they were part of our national identity before the nation was formed.

MADISON MOROCCO – PSYCHOLOGY**POSTER 102 Title: The Effect of Sleep on False Memories****Research Area: Social Science, Cognitive/Clinical Psychology****Faculty Mentor(s): Nash Unsworth, Melynda Casement****Abstract:**

A false memory is recalling incorrect information, or recalling an event that did not happen. Everyone is susceptible to false memories. There is no known cure or defense, and relatively little is known about how they occur. Though there is relatively little known, much research shows sleep, consolidation specifically, is crucial to solidifying memories (Payne, Chambers, and Kensinger, 2012). Consolidation is a process where new, labile memories are integrated into the vast network of pre-existing long-term memories. A key component of this process is the active re-processing of these memories, because this is the version of the memory that will be recalled (Diekelmann and Born, 2010). Memory is malleable, so it is important to understand how it is affected. This study seeks to find a connection between the number of hours of sleep a subject gets and how many times they experience a false memory. Using the Deese-Roediger-McDermott paradigm, subjects were asked to memorize four lists of 10 words all related to a single theme word. Then, subjects were asked to recall words from each list. A false memory was counted each time a subject mistakenly reported the theme word. We hypothesized that subjects sleeping a “normal” eight hours per night would experience fewer false memories compared to subjects who slept greater than 10 or less than five hours per night. As data collection is still ongoing, we seek to answer the question: is someone more or less susceptible to false memories based on the number of hours they sleep?

NATALIE MOSQUEDA – BIOLOGY**POSTER 70 Title: Effect of Elevated Temperature on Embryonic Skeletal Development in Antarctic Bullhead****Notothen, *Notothenia coriiceps*****Research Area: Developmental Biology****Faculty Mentor(s): John Postlethwait, Thomas Desvignes****Funding: SPUR NIH Grant****Abstract:**

Among adapted species is the Antarctic Bullhead Notothen, *Notothenia coriiceps*, a Notothenoid only found in the secluded waters of the Southern Ocean. The Antarctic Peninsula in particular is one of the faster warming areas, warming at a rate 10 times faster than the global average and is expected to rise 4°C from the normal -1/0°C at the end of the century. It is important to investigate the effects of the warming temperature on embryogenesis and more specifically on early skeletal development of the Antarctic fish, *N. coriiceps*. We hypothesize that fish embryos raised at the higher temperature of +4°C will develop faster compared to embryos raised at the normal water temperature of about -1°C. In addition, we hypothesize that elevated temperature will result in asynchronous and abnormal development of various skeletal elements in embryos compared to control embryos raised at normal temperature. For this study, reproductive adult *Notothenia coriiceps* were collected around the Antarctic Peninsula in 2014 and 2016. Half of the embryos obtained by in vitro fertilization were raised at +4°C and composed the “heated” group, while the other half were raised at natural temperature between -1 and 0°C and formed the “control” group. We collected embryos at regular intervals during the first four months of development, fixed them and preserved them in 80% ethanol. The development and morphology of skeletal elements was recorded with a numbering system and results showed that the “heated” embryos had a faster embryonic and skeletal development compared to the “control” embryos, confirming our hypotheses. Our results therefore indicate that elevated water temperatures impact the normal skeletal development of the Antarctic fish larvae and could alter their survival if global warming predictions prove to be accurate. Additionally, there is asynchronous development between the cranial facial skeletal features and the axial skeleton among the two sample groups that could lead to later development issues.

BENJAMIN MULLER – CHEMISTRY**POSTER 16 Title: Modeling the Behavior of Pyruvic Acid at the Air-Water Interface****Research Area: Physical Chemistry****Faculty Mentor(s): Brittany Gordon, Dr. Geraldine Richmond****Abstract:**

Studying the air-water interface provides valuable knowledge on important environmental systems like atmospheric aqueous secondary organic aerosol (aqSOA). Many small, aqueous organics that are known to contribute to aqSOA formation can further react in the air-water phase to form hydrated molecules. Since the atmosphere is a complex and variable place with many phases and interfacial regions it is difficult isolating this hydration process within particular organic systems. Modeling this behavior of hydrated organics at this interface is largely unknown. Pyruvic acid (PA) is an abundant atmospheric ketone found in aqSOA. Our research objective is to examine PA at the planar air-water interface using vibrational sum-frequency spectroscopy (VSFS). Sum frequency is a technique that shines visible and infrared light where air and water meet to understand molecular populations and behaviors of ordered molecules. Surface tensiometry measurements from the

Wilhelmy plate will reveal the time dependency between PA and this complex system. Both techniques will help characterize how depth, conformational populations and orientation changes between the bulk, surface, and subsurface. This research will act as a platform to easily branch out to other systems of organics for future air-water interfacial studies.

EMILY MYERS – HUMAN PHYSIOLOGY

POSTER 107 Title: The Influence of Maternal Postpartum Mindfulness on Postpartum Depression

Research Area: Psychology

Faculty Mentor(s): April Lightcap, Sienna Howells

Funding: Grant from: Society for the Psychological Study of Social Issues

Abstract:

Postpartum depression (PPD) is an important area of study, as it is a common and debilitating disorder afflicting 1 in 5 mothers of newborns (CDC, 2017); and it is also linked to poorer outcomes for mothers, infants and their families. A growing body of evidence suggest that increases in mindful awareness - a set of qualities involving open, nonjudgmental attention to present-moment experiences, predict decreases in depression symptoms generally. Less research, however, has been conducted to examine the influence of maternal mindfulness on postpartum depression specifically. The present study examines the relationship between maternal trait mindfulness and maternal depressive symptoms in the postpartum period. We predicted that postpartum levels of maternal trait mindfulness would inversely correlate with postpartum depressive symptoms. To test this hypothesis, thirty-eight low-income women completed measures of maternal depressive symptoms and maternal mindfulness both prenatally and in the first three months postpartum. Results of a linear regression analysis revealed a significant correlation between postpartum maternal mindfulness and postpartum depressive symptoms, while prenatal levels of maternal mindfulness and depressive symptoms were controlled. These findings implicate maternal mindfulness in the postpartum period as a potentially important intervening factor in the mitigation of postpartum depression. Integrating postpartum mindfulness practices could potentially reduce the rate of women experiencing postpartum depression, overall enhance mother-infant relationships, and other key relationship dynamics within families.

EAMONN NEEDHAM – EARTH SCIENCES

POSTER 4 Title: Decompression Experiments of the Mono Craters Eruptions of 1340 C.E.

Research Area: Earth Sciences (Geology)

Faculty Mentor(s): Jim Watkins, Thomas Giachetti

Funding: UROP mini grant

Abstract:

The Mono Craters, California eruptions of 1340 C.E. were a series of eruptions that produced relatively texturally homogeneous deposits, with the exception of the first bed. The initial eruptive deposits differ from later deposits in the relative abundance of obsidian pyroclasts (quenched magma), volatiles (H₂O and CO₂), and microlites (minerals <100µm). These textural differences between Bed 1 and the other beds remain unexplained, but may be due to changes in decompression rates. To test the decompression rate hypothesis, a sample of synthetic Mono obsidian was run in a cold seal pressure vessel at eruptive conditions. The sample was kept at 850°C and 60 MPa for 2.5 days, and then was decompressed isothermally at a rate of 0.001 MPa/s until it reached 5 MPa. Following rapid quench, bubble number density and microlite number density were determined from scanning electron microscope images. In the future, more of these experiments will be run at different decompression rates, to see which decompression rate best match the textures of the Bed 1 samples. The calculated decompression rate will be compared to decompression rates of later deposits which were calculated in other studies using volatile concentrations. If Bed 1 has a different decompression rate than the later beds, this could explain the textural differences, and can be used to look at how the eruption initiated and progressed. This research could have implications for the ongoing debate of eruptive style transitions from explosive to effusive, which in turn will inform hazard mitigation for volcanoes exhibiting this behavior.

DIANA NGUYEN – BIOLOGY, HUMAN PHYSIOLOGY

POSTER 48 Title: Investigating the Role of EZH2 in Heart Development

Research Area: Genetics, Heart Development, Biology

Faculty Mentor(s): Gabriel Yette, Kryn Stankunas

Funding: O'Day Fellowship in Biological Sciences and the Office of the Vice President for Research and Innovation

Abstract:

Nearly 1% of individuals are born with a congenital heart defect (CHD), making CHDs the most common birth defect. Understanding the genetic and epigenetic underpinnings of heart development has the potential to aid in developing tools to diagnose and treat CHD. It is increasingly evident that chromatin structure and histone modifications play essential

roles in heart development and homeostasis. A histone modification of interest is the tri-methylation of lysine 27 of histone H₃ (H₃K₂₇me₃), which is associated with gene repression. This modification is catalyzed by EZH₂, the methyltransferase component of Polycomb Repressive Complex 2 (PRC₂), and can be removed by Kdm6 family of demethylases. Recent work in the Stankunas lab shows that disruption of Kdm6ba and Kdm6bb in zebrafish result in smaller, poorly trabeculated ventricles of the heart. Interestingly, hearts of mice with Cre/lox dependent knockdown of Ezh2 exhibit hyper-trabeculation, ventricular septation, thinning of the ventricular wall, and aberrant skeletal muscle gene activation. These studies highlight the proper maintenance of H₃K₂₇me₃ necessary for proper development. Yet, the effects of EZH₂ on heart development in zebrafish has not been well explored. Zebrafish are ideal for investigating the early stages of heart development since they are transparent, and develop outside the mother, allowing for easy observation of the heart during this crucial period; elements that evades the Cre/lox system in mice. We generated an ezh2-null allele allowing us to conduct heart development studies. We hypothesize that PRC₂/EZH₂ is necessary to establish and maintain cardiomyocyte cellular identity by repressing developmental pathways of similar tissue types. For this project, we aim to: 1) Establish when and where EZH₂ is expressed in the heart during development, and 2) Determine morphological and functional changes in developing hearts of ezh2 null zebrafish.

ETHAN NIYANGODA – GEOLOGY

POSTER 67 Title: A Sedimentary Analysis of the Eugene Millrace

Research Area: Natural Science

Faculty Mentor(s): Josh Roering

Abstract:

The Eugene Millrace, a slowly-flowing 1.5 mile channel which is connected to the Willamette River and flows through East Eugene, has once again become a matter of public interest. Originally designed by Hillyard Shaw and constructed in 1851 to create a millrace for the quickly-industrializing city. Approximately half of the channel is a former side-channel of the Willamette River, and the other half was constructed by man. With the advent of the highly-publicized Knight Campus, which will be built around and possibly atop the Millrace, there has been great speculation into the future of this small but culturally-significant channel. One helpful means of understanding the nature and movement of a river system is to examine its bathymetry (the topography of its channel) and sediment accumulation pattern. In order to do this, we used six- to twelve-foot steel rods, a canoe, a GPS unit, and a tape measure to gauge sediment depth at a given location. To do this, we launched the canoe at several locations and took measurements from the center of the channel and around drainage pipes. This was done once in May 2017 and once in November 2017. We hypothesized that the channel would have mostly uniform, shallow (less than one foot) levels of sediment throughout. This hypothesis was completely wrong, as we discovered that the Millrace in fact has sediment ranging from less than a foot to meters in depth depending on the location measured. This finding could potentially have significant implications for channel dredging during the building and design associated with the Knight Campus.

BRITTANY NORTON – JOURNALISM, MEDIA STUDIES

POSTER 109 Title: Framing of Genetically Modified Food in U.S. National Newspapers

Research Area: Humanities

Faculty Mentor(s): Dean Mundy, Mark Blaine

Abstract:

There are many science topics at the center of debate and contention. One of these is genetically modified food. Many questions arise about whether these crops are safe for human consumption, and how they will impact the environment over time. According to a Pew Research Center study, there is a sharp contrast in the way scientists view genetically modified (GM) foods and the way the general public views GM foods. The study found that 88 percent of scientists at the American Association for the Advancement of Science say GM foods are generally safe to consume, while only 37 percent of the public agree. This project explores the framing of GM foods used by two national U.S. newspapers to explain the concept and implications to the general public, and considers how this could impact public perception. I analyze print articles from The Washington Post and The New York Times at peak periods of coverage from 2000 to present day. This allows me to examine how coverage changes over time as genetically modified foods become more prominent in U.S. society. The coverage is separated into common themes, or frames, and analyzed. My research also includes interviews with biologists at the University of Oregon to gather their opinion on coverage of science news in mainstream media. While there has been a multitude of research conducted on science communication, little of it incorporates views from scientists themselves. My research examines how scientists and journalists can work together to communicate science more effectively.

NELLY NOUBOUSSI – BIOLOGY, HUMAN PHYSIOLOGY**POSTER 63 Title: Calcium Imaging of Mice Brains Injected with Glutamate-Sensing Fluorescent Reporter (GluSnFr)****Research Area: Natural science****Faculty Mentor(s): Matt Smear, Teresa Findley****Abstract:**

One of the most important tasks a sensory system performs is locating the source of a stimulus. However, very little is known about how the olfactory systems localizes odors. The goal of this project is to develop a technique that will allow us to image the glomeruli, the area in the brain where neurons from the brain and the nose connect. We will image using superfolder intensity-based glutamate-sensing fluorescent reporter (referred to as GluSnFR), which localizes to the extracellular surface of neurons and can thus report concentrations of the neurotransmitter glutamate at synapses. A virus carrying the GluSnFr gene will be injected in the brain during survival surgeries. The first step in this project is to confirm that GluSnFr is expressed by the cells of interest, which will be accomplished by sectioning samples of mice brains 2 weeks after injection, and looking for expression using a microscope. Once it is established that GluSnFr is expressed, we will perform glutamate imaging to obtain images of olfactory bulb activity. We predict that GluSnFr will indicate when neurons are firing, and this will be illustrated in the images taken. This is significant because this technique will ultimately be used to image the glomeruli of mice performing olfactory search tasks, in order to establish a correlation between the activity of neurons and the behavior of the animals.

RUTH VANELLE NOUBOUSSI – HUMAN PHYSIOLOGY**POSTER 39 Title: Strain-Dependent Differences in Mouse Norovirus Capsid Determine Cell Death and Inflammation****Research Area: Natural/Physical Science****Faculty Mentor(s): Sierra Dawson****Abstract:**

The Murine Norovirus is a common virus used in mice experiments in many research facilities. The virus alters the cellular morphology in hematopoietic cells and it is transmitted through fecal or oral routes. This study focuses on CW3 & CR6 strains of the mouse norovirus. The purpose of this experiment was to determine if the strains that use the CW3 capsid produces more IL-1 α (cytokine released as a measure of the degree of inflammation) and cell death compared to the CR6 capsid. We performed a Mouse IL-1 α Elisa on virally infected BMDCs (Bone Marrow-derived Dendritic Cells), a virus-mediated cytotoxicity assay performed on BV2 cells (mice microglia cell line) using CW3, CR6, CW3-VP1 \wedge CR6 (CW3 virus strain with the CR6 capsid; VP1 shows that there was a capsid swap) and CR6-VP1 \wedge CW3 chimeric viruses to determine the necessity for VP1 \wedge CW3 in IL-1 α secretion and cytotoxicity. Using two-way ANOVA testing, we found that there was more LDH (Lactate DeHydrogenase) released in the supernatant of cells infected with strains that use the CW3 capsid compared to CR6 capsid at MOI (Multiplicity Of Infections) 10, 1 and 0.1, and there was less LDH present in the supernatant of cells infected with strains that use the CR6 capsid compared to the CW3 capsid. We also found significantly more IL-1 α in the supernatant from cells infected with strains that use CW3 compared to wild type and CR6 ($P < 0.05$). These findings demonstrate that the CW3 capsid produced more IL-1 α and also caused more cell death compared to CR6.

RYAN OBERMEYER – MATH, SPATIAL DATA SCIENCE AND TECHNOLOGY**POSTER 52 Title: Controls on glacial retreat in the West Antarctic Peninsula.****Research Area: Physical Science****Faculty Mentor(s): David Sutherland, Kiya Riverman****Funding: NSF grant no. 1543012****Abstract:**

The West Antarctic Peninsula has over 300 glaciers, all with unique environmental conditions. The peninsula is losing ice, but it is not fully understood what drives retreat rates for individual glaciers. The Antarctic Peninsula is rich in available data, but comparatively little analysis of glacial environmental controls has been performed. We used a Landsat-7 and laser altimetry derived grounding line, infrared temperature data, bathymetry swath data, Regional Ocean Modeling runs, and calculated retreat rates to find correlations between retreat and environment. Previous work has shown that glaciers in the region are sensitive to ocean temperatures. Glaciers in the northern portion of the peninsula interact with cooler ocean currents and have lower retreat rates than the glaciers in the south. We found a latitudinal cut off, north of which floating glaciers rarely exist. Warmer air temperatures in the northern portion of the peninsula may limit the prevalence of floating glaciers. In contrast, the south with cooler air and warmer water allows glaciers to interact with the ocean. Model runs of Circumpolar Deep Water flow highlight which glaciers are in contact with warmer water. There is correlation between glacial retreat and contact with Circumpolar Deep Water. These findings allow us to predict that as air temperatures in Antarctica continue to rise, the latitudinal cut off for floating glaciers could move south, and less ice will be interacting with the ocean. This means that there is potential for retreat rates to temporarily decline as glaciers will be less affected by ocean temperatures.

ANNA O'BOYLE – EDUCATIONAL FOUNDATIONS**POSTER 113 Title: Utility Value Interventions: A Key Instrument in Student Motivation and Learning****Research Area: Motivation****Faculty Mentor(s): Jenefer Husman****Abstract:**

Many educators are interested in the ways in which students' motivation and learning can be enhanced. We have explored utility value interventions in the classroom used in prior research in order to demonstrate the value of intervention studies guided by psychological theories. This research was conducted by searching the key terms "college," "course," "connections," "introductory," "prompt," "utility value intervention," and "young adult." We investigated prior research cited by Hulleman and Kosovich (2016) in order to demonstrate that the utility value intervention, which influenced whether students established connections between the course material and their lives, increased both the interest and performance of young adult students in a course. This research suggests a positive correlation between students establishing connections and expecting to do well in the course, valuing course content, and continuing interest in the field. The results from the various studies were organized into a table by their reference, population, intervention details, and outcome variable. This review of the replications and extensions of utility value interventions in the classroom suggests that social-psychological interventions enhance students' motivation and performance. Due to the ambiguity of supporting students' motivation and learning, this research informs methodology in the future by which educators can design utility value interventions that support students' abilities to establish connections between the course material and their lives. Consistent with prior research, the design and implementation of targeted psychological interventions can significantly influence student learning and development.

KATIE O'CONNOR – ENVIRONMENTAL SCIENCE, ECONOMICS**Co presenter(s): Maya Vigil, Makena Dandley, Simoan Waldron, Yue Liu, Jackson Darke, Katie Robison, Kelsey Maass****ORAL SESSION 4CN Title: UO ELP Climate Action Team: Educating Eugene's Young Adults****Research Area: Social science****Faculty Mentor(s): Peg Boulay, Kaelyn Polick-Kirkpatrick****Abstract:**

Our mission is to interact with local 16-24 year olds to raise awareness of the local impacts of climate change and encourage citizen action in mitigating it in Eugene. Through research on the most effective ways to communicate climate change issues to members of the community, we have prepared a social media campaign to engage citizens. Through use of Instagram, Twitter, and Facebook, we have developed strategies that can involve the community in climate-friendly actions by presenting the cost-effectiveness of these actions. We will use tabling events to target community members of Eugene and University students to promote education and prompt public engagement on the issue of climate change. To track success, we will keep count of how many people are viewing/interacting with posts, tabling events, and surveys. This project provides several benefits for the local community including reducing the impacts of climate change, limiting individual's carbon footprints, and introducing cost-effective lifestyle changes. We hope our project will educate the local community on climate issues and increase citizen involvement in climate change mitigation by inspiring cost effective lifestyle changes that benefit the environment. We will present our social media framework, strategies, and methods for evaluation in a presentation following the conclusion of the project. It's our hope the results we collect can be useful for the City of Eugene as they move forward in the fight against climate change.

CARLY PATE – ANTHROPOLOGY**POSTER 137 Title: Cranial Morphometric Analysis on *Pygathrix nemaus* and *Pygathrix cinerea*****Research Area: Anthropology****Faculty Mentor(s): Larry Ulibarri, Frances White, Stephen Frost****Abstract:**

This study analyzes cranial morphometric distinction between *Pygathrix* species. Endangered *Pygathrix nemaus* and Critically Endangered *Pygathrix cinerea* are endemic to Southeast Asia. They are threatened with extinction due to hunting and habitat fragmentation. While generally understudied, osteological analysis on these species are also uncommon due to lack of specimen collections or accessibility. Although their ranges partially overlap, it is possible to distinguish species based on genotypic and phenotypic pelage differences. However, distinctions of skeletal morphology have not been quantified. *Pygathrix* phylogeny has been debated, with a recent cranial morphometric analysis showing no distinction between species detected through linear measures. Using 3D photogrammetric methods and linear measures, cranial data was collected on an osteological collection of confiscated and captive red-shanked doucs, *P. nemaus*, (n=43) and grey-shanked doucs, *P. cinerea*, (n=23), from the Endangered Primate Rescue Center, Cuc Phuong National Park, Vietnam. Five linear cranial measures indicate no sexual dimorphism between *P. cinerea* males and females, (n=24, n=19) or between *P. nemaus* males and females, (n=17, n=6). One linear measure, anterior foramen magnum to the superior most point on sagittal suture, allowed distinction between species among males, (F 4.37, P<0.05) and among females, (F 10.06, P <0.05). These results indicate a cranial

morphometric variation among species. Further 3D shape analysis will continue to explore this distinguishability. Intra- and interspecies variation analyzed morphometrically by 3D photogrammetry can aid in understanding the impacts of species-specific factors such as social structure and feeding ecology on cranial morphological variation.

MAKENNA PENNEL – CHEMISTRY

ORAL SESSION 2S Title: Nanoparticles!

Research Area: Materials Science

Faculty Mentor(s): Jim Hutchison, Kenyon Plummer

Funding: Hutchison Lab, Alden Research Award

Abstract:

Whether we realize it or not, the emerging field of nanoengineering is continually revolutionizing the world around us. From smartphones to sunscreen, engineered nanoparticles are everywhere in our day-to-day lives. Scientists are constantly discovering new properties and applications—the possibilities of this incredibly small realm seem endless! This talk will feature a general introduction to the fascinating world of nanoparticles, in addition to a brief overview of my research on the topic in regard to metal oxides. Currently my work revolves around synthetic and mechanistic inquiries, with emphasis on particle morphology and plasmon tunability. Some of the goals: improving the novel synthetic approach for metal oxide nanoparticles developed by the Hutchison Lab here at the University of Oregon, and creating new structures with enhanced optical properties. These are ongoing interests of mine, but significant progress has been made in both cases. Microscope images of things that are 7 nanometers wide will abound!

NELSON PEREZ – BIOLOGY

ORAL SESSION 2SW Title: The Role Of Patterned Spontaneous Circuit Activity In Drosophila Neuronal Circuit Assembly

Research Area: Natural sciences, Neuroscience, Biology, Developmental Biology

Faculty Mentor(s): Arnaldo Carreira-Rosario, Chis Doe

Funding: HHMI (Howard Hughes Medical Institute), SPUR Program

Abstract:

Neuronal networks become active before they are fully functional. This is known as patterned spontaneous network activity (PaSNA), an event characterized by quiescent periods followed by bursts of activity. Many studies have demonstrated the importance of PaSNA for proper neuronal circuit assembly. Yet, little is known about the mechanisms underlying PaSNA. In the *Drosophila* ventral nerve cord (spinal cord for invertebrate counterpart) PaSNA occurs during late embryonic stages. During PaSNA, embryos exhibit intermittent episodes of uncoordinated motor activity that gradually mature into crawling waves. Concomitantly with wave maturation, more neurons become active during PaSNA. The identity of these neurons and function during PaSNA remains unknown. To identify which cells undergo PaSNA and their function during circuit assembly, we are screening for GAL4 lines, which maintain expression in small subsets of neurons from the onset of PaSNA until the circuit is fully assembled. We have identified several GAL4 lines suitable for our experiments. Using in vivo calcium imaging, we identified that the neurons labeled by one of these lines participates in PaSNA. Four other lines have been identified as good candidates for future experiments that involve calcium imaging and tracking of synapsis formation during PaSNA. This represents a unique tool to study PaSNA and its role in circuit formation.

MARIA PERVOVA – ECONOMICS, INTERNATIONAL STUDIES

ORAL SESSION 4M Title: A Comparative Analysis of Preventive and Post Conflict Action in Refugee Crises

Research Area: Social Science

Faculty Mentor(s): Galen Martin

Abstract:

According to the United Nations High Commissioner for Refugees, there are currently more than 65 million refugees in the world, a number that does not include internally displaced people, asylum seekers, and stateless persons. This massive and inhumane displacement of people is largely caused by war and political tensions that unjustly affect non-combatants. Not only does this harm individuals and families, but this unnervingly trickles down to limit human potential in terms of educational achievement and economic growth for future generations. Countries not directly involved in these conflicts complain that the influx of refugees and migrants is straining their resources and overall production capacity. As of now, there are not enough successful, preventative measures taken to halt the eruption of refugee crises in their tracks or even before they begin. The United Nations and individual countries alike are hesitant to spend time and energy on building upon preventive methods such as diplomacy and peace building. It is understandable that countries do not want to pay upfront

costs for even likely events, especially when they are apt to occur outside their borders. However, conflict resolution costs and refugee services are only a tiny fraction of the military and post-conflict spending needed to end crises. My comparative analysis aims to demonstrate that a greater upfront investment in conflict prevention is more cost effective in terms of human life and economic measures than post conflict expenditures. This will be evaluated through a cost-benefit analysis of recent refugee crises in the Middle East.

ANNE PETERS – INTERNATIONAL STUDIES

ORAL SESSION 4M Title: Representations of Madness in Zanzibar, Tanzania; An Analysis of Colonial Mental Health Diagnostic Labels

Research Area: Humanities

Faculty Mentor(s): Kristin Yarris, Melissa Graboyes

Abstract:

Franz Fanon has shown how ideas of mental health and illness reflect historical and political constructs, especially for racialized and colonial subjects and their subjugators. “Confronted with a world configured by the colonizer, the colonized subject is always presumed guilty.” (Fanon, 1961). Drawing on Fanon and other post-colonial scholars, my research asks the question: what influence did colonial ideas about race and mental illness have on mental health care practices in East Africa during British colonialism? I explore this question by examining primary source materials from archives of the British Superintendent-directed “lunatic asylum” in Zanzibar, Tanzania, from 1914 to 1947. In particular, I conducted a close reading and analysis of the diagnostic labels used during this time, how they were variously applied to African patients (colonial subjects) as compared to patients in British mental hospitals in the same period. My research reveals the colonial motives of the British Protectorate in both the diagnosis and the treatment of patients, and considers the broader political purpose these diagnoses may have served. Not only were the staff in charge inadequate to make such diagnoses, but also it was a commonly held belief that the native populations admitted to the asylum were mentally incapable of having the same diagnoses as their English counterpart. My research also contributes an historical perspective to the broader field of Global Mental Health, as I examine how shifts in psychiatric diagnoses reflect social interests, political power, and racialized ideas.

Ben Pettis – Media Studies, Cinema Studies

ORAL SESSION 2C Title: Pepe the Frog: Challenging Cultural Hegemony with Internet Memes

Research Area: Humanities

Faculty Mentor(s): Peter Alilunas

Abstract:

This thesis examines Internet memes as a unique medium that has the capability to easily and seamlessly transfer ideologies between groups, and potentially enable subcultures to challenge, and possibly overthrow, hegemonic power structures that maintain the dominance of a mainstream culture. Dick Hebdige provides a model by which a dominant culture can reclaim the images and symbols used by a subculture through the process of commodification. Using the Pepe the Frog meme as a case study, I argue that Hebdige’s commodification model does not apply to Internet memes, because traditional concepts of ownership and control affect Internet memes differently. As such, the medium enables subcultures to claim and redefine an image to challenge a dominant culture. I trace the meme from its creation by Matt Furie in 2005 to its appearance in the 2016 US Presidential Election and examine how its meaning has changed throughout its history. I define the difference between a meme instance and the meme as a whole, and conclude that the meaning of the overall meme is formed by the sum of its numerous meme instances. This structure is unique to the medium of Internet memes and is what enables subcultures to use them to easily transfer ideologies in order to challenge the hegemony of dominant cultures. Unlike with other forms of media, it is difficult for the dominant culture to exert its power or control over Internet memes. Internet memes, therefore, have significant real-world implications and potential to empower subcultures.

PAIGE PLASKOFF – INTERNATIONAL STUDIES

POSTER 92 Title: Participant Observational Research Looking At Changes In Traditional Nutrition In Putre, Chile That Includes An Examination Of The Gap Between Programmatic Goals And Practical Realities In Global Health Nutrition

Research Area: Public Health and Traditional Medicine

Faculty Mentor(s): Kristen Yarris

Abstract:

Global health nutrition is a priority for achieving overall population health and preventing cardiovascular diseases, diabetes, and even death (WHO). Healthy nutrition is related to a number of causes of morbidity and overall mortality. In Chile, the Ministry of Health has established a comprehensive plan for the nutritional health of its people by promoting healthy lifestyle campaigns and creating informative nutritional guides. However, there are barriers to achieving the guidelines set out in this plan. This project looks at the divide between nutritional goals and realities of modern day families, using the case study of

a nutritionist working at CESFAM (Centro de Salud Familiar), a family health center in Putre, a small town in Northern Chile. The research included participant observation at the health center alongside the nutritionist, interviews with the nutritionist and traditional healers, and participant observation in the agricultural fields of Putre. The project asks: What changes are occurring from traditional to contemporary dietary patterns and practices, and how are these changes linked to changing agricultural practices? I respond to this question in part by analyzing nutritional differences between the large city of Arica and the town of Putre. The project foregrounds the obstacles that the Chilean population must overcome in order to move towards nutritional health, including cultural values placed on different types of food and availability of food for rural v. urban residents. Finally, I examine the recent change in Chile's public health junk food legislation as a case study for global health nutrition.

CARL RANNEY – PHYSICS

POSTER 36 Title: The Effect of Large Circumstellar Disks on the Formation of Short Orbital Period Binary Star Systems

Research Area: Physical Science

Faculty Mentor(s): James Imamura

Abstract:

The purpose of this research is to determine the validity of the fission model of short orbital period binary star formation. The fission model describes the process in which a protostar with large angular velocities splits into two bodies in orbit around a common center of mass. The fission model is one of the three major models currently under investigation by the wider astrophysical community as possible sources for the formation of short orbital period binary star systems. While fission has not received much attention in the last two decades due to results found in large scale numerical simulations, the advances in computational power now available allow much more complex simulations that show promise in solving this problem. Rather than looking at single stars, we are simulating the evolution of a rotating protostar with a large circumstellar disk that is approaching a reverse Roche limit, where the mass of the disk starts to pull the protostar apart. By including this large disk in our calculations, we find that the prospects for fission is greatly enhanced. We are using the computer code Chymera in Aciss and Talapas, the University of Oregon high-performance computing clusters in our study to simulate the fluid dynamics of this system. Chymera includes many nonlinear instabilities which were not widely known or where undiscovered during the period when the last major simulations of the fission model were attempted. With the combination of these two factors, our research has provided valuable insight into previously unexplored aspects of the complex system.

SABRINA RAQUENO-ANGEL – HUMAN PHYSIOLOGY

POSTER 23 Title: Effects Of Histamine-Receptor Blockade And Exercise On Blood-Glucose Concentration

Research Area: Natural Science

Faculty Mentor(s): John Halliwill, Matt Ely

Funding: OURS Program, the Oregon Undergraduate Researchers in SPUR (Summer Program for Undergraduate Research in Life Sciences)

Abstract:

Histamine is a molecular transducer released from mast cells during exercise, and its role during the exercise period is unknown. The experiment's purpose was to determine if H₁/H₂ histamine receptor blockades would decrease blood-glucose concentrations during exercise. It was hypothesized that histamine receptor blockade would decrease blood-glucose concentrations during exercise. Subjects were chosen if ages 18-40, had a BMI of ≤ 25 kg/m², experience riding/racing bikes, and can perform 3 hours of continuous exercise. The independent variable was the pill taken (antihistamine or placebo), and the dependent was blood-glucose concentration. After a screening and two familiarization visits, the subject completed four study visits, in which they performed a 120-minute cycling exercise at 50% VO₂ max on a stationary bike in a temperature and humidity-controlled room. Before each study visit, the subject was randomly given a placebo pill or antihistamine and rested for two hours. Measurements were taken from the earlobe pre-exercise and three times during exercise at 15, 60, and 120 minutes. Repeated-measures two-way ANOVA (RM ANOVA, Group X Time) was used for statistical analysis. No differences were found between placebo and antihistamine groups ($p = 0.801$), and no Group X Time Interaction was determined ($p = 0.881$). Blood glucose levels at 15, 60, and 105 minutes were lower than the pre-exercise levels ($p < 0.001$). No significant differences in blood-glucose concentrations were found between placebo and antihistamine groups. This research provides valuable information regarding histamine's role in the cardiovascular system's physiological pathways, which is important for forming cardiovascular disease prevention.

WILLIAM REED-DUSTIN – BIOLOGY, HUMAN PHYSIOLOGY**POSTER 81 Title: Utilizing a Fusion Protein for Sequence Specific Nucleosome Shifting in Chromatin****Research Area: Natural/Physical Science (Molecular Biology)****Faculty Mentor(s): Jeffrey McKnight****Abstract:**

Chromatin refers to the organization of DNA in eukaryotic organisms. Chromatin is organized such that DNA wraps around protein groups called histones. The units of histones wrapped in DNA are called nucleosomes, nucleosomes are connected by short stretches of linker DNA. DNA in nucleosomes is relatively inaccessible to RNA polymerase and transcription factors and thus, is effectively turned off. The goal of this research was to move nucleosomes onto specific DNA sequences by producing a fusion protein that would combine the binding domain from a specific transcription factor, XBP1, and the active domain from a known chromatin remodeler protein, CHD1. A procedure originally developed by Dr. Jeffrey McKnight was used to produce a plasmid that coded for a protein with the binding domain of XBP1 and the active domain of CHD1. This plasmid was then transformed into yeast. The cells' DNA was then digested into mono-nucleosomes which were sequenced and compared to yeast without the plasmid inserted. This was done to see if the fusion protein had altered the nucleosomes' locations. The goal of this research is to show that the strategy for fusion protein production can be applied to diverse transcription factors across the yeast genome. Ultimately, this strategy could be useful in cancer treatment, silencing oncogenes by moving nucleosomes onto their binding sites.

LAURA REICH – BIOLOGY**POSTER 41 Title: Utilizing the Optomotor Response to Measure the Effect of Cadaverine on Larval Zebrafish Behavior****Research Area: Natural Science****Faculty Mentor(s): Adam Miller, Matt Smear****Abstract:**

Zebrafish behavior is strongly influenced by environmental stimuli, and olfaction (sense of smell) is a powerful driver of behavioral responses. Our overarching goal is to measure an odorant's effect on a behavioral response and to understand the sensorimotor transformations that occur within the brain as the animal smells its world and reacts accordingly. As a first step towards this goal, we used a repetitive visual stimulus to induce the optomotor response, causing the zebrafish to swim in the direction of perceived motion. This method allows us to orient the larval zebrafish towards a region of water with an odorant of interest. This research specifically focuses on the impact of cadaverine, an odorant known to stimulate an aversive response, on larval zebrafish. We hypothesize that while a repetitive visual stimulus is in use, the distribution of larval zebrafish in a petri dish will differ when cadaverine is administered to a section of the water. Rather than moving with the visual stimulus, we predict that the fish will avoid regions with cadaverine, halting the optomotor response. This research serves to demonstrate that olfaction, the sense that is often forgotten and taken for granted, plays an important role in zebrafish and can potentially overcome visually-directed behavior.

CAROLINE RICHELSEN – HISTORY, POLITICAL SCIENCE**ORAL SESSION 3SW Title: The Empire's New Clothes: The Establishment Of Social Sciences in Post-War Academia and Its Implication For British Colonial Policy****Research Area: Social Science, History****Faculty Mentor(s): Ian McNeely****Abstract:**

In the aftermath of the Second World War, universities in Britain were tapped as a potential training ground for the next generation of experts who could support the British Empire, as it transitioned from a Great Power to a decolonized state. This project seeks to examine the possible correlation between changes in British foreign policy and development in higher education; analyzing how the demands of the British Empire informed the curriculum and direction of new disciplines in British Universities. To do so, this project uses SOAS (School of Oriental and African Studies), of the University of London, as a case study to showcase the interaction between the political agenda of the British government and the institution itself. In terms of formatting, the findings will be presented in an essay estimated around 70 to 80 pages, excluding a reference list and infographics, and relies on the consultation of primary sources such as government reports, financial- and personal accounts. Early findings have confirmed a direct correlation between the development of new departments and the needs of the state, as the transition from the post-war environment to the Cold War created a demand for experts well-versed in Oriental and East European languages and culture. The subject of this inquiry is of value because it illustrates how certain academic traditions are rooted in the political ambitions of states seeking to use knowledge to impose their worldviews on overseas territories; creating disciplines with predetermined biases which remain prevalent in institutions today.

MALLORY ROBERTS – BIOLOGY

POSTER 56 Title: **Monitoring Squirrel Populations at LCC Campus Using Ink Tunnels and Hair Tubes**

Research Area: **Biology**

Faculty Mentor(s): **Stacey Kiser**

Abstract:

Student researchers at Lane Community College have studied and monitored a vast array of species on campus over the past several years. While the presence of squirrels may seem ubiquitous in this area, we don't have much data regarding species distribution and population on campus. Easy access to such information allows for further student research and may encourage interest in squirrels and squirrel-related activities on college campuses (survey). Over the course of two terms, squirrel populations were monitored in different areas of LCC Campus using two different methods. The first method captured tracks of small mammals by using an ink tunnel. Ink was placed on the outside of the tunnel with paper inside, allowing the animals to walk through and track the ink onto paper. Peanut butter and birdseed were used inside the tunnel as bait. One tunnel was placed at each of three locations throughout campus, and a game camera was placed outside of each tunnel. I was able to confirm tracks of both mice and squirrels with this method. I observed squirrels at locations closer to the wooded area near the south parking lot and chose to explore this area further. During the second term, I selected a different method using hair tubes which were constructed with PVC pipes measuring approximately two feet in length (61 cm) and three inches diameter (8 cm). I placed three wood pieces (shims) approximately two feet in length inside the pipe and secured them using a drill and screw, and double-sided tape was placed on the wood at each entrance to the pipe. The tape captured hairs from animals that entered the tubes, allowing for another method of identification. Peanut butter and bird seed were again used as bait. I selected two locations within the south woods and placed three hair tubes near each other in both locations. Each tube was secured vertically on a tree trunk, approximately five feet from the ground. A game camera monitored each location. Using photographs along with identification of tracks and hairs, I was able to affirm the presence of several different species at LCC main campus. Townsend's chipmunks (*Tamias townsendii*) visited the south woods sites most frequently and appeared during both fall and winter terms. I also confirmed sight of a fox squirrel (*Sciurus niger*) and a western grey squirrel (*Sciurus griseus*) in the south woods. I captured images of other species throughout this project, including a gray fox (*Urocyon cinereoargenteus*), crows (*Corvus brachyrhynchos*), and turkeys (*Meleagris gallopavo*). Data collected regarding squirrel species and population will be entered into a national database used for research on college campuses. References: Peplinski, J. and Brown, J. "Campus Squirrels". Survey.

MEG RODGERS – MEDIA STUDIES

PANEL SESSION 1SW Title: **The Anti-heroine: An Emergent Television Character Trope**

Research Area: **Media Studies & Television Studies**

Faculty Mentor(s): **Erin Hanna**

Funding: **UROP Mini-grant, Humanities Undergraduate Research Fellowship**

Abstract:

Television's anti-heroes have long raked in high ratings and delivered audiences with devilishly corrupt but ultimately sympathetic viewpoints. Recent exemplars such as Tony Soprano, Don Draper, and Dexter Morgan are rarely ethical and far from heroic, which has led to a wide breadth of scholarship about male characters who skirt the boundaries between regular life and outlaw culture. For example, Brett Martin's *Difficult Men* and Amanda Lotz' *Cable Guys* explore masculinity on television that is predicated on breaking societal norms. What the existing scholarship fails to fully address—and where my research project intervenes—is a thorough analysis of the anti-heroine, a television genre that has grown rapidly in recent years. My research launches from Kathleen Karlyn's *The Unruly Woman*, an early examination of women in film and television who use humor to undermine patriarchal authority. Margaret Tally's *The Rise of the Anti-Heroine in TV's Third Golden Age* is the first text to explore the emergence of the anti-heroine. My project extends past Tally's work to look specifically at how anti-heroines have become a dominate feature of quality television. Quality television is a category that loosely refers to series with narrative complexity, high production values, and characters with psychological depth. My three case studies, *Sex and the City*, *Veep*, and *Girls*, are Home Box Office (HBO) productions. I focus on HBO productions because the single network allows me to draw on consistent industry information, viewership demographics, and critical accolades. The anti-heroines from my case studies might be difficult or even unlikeable—but they do address and challenge traditional femininity (whereas anti-heroes reinforce hegemonic masculinity). Do anti-heroines have more agency over their personal and professional lives than other leading ladies? What underlies America's fixation with immoral women? These are just a couple of the questions guiding my preliminary research.

MADLINE ROGERS – PSYCHOLOGY**POSTER 124 Title: Dissociation Phenomenon: Performance Differences During Divided Attention Task****Research Area: Social Science****Faculty Mentor(s): Jenn Lewis, Don Tucker****Abstract:**

Dissociation is a mental process characterized by a lack of connection in a person's cognition, memory or sense of identity. Often seen in clinical populations and as a normative trait, increased dissociative tendencies have been suggested to be an adaptive mechanism used to enhance performance and/or personal experience. The current study sought to replicate previous research that investigated the effects of dissociation on performance and memory under different attentional settings. Undergraduate students, grouped based on their results of the Dissociative Experiences Scale (DES: Bernstein & Putnam, 1986), participated in an emotional Stroop task and free recall memory task under selective and divided attention conditions. Consistent with previous findings, low-DES participants became significantly slower after switching to the divided attention condition. Unexpectedly, high-DES participants did not show significant differences in response time after switching from selective to divided attention conditions, suggesting that added difficulty of the task did not impair performance. Both groups remembered significantly more trauma-related words than neutral words under both conditions. The results of this study replicated some of the results of earlier studies, but it also failed to replicate some effects. This research provides more evidence towards discerning what effects dissociation has on cognition, but if and how dissociative tendencies act as an adaptive mechanism for cognition remains unclear.

JULIEN ROYER – ANTHROPOLOGY**POSTER 8 Title: Description of Pleistocene-Holocene carnivoran, *Meles leucurus*, from Kyrgyzstan****Research Area: Paleontology****Faculty Mentor(s): Win McLaughlin, Samantha Hopkins****Abstract:**

Kyrgyzstan has a scarce paleontological history with most of the previous and current studies focusing on the Miocene-Pliocene. However, Russian geologists in 2012 mapped regional faults and reconstructed uplift rates in the Tien Shan mountains, where the material present in this study was recovered from the Kochkor basin and classified as *Meles leucurus* from the Pleistocene-Holocene. The fossil record present in Kyrgyzstan reflects mostly large ungulates from the Miocene-Pliocene. This specimen is the first described carnivore from the Late Pleistocene-Holocene from Kyrgyzstan. The carnivoran fossil was recovered from the QIII abandoned river terrace (the regional convention for naming uplifted terraces) with an approximate age of 5,000-20,000 years old through carbon dating of other QIII river terraces. In addition, an associated snail shell and vertebra, rib, tibia from the specimen were used for radio carbon dating material. Moreover, a CT scan of the encapsulated m1 is used for positive morphological diagnosis. A domestic dog skeleton, being a carnivoran sharing similar anatomical shapes with the studied material, is used for morphological comparisons. The tribosphenic shape of the single deciduous tooth, its sharp cusps, and high protocone leaves us to believe this fossil to be a carnivoran burrowing mammal. The specimen diagnosis is *Meles leucurus* through the average size of the bones and robustness of the long bones and ankle bones needed to burrow. The fossil is a juvenile, resulting from an encased adult m1 in the lower right jaw, a single deciduous tooth, and unfused epiphyseal plates. Considering the location of the origin of genus *Meles* in the Pliocene, "the out of Tibet hypothesis" supports a migration pattern from the Tibetan Plateau to Kyrgyzstan through antecedent species of badgers. Although we believe the fossil to be a part of species *leucurus*, it is cautious for us to suppose the specimen might belong to another species or sub-species because of a sympatric zone shared by Japanese, European, and Eurasian badgers occurring in the West of the Tien Shan during Pleistocene-Holocene.

KATY ROY-JOHNSON – ENVIRONMENTAL STUDIES**Co presenter(s): Becca Perrin, Sydney Morrison, Gracie Williams, Milo Gazzola****ORAL SESSION 4CN Title: Cultivating Connections: Garden-Based Education to Connect with the Willamette Valley****Research Area: Natural Science****Faculty Mentor(s): Kathryn Lynch****Funding: Robert and Catherine Miller Foundation****Abstract:**

The goal of environmental education is to foster an awareness of past, present, and future environmental issues, build an empathetic attitude toward the natural world, and establish a platform for action. Through the Environmental Leadership Program at the University of Oregon, our team partnered with the School Garden Project of Lane County (SGP), a non-profit

organization whose mission is to utilize on-site school gardens as outdoor classrooms to promote stewardship for the natural world. Our service-learning project entailed supporting SGP with their in-school lessons for ten weeks, providing a total of 210 hours of hands-on learning experiences in their school programs. Additionally, we developed three lessons on phenology, citizen science, and food and culture, which we facilitated during the after-school BEST program at local schools, collectively teaching for 70 hours. We introduced 1st through 5th grade students to the importance of local food and encouraged attitudes of excitement and responsibility to participate in growing food. Over the course of two terms, we collectively reached 150 students at 5 schools within Lane County. Our students became aware and knowledgeable about seasonal changes in the Willamette Valley, the Three Sisters of northern Native American agriculture, and personally participated in citizen science data collection. By promoting diversity, equity, and inclusion, we have worked to ensure that our lessons are accessible to all, providing space for our students to foster a strong connection to place, enhance self-sufficiency, and empower students to grow their roots in the local food movement.

KELLY ROYSTER – HUMAN PHYSIOLOGY

POSTER 64 **Title: Systemic Inflammation Increases Expression of Pro-Inflammatory Interleukin-1 Receptors On Neurons And Astrocytes, but Not Microglia, in the Cervical Spinal Cord**

Research Area: Natural/Physical Science

Faculty Mentor(s): Adrienne Huxtable, Austin Hocker

Funding: Adrienne Huxtable's Parker B. Francis Fellowship, University of Oregon

Abstract:

Inflammation is a component of all diseases, whereby key pro-inflammatory signaling molecules and receptors increase systemically and in the central nervous system (CNS). Systemic inflammation activates astrocytes and microglial cells in many regions of the CNS, which alter neuronal function and lead to behavioral changes. Our work has shown systemic inflammation impairs respiratory function through activation of the pro-inflammatory interleukin-1 receptors (IL-1RI) in the cervical spinal cord, but the roles of different cell types are unknown. To better understand how activation of IL-1RIs undermines breathing, we first need to determine what CNS cell types express IL-1RIs and how systemic inflammation changes IL-1RI expression. Based on the expression of IL-1RIs in other CNS regions, we hypothesized systemic inflammation would increase IL-1RI expression on identified neurons, astrocytes and microglia in the cervical spinal cord. Using immunohistochemistry to fluorescently label cell types and IL-1RIs, we first determined the optimal concentration of the IL-1RI antibody (1:250) by a dilution series (n=5) in the hippocampus, where IL-1RI was known to be expressed after systemic inflammation. Further, preliminary data (n=2) suggest systemic inflammation increases IL-1RI expression on neurons (labeled by NeuN, 1:500) and astrocytes (labeled by GFAP, 1:500), but not microglia (labeled by Iba1, 1:1000). These results suggest neurons and astrocytes are likely the key cells undermining respiratory function after systemic inflammation. Understanding the mechanisms by which systemic inflammation undermines respiratory function may lead to targeted therapeutic interventions to promote breathing.

DOUG SAM – ENVIRONMENTAL STUDIES, GEOGRAPHY

ORAL SESSION 1M **Title: Indigenous Perspectives on the Occupation of Malheur: Comparing Contemporary Responses from Indigenous and Non-Indigenous Sources**

Research Area: Social Science

Faculty Mentor(s): Peter Walker

Abstract:

On 2 January 2016, armed militants led by Ammon Bundy seized the headquarters of the Malheur National Wildlife Refuge in Harney County, Oregon and began a month-long occupation of the refuge as part of a revived movement to pressure the federal government into transferring public lands to state and local authorities. Narratives surrounding this event center on the interests of the occupying militants vs. those of the public. This occludes the perspectives of Indigenous Americans, particularly the Northern Paiute of the Burns Paiute Tribe whose ancestors have lived in the area since time immemorial. Comparing responses contemporary to the occupation from Indigenous and non-Indigenous voices, this study frames the Malheur Occupation outside of the settler-colonial context in which it is couched. Indigenous peoples responded in a distinct, independent manner from either the occupiers or the public at large. This has often been ignored or given reduced importance in the general discourse over public lands in the American West. However, recognition of the Indigenous perspective is imperative to a comprehensive and decolonized understanding of this significant event in Oregon, American West.

NORA SAWYER – ANTHROPOLOGY

POSTER 129 Title: The Effect of Visitors in Comparison to the Effect Of Keepers On Zoo-Housed Chimpanzees and Mandrills at the Oregon Zoo

Research Area: Social Science

Faculty Mentor(s): Frances White, Colin Brand

Abstract:

Captive primates can interact with or be affected by either caretakers or visitors. These interactions may have a positive, neutral, or negative effect on individual animals. Most research on this topic has focused on the interaction between animals and visitors, with many studies finding an overall negative impact of zoo visitors on individual welfare. However, a few studies have also demonstrated no effect or even positive effects of visitors and visitor interactions. This research project uses continuous focal animal sampling to measure the effects of keeper and visitor presence on four chimpanzees (*Pan troglodytes*) and four mandrills (*Mandrillus sphinx*) at the Oregon Zoo. Behaviors that are typically considered to be indicative of stress or negative welfare, including pacing, rocking, and hair plucking will be recorded. Crowd size and interactions with visitors will be classified as positive, negative, or neutral. I predict that larger crowd sizes will be associated with high frequencies of negative welfare indicators. Additionally, keeper presence and interactions will reduce the occurrence of these indicators.

CAITLIN SCARPELLI – GENERAL SCIENCE

POSTER 72 Title: Out of the Ashes: Examining Forest Biodiversity Conservation Efforts in Post-Conflict Vietnam and Sierra Leone

Research Area: Natural and Social Science

Faculty Mentor(s): Philip Romero, Craig Kauffman

Abstract:

When the word paradise comes to mind, words like prosperity, nature, and peace do as well. There is one phrase that most likely does not: armed conflict. However, over the past 70 years, armed conflict has significantly overlapped with biodiversity hotspots, areas with both high species variety and high degradation. When armed conflict causes land-use changes, resource exploitation and pollution, direct damages to ecosystem health, ecosystem services and human health occur. Conservation seeks to protect natural ecosystems, but can also protect the people who are often ravaged by conflict. This thesis examines how countries in biodiversity hotspots implemented strategies for forest biodiversity conservation in post-war periods and proposes a conservation strategy which any country could theoretically implement after armed conflict. I utilized the Most Different Systems Design, which seeks to identify similar factors between two extremely different case studies, to compare conservation efforts by the Vietnamese and Sierra Leonean governments. My time frame was 16 years after their respective conflicts ended: between 1975 and 1991 after the Vietnam War, and between 2002 and 2018 after the Sierra Leone Civil War. Both countries sought to increase their conservation capacity post-conflict, whether through increasing governmental funding, passing conservation policies, or creating protected areas. While conservation can occur through various methods, establishment of protected areas was essential for successful forest conservation. However, forest conservation was unsuccessful when local people were not consulted. Therefore, an emphasis on communication, coordination, and collaboration between departments and local people is vital for successful forest conservation.

LILLIE SCARTH – SPATIAL DATA SCIENCE & TECHNOLOGY, ANTHROPOLOGY

DATA STORY SESSION 1CS Title: Visualizing Assault Reports in Seattle, Washington

Research Area: Social Science

Faculty Mentor(s): Joanna Merson

Abstract:

The Seattle Police Department maintains robust, qualitative, open data on criminal activity in the city. While working with previous versions of these data, high rates of assault and abduction among Asian-American women in Southeastern Seattle were identified. These observations corresponded with investigations inside a sex trafficking ring. The goal is to continue this exploration with the most recent version of these data and explore interactive, animated displays using mapping APIs or R Studio. The intent of this exploration is to recognize and display that safety is an intersectional issue.

HANNAH SCHANDELMEIER-LYNCH – ECONOMICS

Co presenter(s): Simoan Waldron

ORAL SESSION 2M Title: Communities United: Combatting Portland Gentrification through Housing Infrapolitics

Research Area: Social Science

Faculty Mentor(s): Katie Meehan

Abstract:

With Portland's rapid population growth, urban renewal projects are being shaped to the preferences of the city's incoming wealthy population. An increased demand for seventies-charm bungalows and city center amenities has resulted in the displacement of communities of color and reshaped those historically neglected neighborhoods. This process is called gentrification and disproportionately affects African American and Latino residents in the form of income disparities, higher unemployment rates, and lower rates of home ownership (Bates, 2015). Our research examines the sociodemographic movement of African American and Latinos from newly gentrified areas to places further east on the outskirts of town and find that this movement has not gone unacknowledged by those being pressured to leave. We found that displaced Portlanders have been engaging in infrapolitics– the small acts of barely visible resistance (Kelley, 1994)– by keeping ownership of their homes despite having the potential to capitalize on the growing market value of their houses. Urban design and planning professor, Dr. Lisa Bates of Portland State University, has created an advisory action plan for cities to prevent further gentrification and cites original homeownership as a keystone element to resisting it. Dr. Bates' plan calls for the act of not just individual but also collective homeownership. Using this plan framework as an evaluative tool, we analyzed existing organizations' strategy plans that have developed in response to gentrification. Our research discovered two prominent groups already incorporating Dr. Bates' criteria, the Portland African American Leadership Form and Living Cully, and that their city lobbying efforts, affordable housing projects, and home owning education initiatives have given people a greater chance to remain their neighborhoods. These measures, compounded with collective and individual homeownership, serves to protect these marginalized groups' right to the city, (Kelley, 2008).

Works Cited

Bates, L. (2015). This is gentrification. *State of Black Oregon*, 134-37.

Harvey, D. (2008). *The Right to the City*.

Kelley, R. (1994). *Race Rebels: Culture, Politics and the Black Working Class*.

MEGAN SCHENK – ENGLISH

ORAL SESSION 2O Title: Another Girl Bites the Dust: Motherhood and Futurity at the End

Research Area: English (Humanities)

Faculty Mentor(s): Forest Pyle, Casey Shoop

Funding: Presidential and Summit Scholarships

Abstract:

A post-apocalyptic setting is a particularly potent arena for sexist narratives precisely because such an environment allows the author control over depicting how people will naturally act when stripped of modern conventions in order to survive. "Masculine" traits often appear favorable if not necessary to survival in the midst of a futuristic wasteland, while "feminine" qualities like hysteria, sentimentality, and domesticity deem an individual submissive, weak, and utterly incapacitated. Within these exaggerated patriarchal structures, women are simultaneously linked to a failing, stagnant past while providing the only true form of creation: motherhood. My research focuses on how women writers like Megan Hunter, Claire Vaye Watkins, and Louise Erdrich confront and repurpose certain apocalyptic tropes to force readers to reevaluate preconceived notions about male dominance, femininity, and motherhood, specifically in interaction with a post-apocalyptic environment. By engaging with existing literature on gendered heroics in apocalyptic media, intersectional feminist histories in speculative fiction, feminist theory in futurism studies, and the representation of motherhood in popular film and literature, I illuminate how these authors demonstrate that the nurturing of motherhood, not masculinity, is the ultimate means of conquering a decaying world. My research contributes to the important and growing feminist criticism of popular media that works to reveal how we think about the world and how that might (and hopefully, will) change.

NATHANIEL SCHIEBER – MATHEMATICS

ORAL SESSION 2S Title: A Computational Approach To Tangled String

Research Area: Knot Theory (Mathematics)

Faculty Mentor(s): Robert Lipshitz

Funding: Mercer Family Foundation Scholarship, UO Department of Mathematics Juilfs Scholarship

Abstract:

Knot theory is exactly what it sounds like. It studies how pieces of string can be tied around themselves and around each other. From this tangible starting point, a wealth of abstract mathematics has arisen. My research in knot theory has had two main goals: to study a specific tangle and to classify tangles up to small complexity. Both have centered on encoding and

manipulating the three dimensional geometry of knots within a computer program. The specific tangle I am studying is known as Krebs's Tangle, named for the mathematician who first asked if it were possible to connect the ends of this specific tangle to the ends of a second tangle in order to form a single un-knotted circle of string. My method in approaching this question has been computational, writing code which generates random tangles, accomplishes the gluing process, and then computes a knot invariant known as the Alexander polynomial. In order to classify tangles, my code takes these randomly generated tangles and organizes them into equivalence classes based on what are known as quantum invariants. Both projects are still on-going.

Knot theory has found applications across mathematics as well as in data analysis and DNA research. However, the software for generating and manipulating generic knots directly has remained relatively limited. Along with working toward generalizing the Alexander polynomial, my work adds to the computational resources available to mathematicians studying knots. I hope it to prove of experimental benefit.

SULLEY SCHUSTER – POLITICAL SCIENCE, ENVIRONMENTAL STUDIES

POSTER 123 Title: Explaining the Negotiating Positions of Countries Within the Paris Agreement on Climate Change—An Interest-Based Approach

Research Area: Social science

Faculty Mentor(s): Ronald Mitchell, Craig Kauffman

Abstract:

Sprinz and Vaahoranta (1994) developed a theory that state positions within international environmental agreements are driven by two factors: environmental vulnerability and abatement costs. Furthermore, they posit that the interaction of these factors positions states as either pushers, intermediates, bystanders, or draggers in international environmental negotiations. The following study tests whether or not this theory can accurately predict the negotiating positions of states with the Paris Agreement by quantifying the ecological vulnerability and abatement costs of each participating state and comparing it to their observed negotiating position. The results of this analysis show that an interest-based theory can accurately predict negotiating positions around two-thirds of the time, and that ecological vulnerability and international environmental norms also play an important role in shaping negotiating positions within the Paris Agreement. These findings are important in understanding exactly how states develop their negotiating positions within complex international environmental agreements, and can provide policymakers with valuable tools to design future agreements in ways that motivate states to take stronger negotiating positions than they would have otherwise. Subsequent research questions include: Which specific cases fail to fit this theory and why? To what extent are other factors playing a role in leading states to be more, or less, supportive of climate policy than environmental vulnerability and abatement costs would predict?

MADLYN SCOTT – CHEMISTRY

POSTER 15 Title: Optimization of Deposition Techniques for Thin Film Production and Analysis

Research Area: Physical Chemistry

Faculty Mentor(s): Cathy Wong, Kelly Wilson

Funding: Community for Minorities in STEM (CMiS) Travel Award Scholarship; Phil and Penny Knight Campus for Accelerating Scientific Impact

Abstract:

Organic semiconductors offer a green alternative to conventional conductive materials because they can be solution-processed on an industrial scale for use in solar cells and OLEDs. The electronic transitions in organic semiconducting materials determine their charge-carrying efficiency for use in such devices. Transient absorption spectroscopy can be used to track the population of mobile electron-hole pair combinations at controlled delay times after photogeneration by a laser pulse. This technique is typically used to study equilibrated systems, like static solutions or films, but not materials as they evolve. For in situ studies of non-equilibrated systems, the Wong Lab has developed a single-shot transient absorption (ssTA) spectrometer to measure the excited state dynamics of thin films during deposition by a capillary or slot die coater. The solution capillary is two microscope slides spaced by aluminum shims and housed in an aluminum frame. The slot die coater is an apparatus designed to mimic solution-processed films that are manufactured roll-to-roll on an industrial scale. In both deposition techniques, a mechanical slide pusher is attached to the deposition device and positioned over an aluminum stage to produce films on microscope slides. Experimental parameters considered during optimization of each deposition method included the following: slide pusher velocity, cleaning methods of the deposition slides, temperature of the depositing solution, and materials constructing the slide pusher apparatus. It was determined that the slot die coater enables more control over film quality than the solution capillary, producing films with more homogenous solution coverage. As a result, the slot die coater will be incorporated into the spectroscopy apparatus for the first in situ ssTA measurements of non-equilibrated material systems.

VIRGINIA-ROSE SEAGAL – UNDECLARED**Co presenter(s): Daniel Hernandez, Andres Erasto Rosales, Erik Garcia****CREATIVE WORK SESSION 4 Title: Our Silenced Voice: Nuestra Voz Silenciada****Research Area: Social Science****Faculty Mentor(s): Heather Quarles****Abstract:**

(English) The strong front of patriotism that unifies Americans today has been emboldened by our nationalist president. Uplifted through nationalism, patriotism has provided an excuse for racism and nativism - language discrimination being one of the ways the two interact. It's likely that anyone who has spoken their native language in public has experienced discrimination while doing so. This brief documentary is about the treatment of Spanish speakers in the United States and the use of Spanish in public during a time of high tension and xenophobia. We spoke to those with "English only" opinions as well as Spanish speakers who had experienced discrimination for speaking their language. As Spanish speakers and second generation immigrants ourselves, we often became uncomfortable during the interview process and our project evolved. It became not only about the racism of language and the effect it has on our community, but also about the importance to speak our language with pride and to create an environment of inclusivity. (Español) El empuje del patriotismo que une a Americanos hoy ha sido animado por nuestro presidente nacionalista. Elevado por el nacionalismo, el patriotismo ha previsto una excusa para el racismo y nativismo - la discriminación del lenguaje es una de las maneras que ambos interactúan. Es probable que cualquiera que haya hablado una lengua nativa que no es inglés en público ha experimentado discriminación. Este documental trata sobre los hispanohablantes y el uso del español en público en un clima de alta tensión racial y xenofóbico en los Estados Unidos. Hablamos con gente con opiniones de "sólo inglés" e hispanohablantes con una variedad de experiencias de discriminación. Como hispanos hablantes y segunda generación de inmigrantes nosotros mismos, durante el proceso de entrevistas nos sentimos incómodos. El proyecto se convirtió no sólo en el racismo del lenguaje pero también el efecto que tiene en nuestras comunidades, y de la importancia de poder hablar cualquier lenguaje con orgullo como una manera de conectar con nuestra herencia y crear un ambiente inclusivo.

HALEY SEGELKE – HUMAN PHYSIOLOGY**POSTER 29 Title: MEASURING GATE STABILITY WITH A WEARABLE ACCELEROMETER IN FEMALE CLUB****LACROSSE ATHLETES****Research Area: Science****Faculty Mentor(s): Li-Shan Chou****Funding: UROP Mini-Grant****Abstract:**

Current post-concussion return to play criteria are based on metrics which normalize within 1-2 weeks, however recent research has demonstrated gait-stability deficits in acutely concussed athletes may persist for up to two months post-injury. As such, concussed individuals who return to play within two weeks have a greater risk for re-injury. The purpose of this study was to analyze gait stability in female lacrosse players utilizing a novel accelerometer-based, dual-task gait stability assessment as well as establish the assessment's clinical feasibility. Nine players from the university club team underwent individual assessments. A wearable accelerometer was placed on L-5 on the subject's back. Subjects performed a simple walking task at a self-selected pace on an eight-meter path, turned around, and returned to the start position. The walking task was performed under three conditions: normal walking, dual-task walking with auditory Stroop, and dual-task walking with a question and answer test. Raw acceleration data from three orthogonal axes was downloaded for processing. The average testing time was 9:21 minutes \pm 57 seconds. This short testing time reflects clinical feasibility when compared to other concussion management assessments, such as the Immediate Post-Concussion Assessment and Cognitive Testing (IMPACT) procedure takes 25 minutes to complete and the Sport Concussion athletic tool (SCAT5), which cannot be performed in under 10 minutes. Analysis of center of mass kinematic data is ongoing, however early trends support the notion that gait stability in an uninjured, healthy athletic cohort is comparable to laboratory assessments of healthy non-athletes.

CAROLINE SHEA – ANIMAL SCIENCES, PRE-VET**POSTER 57 Title: Monitoring Lane Community College Coyote Population: Urban or Rural?****Research Area: Natural Science****Faculty Mentor(s): Stacy Kiser****Abstract:**

There are so many people that are afraid of coyotes, since many people assume that they are going to go after their animals. Not all coyotes are hunters, however, and when they are they tend to eat small animals and insects. The coyote population on and around Lane Community College had gone undetected for a long time. In the spring of 2017 there was one coyote spotted by a game camera, a mother coyote who had given birth that year. This coyote was found at a site which had red meat placed at the site, which the coyote did not touch, but there was a large amount of small rodent activity, leading

to the question: Was the coyote population hunters, like rural coyotes, or were they scavengers like an urban coyote? This is being tested by using this five grain mixture to attract small rodents to see if the coyote would follow. The small animals so far includes rats, mice, birds, rabbits, and chipmunks. This research is useful to help determine if the coyotes pose a potential threat to the nearby neighborhoods or not. So far it is possible that the coyotes are not afraid of people, making them closer to the urban coyote than a rural one, however it is not yet confirmed.

CHIA-NI SHEN – PSYCHOLOGY, COMMUNICATION DISORDERS & SCIENCES

POSTER 118 Title: The Effectiveness of Audiovisual Training on Non-Native English Speech Production and Perception

Research Area: Linguistics (Second Language Production And Perception)

Faculty Mentor(s): Melissa Baese-Berk

Funding: UROP Mini Grant

Abstract:

In this project, we will examine the effectiveness of audiovisual training, pairing audio input with visual input, on non-native English speech production and perception. Speech perception relies on both acoustic information and visual information. Audiovisual training is a method that applies use of the two domains. Previous research utilizing this method has been employed in the field of speech pathology, showing positive outcomes in improving speech among dyslexic children. However, few studies to date have examined its use in second language learning. Furthermore, this research has focused primarily on perception and production of English /l/ and /r/ but not consonants made with the lips (i.e., labial sounds: /b,p,m,f,v/), which are known to be challenging for many second language learners though the differences between these consonants are typically visible on the lips. Therefore, the aim of this project is to explore audiovisual training across 3 non-native language groups: Chinese, Japanese, and Arabic. Participants will take part in a training study designed to examine the effects of audiovisual and audio-only training. Performance before and after the training will be assessed via perception and production tests. We hypothesize that 1) student production performance and perception performance will improve and 2) production and perception improvement will rely heavily on a participant's language background and known difficulties with labial sounds. Results from this research will enrich understanding of language perception and production and provide information on the use of audiovisual training in second language learning.

NATHANIEL SICHTER – PSYCHOLOGY

POSTER 91 Title: Nutrition and Anemia in Lao Children: Determining Contextual Correlates

Research Area: Global Health/Social Science

Faculty Mentor(s): Jeffrey Measelle, Dorianne Wright

Funding: Friends Without A Boarder, Secondary Funder: Clinton Foundation

Abstract:

Laos is the poorest country in the Southeast Asia region (WHO, 2018). In 2017, Lao's Global Hunger Index (GHI) rating was 27.5, indicating an alarming prevalence of malnourishment (WHO, 2018). Factors like poverty and poorly targeted/delivered nutritional programs influence this rating. Anemia – a condition marked by reduced hemoglobin concentration – can be caused by poor diet and exacerbated by infectious diseases and various social factors (Kotecha, 2011). The present study investigates the association between nutritional intake and anemia among young children, and whether contextual factors (i.e., SES, ethnicity, or access to health services) moderate that association. We hypothesized that malnourished children would show higher rates of anemia, and that this association would be strongest among poor and ethnically marginalized families with poor access to health services. Data were collected in 2014 from 968 children under five years of age in 90 villages across three districts in northern Laos. An adapted version of UNICEF's Multiple Indicator Cluster Survey (MICS v.4) was used to measure a wide range of health indicators, including infant health status, families' nutritional practices, composition of food basket, and issues of food security. Children's hemoglobin levels were measured using a HemoCue Hb 201. Our cutoff for determining anemia was any hemoglobin concentration under 11g/dL. Preliminary analyses suggest that children sampled were undernourished with 47% experiencing stunting, 9% wasting, and 31% being underweight. Additionally, 57% were classified as anemic. Analyses are underway to explore the association between nutritional profile and child anemia, as well as to test potential moderators.

EMMA SILVERMAN – HUMAN PHYSIOLOGY

POSTER 27 Title: Dual-Task Gait Stability Assessment Utilizing a 180° Turn

Research Area: Biomechanics

Faculty Mentor(s): Will Pitt, Li-Shan Chou

Abstract:

The purpose of this study is to determine if a 180° turn is a useful metric for assessment of dynamic instability. 15 healthy subjects were recruited for this study. Angular velocity around a vertical axis was measured with a sensor over the L5

vertebrae. Utilizing that data, total medial-lateral center of mass deviation during a 180° turn was compared between conditions. All subjects performed a walking task at a self-selected pace, which consisted of an 8m walk, a 180 degree turn, and a return to the starting position. This walking task was performed under three different conditions (single-task walking and two dual-task conditions), in two different environments (laboratory and a hallway simulating a medical clinic), over two testing days (approximately 7-10 days apart), and by two different raters. Currently, data collection has been completed. Data is currently being processed and thorough statistical analysis will begin shortly. Initial data analysis suggests a trend for significance ($p=0.072$), indicating that a 180° turn may be an additional useful metric for assessment of dynamic instability.

OWEN SMITH – GEOLOGY

POSTER 3 Title: Strain In Butte, Montana

Research Area: Geology

Faculty Mentor(s): Ray Weldon, Mark Reed

Abstract:

From the uplift of the Rocky Mountains to the basin and range extension, Butte Montana has undergone dramatic tectonic deformation. This deformation does not just make for an interesting landscape but also affects the shape of mineral grains in the rock. The shape of grains can show us the amount of tectonic compression or extension the region has experienced, however the grains only record the amount of strain since it formed. Using quartz veins and the quartz grains that compose them, I measured the minor/major axis lengths of the grains. This shows us how the grain has been stretched or compressed relative to the veins orientation. The main method used for this analysis is the Fry method and it allows us to see the amount of compression or extension has occurred along the quartz veins. The results show us that if veins have not be cross cut then the grains are compressed along the vein orientation and extension occurs perpendicular to the vein orientation. When a vein does get crosscut, then the grains show less extension perpendicular to the vein and less compression along the vein orientation. This tells us that on the vein level, when a vein crosscuts another vein, there is strain accumulated parallel to the crosscutting veins orientation. This research will help complete the picture of the total amount of strain built up in the Butte, Montana region.

SPENCER SMITH – HUMAN PHYSIOLOGY, PSYCHOLOGY

POSTER 30 Title: Fatiguing During Repetitive Sit-To-Stand Movement: How Can We Tell?

Research Area: Biomechanics

Faculty Mentor(s): Li-Shan Chou, Teresa Chen

Funding: Undergraduate Research Opportunity Program Mini Grant

Abstract:

The biomechanically challenging sit-to-stand (STS) task, in which subjects repeatedly sit on and stand up from a chair, has been widely used as a functional mobility assessment as well as fatigue protocol. The purpose of this study was to identify the biomechanical measures that could potentially indicate muscle fatigue during repetitive STS movement. Subjects sat on an armless chair with their shanks perpendicular to the floor and were instructed to perform a repetitive STS movement at a self-selected pace, with arms across the chest for 30 minutes. The center of mass (CoM) trajectory on the sagittal plane (plane that divides body into left and right) was plotted and the area enclosed by rising and falling trajectories was calculated (CoMarea). No significant difference of CoMarea from start to finish was found. However, different changing patterns were observed between participants who were able to finish the fatigue protocol (Groupfinish) and those who failed to complete the task (Groupfail). CoMarea in Groupfail was significantly larger than Groupfinish during the first 3 durations (0-60% of STS protocol), indicated by independent t test, $p < .05$. In Groupfail, CoMarea has a higher value during 20-40% of the STS protocol, while it showed lower values at beginning and end stages.

Word count: 194

HANNAH SOLHEIM – ECONOMICS, MATHEMATICS

ORAL SESSION 40 Title: Art Destined For Destruction: Uncovering the Origin of the Anthropomorphic Mask in the Museum of Natural and Cultural History's Alice Henson Ernst Collection

Research Area: Social Science

Faculty Mentor(s): Vera Keller

Abstract:

The origin of the Museum of Natural and Cultural History's Anthropomorphic Mask (Item #2-1054) has been a mystery for decades. The museum purchased the mask from Alice Henson Ernst in 1938. However, little was known about how Ernst acquired the mask or where it originated. First, I compared the mask's morphological traits to typical mask characteristics from different northwest coast Native American tribes, as reported in secondary literature. Many of the mask's features are

characteristic of the Kwakwaka'wakw People, residing on the British Columbian coast. The mask's color scheme, protruding eyes, exaggerated mouth, and use of discontinuous black lines of varying thickness all point to Kwakwaka'wakw origins. This is a particular type of Kwakwaka'wakw mask called an Atlakim mask. These masks were hastily crafted and crudely painted, perhaps explaining the visible brush strokes in the paint. These masks were not meant to last—they were worn for four years in dancing series and then burnt. Perhaps this mask narrowly escaped being devoured by a fire, as evidenced by the mask's singed cheek. Next, I examined the museum's accession records and the Alice Henson Ernst Papers to determine how and when Ernst acquired the mask. A research proposal reveals that in August 1938, Ernst travelled to Fort Rupert to do field work among the Kwakwaka'wakw People. Ernst's correspondence suggests that she purchased the mask from a tribe member named Harry. The Alice Henson Ernst Papers, housed in Special Collections, hold the key to identifying more masks in the Museum's Collection.

KEVIN SPIES – BIOCHEMISTRY

POSTER 45 Title: Developmental Synchronization Of The Purple Pitcher Plant Mosquito, *Wyeomyia Smithii*, as a Result Of Increasing Temperatures

Research Area: Natural science

Faculty Mentor(s): William Bradshaw, Christina Holzapfel

Abstract:

The environment factor of temperature plays an important role in the growth and development of ectothermic species. In many species, increasing temperatures have been shown to dictate development rates and gives rise to the synchronization of the mature adults from adolescence. In the purple pitcher plant mosquito *Wyeomyia smithii*, this phenomenon has not yet been determined to occur. The goal of this research project is to determine whether synchronized development occurs in *W. smithii* as a result of increasing temperatures. Accurate determination of this adaptation in *W. smithii* may have important implications in evolutionary biology including being used as a foundation for locating synchronization genes and adding to the current literature for synchronized emergence and the rule of thermal summing. Additionally, this information may aid in the preservation of agricultural crops against *W. smithii* infestation and may serve as a means of vector control for mosquito-borne disease. The project encompasses subjecting four distinct *W. smithii* populations to light-controlled incubators (programmed light:day cycle of 18:6) with increasing temperatures from 4 °C to 30 °C. Two cohorts from each population will be introduced to the 4 °C environment; every fifth day, the temperature will increase 2 °C and two cohorts from each population will be placed in the incubator. All populations will be observed for signs of development. Once all *W. smithii* have reached maturity, data will be undergo an analysis of covariance to determine whether or not synchronized development and emergence has occur in *W. smithii*.

NISHA SRIDHAR – HUMAN PHYSIOLOGY

POSTER 96 Title: Demographic Factors Influencing HIV Disclosure Rates in India

Research Area: Public Health

Faculty Mentor(s): Nagalingeswaran Kumarasamy, Ezhilarasi Chandrasekaran

Abstract:

Background: Disclosure of HIV seropositive status by an individual to family members can help improve quality of life and reduce transmission by promoting better access to medical services, and psychosocial support for seropositive individuals (1). Objective: We studied the disclosure rates and demographic factors influencing non-disclosure among HIV positive individuals in Southern India. Methods: We reviewed patient questionnaires from 6,458 seropositive patients between 2009 and 2017 seeking treatment at a large non-profit HIV/AIDS medical and research institution (Y.R.G. CARE) in Chennai, India. We analyzed demographic factors including age, sex, marital status, education, employment status, sexual orientation, ART status, mode of transmission, condom use, alcohol, and smoking status. Results: The overall self-reported disclosure rate of HIV status to family members was high at 98.7%. However, the disclosure to workplace remains low at 1.2%. Women, married individuals, housewives and unskilled workers showed a positive association with seropositive status disclosure. The self-reported disclosure rate for families found in this study is higher than those noted in other studies in developing nations. This may be due to the comprehensive education and counseling services provided at this clinic. This supports the importance of voluntary counseling services to promote disclosure supported by previous studies. Conclusion: Disclosure rates of HIV status to family remain high in this study when compared to other studies performed in developing nations. Seropositive status disclosure is an essential factor when developing strategies to increase access to treatment, reduce HIV-related stigma, and discourage HIV-transmission related behavior globally.

1. "HIV Status Disclosure to Sexual Partners: Rates, Barriers and Outcomes for Women." World Health Organization, 2004.

GUTHRIE STAFFORD – PHILOSOPHY**CREATIVE WORK SESSION 3 Title: Translating The Work Of Carl Sagan Into Song****Research Area: Science, Philosophy, Performing Arts****Faculty Mentor(s): Barbra Mossberg,****Abstract:**

Our tiny blue-green jewel of a planet may not be much in the unimaginable vastness of space, but if it matters to us then we'd better show it. At least that's what Carl Sagan had in mind when he petitioned for the Voyager space probe to turn around and take one final photo of our planet before it left the solar system, traveling on into the dark, never to return. This picture shows the Earth, the totality of our history and the history of life itself, as a single, pale blue pixel suspended like a mote of dust in a sunbeam. For Sagan, this image underscored the painful absurdity of our treatment of each other and of our only home. In translating his words on the subject into song, my hope is to bring this message to my own generation. Our parents set out to save the world and somewhere along the way got distracted by mortgage payments. It now falls on us to sidestep tribalism and partisan myopia, and we are already struggling under the weight of this responsibility. We must step back, way back, and see the world as it really is. No one is coming to save us from ourselves. There's nowhere we can run to if things don't work out. We have only one chance, one planet, one home. It is a herculean task. That is why I've tried to convey its urgency in one of the most powerful ways I know how: song.

MARIBELLE STANLEY – PRE-CHEMICAL ENGINEERING**POSTER 18 Title: Drug Development with New Catalytic Molecules****Research Area: Chemistry****Faculty Mentor(s): David Tyler****Funding: National Science Foundation grant CHE-1503550, UO Summit scholarship****Abstract:**

Many drugs are produced by important chemical reactions which form molecules with carbon-carbon or carbon-nitrogen bonds. However, the variety of drugs that can be produced using these reactions is limited by whether a desired molecule is capable of being reacted. To make unreactive molecules react, a catalyst can be used. One common type of catalyst contains a palladium atom, which can interact with other molecules in order to form a catalytic molecule. The catalytic function of these molecules depends on how well the palladium can bring reactants together. The main goal of this research project has been to synthesize a suitable catalyst for these important reactions. Under Dr. David Tyler, and as a continuation of research conducted by Dr. Alex Kendall, novel molecules, called phosphines, have been designed, synthesized, and tested for catalytic behavior. Designing these phosphines required research into previously synthesized molecules published by other groups, and the synthesis of these molecules involved using "air-free" chemistry techniques to protect the sensitive reactants from oxygen. Testing for the presence of these molecules in reaction material was done by analyzing the structure of molecules, with two primary techniques: nuclear magnetic spectroscopy and gas-chromatography mass-spectroscopy. One molecule, called "S-Phos", was successfully synthesized, and has been found to be catalytic; subsequent molecules are in the process of testing and synthesis. Developing new catalytic molecules can open the door to new varieties of drugs, providing better therapies to help people around the world.

MATTHEW STEPHENS – ENVIRONMENTAL STUDIES**PANEL SESSION 1SW Title: Examining Personhood And Environmental Policy: Determining the Benefits and Risks of Granting Legal Rights to Non-Human Entities****Research Area: Humanities / Social Science****Faculty Mentor(s): Steven Brence****Funding: Humanities Undergraduate Research Award****Abstract:**

This paper aims to determine the overall effectiveness of the Whanganui River Settlement Claims legislation, the ethical veracity of its central tenant that aims to grant legal personhood to the Whanganui River, and whether this recognition and protection afforded to the Whanganui River should be utilized as a model for other nations in the effort to protect and preserve our natural landscapes, resources, and cultural heritage while challenging the central tenants of a human nature division that environmentalism posits as a key contributor factor in issues of environmental degradation.

SRAVYA TADEPALLI – POLITICAL SCIENCE, JOURNALISM
ORAL SESSION 2M Title: Indian-Americans in Corvallis, Oregon
Research Area: Social science
Faculty Mentor(s): Natalia Fernandez

Abstract:

This series of interviews is the one of the first collections of oral histories of the Indian-American community in Oregon. Particularly focusing on the immigrant-generation of Indian-Americans in Corvallis, this interview collection aims to serve as a starting point for historians and social scientists wanting to research the Indian-American community in Corvallis and beyond. Interviews were collected through audio and video recordings and transcribed by the interviewer. Interviews were done primarily with married couples in order to ensure comfort for the interviewees. The interviews were conducted to elicit autobiographies of the individuals profiled including stories of their experiences of cultural adjustment. Three primary findings were developed through this set of interviews, although further analysis of the collection could result in more findings. First, Indians came to Corvallis for diverse reasons. Second, Indian-Americans in Corvallis faced discrimination on a spectrum, with some facing very little racism or discrimination and some facing significant barriers. Third, the narratives and opinions of the immigrant generation of Indian-Americans in Corvallis challenge commonly-held narratives about Indians living in the United States. This work can help to influence histories of Indian immigration to the United States and social science analyses of the immigrant generation of Indian-Americans. Stories about Indian-Americans in Oregon—a place with few South Asians, especially in Corvallis—appear to have not yet been told, and this interview collection is a starting place for these narratives to be shared.

HAO TAN – HUMAN PHYSIOLOGY

Co presenter(s): Colin Lipps
POSTER 24 Title: The Effects of a Fatiguing Run on Hip Abductor Muscle Strength and Pelvic Kinematics
Research Area: Natural/Physical Science
Faculty Mentor(s): Li-Shan Chou, JJ Hannigan
Funding: UROP Mini-Grant, Sue Grigsby Scholarship, William and Marjorie Shearon Memorial Scholarship

Abstract:

Existing literature has identified several risk factors for the development of lower limb pathologies in recreational runners, including hip abductor muscle strength deficits as well as abnormal patterns in pelvic running kinematics. Studies have indicated that hip abductor muscles play a role in stabilizing the hip during running and that hip abductor strength deficits are associated with the development of overuse injuries as well as abnormal pelvic kinematics while performing tasks upright. However, the relationship between hip abductor strength deficits and abnormal pelvic kinematics while running remains unclear. This study intends to clarify the relationship between hip abductor muscle fatigue and associated pelvic kinematic changes in healthy runners by implementing a novel 30-minute lactate threshold treadmill run as a fatigue protocol while investigating pelvic kinematic changes at 7 equidistant time points over the course of the protocol. In terms of analyzing pelvic kinematics, this study implemented a dynamical systems approach, analyzing the variability of Trunk-Pelvis and Pelvis-Thigh segment couplings in the 3 anatomical planes, as well as an analysis of individual pelvic kinematic variables, specifically pelvic drop, hip adduction, trunk lean, and hip internal rotation. 23 subjects, between the ages of 18 - 40 who have not sustained major running related injuries and regularly run at least 20 miles a week, participated in this study. Participants performed a triplet of hip abductor muscle maximal voluntary contractions (MVCs) to establish a baseline and a post-fatigue strength assessment before and after a 30-minute fatiguing run, during which kinematic changes were assessed. Using a significance threshold of 0.05, it was found that hip abductor strength decreased significantly following the fatigue protocol ($p < 0.0001$) while pelvic drop significantly increased following the fatigue protocol ($p < 0.001$). No significant changes were observed in trunk lean, hip adduction, or hip internal rotation. The results of a repeated measures one-way ANOVA used on the entire participant pool indicated that there were no significant changes in variability between the 7-time points for both Trunk-Pelvis and Pelvis-Thigh coupled segments in the three anatomical planes. However, paired t-tests indicated that female participants experienced a significant decrease in variability within the sagittal plane of Pelvis-Thigh ($p < 0.001$) coupled segments and the frontal plane of Trunk-Pelvis ($p < 0.01$) coupled segments following the fatigue protocol. The experimental results indicate that a 30-minute lactate threshold treadmill run is an effective method of inducing hip abductor fatigue and potential increases in pelvic drop. Additionally, the findings of the dynamical systems approach used implicates that females may be more prone to lower limb overuse pathologies, which is consistent with the experimental findings of past studies.

AMMAS TANVEER – ADVERTISING**Co presenter(s): Ben Kitoko, Hannah Lewman****POSTER 110 Title: Innovating Agronomy: A Strategic Communications Campaign to Improve Ghanaian Environmental and Public Health Outcomes Through Compost Utilization****Research Area: Advertising/Social Science****Faculty Mentor(s): Deborah Morrison, Tom McDonnell****Abstract:**

Working closely with students and faculty at the University of Ghana, our team of advertising students and School of Journalism & Communication faculty have researched how to communicate best practices for composting in Ghana. This research will result in strategic advertising messages aimed at reducing Ghanaian agrarian reliance on imported fertilizers. We have analyzed research conducted by our partner team of students and faculty at the University of Ghana to identify important new connections between fertilizer usage and decreasing soil fertility, which presents significant environmental concern alongside socioeconomic fragility. After analyzing scientific reports, we found that according to the International Food Policy Research Institute, farming is the primary source of employment in Ghana but more than 36% of farmers do not have the funds to purchase fertilizer. Through our research and analysis, we have determined that educating farmers on composting practices presents solutions to a variety of issues not only addressing soil fertility, but also addressing unsustainable waste management practices and lack of economic opportunity, as well as the correlation between food security and general public health. Our primary hypothesis is that by using a variety of persuasive messaging techniques, we can shift social awareness and opinion among Ghanaian stakeholders (farmers, merchants, and consumers) to embrace compost initiatives as a means of addressing short-term food insecurity, ensuring the longevity of farmable land, increasing quality of health, and maximizing potential economic output. Our research has established a strategic framework for our production team going to Ghana to start producing a campaign.

Seth Temple – Mathematics**ORAL SESSION 2CS Title: The Sum of My Parts: A Genetic Inquiry with 23andMe****Research Area: Natural/Physical Science****Faculty Mentor(s): Amy Connolly****Abstract:**

Direct-to-consumer genetic tests provide an accessible way for individuals to learn about their genome. This creative project is an outlet for me to talk about personal genomics and what I learned from taking 23andMe's genetic test. I write to a hypothetical child, explaining how genes affect biological processes and analyzing the results of my genetic tests. Specifically, I investigate male-pattern baldness, a gene encoding for fast-twitch muscle fibers, hereditary fructose intolerance, a genetic risk factor for late-onset Alzheimer's disease, and ancestry reports. I reflect on how I respond emotionally to these results and on how these genes impact my life. This analysis draws on 23andMe's reports and the current scientific literature. Controversial topics such as the epigenetics of homosexuality and genetic discrimination in insurance are discussed as well.

SETH TEMPLE – MATHEMATICS**DATA STORY Title: A Decision Tree Model to Predict Cervical Cancer Screening****Research Area: Natural/Physical Science****Faculty Mentor(s): Stephen Fickas****Abstract:**

I develop a decision tree model to predict if a female patient will be screened for cervical cancer. This project interests me because I want to apply machine learning to improve the health care system. I access the data from the website Kaggle. I use the pandas package to clean the data, and I wrangle some numerical columns with k-means clustering. Graphs will be produced by matplotlib. This project gives me practice in modeling with binary variables. As I plan to enter the actuarial field, this skill set is needed in building fraud and inspection models.

SETH TEMPLE – MATHEMATICS**PANEL SESSION 1M Title: The Infrastructure of Settler Colonialism: Roads, Dams, and Sawmills on the Warm Springs Reservation****Research Area: Humanities****Faculty Mentor(s): Kevin Hatfield, Jennifer O'Neal****Abstract:**

Most Americans think of military skirmishes with the Native tribes and the spread of small pox among the Indigenous population when they consider how the United States colonized the West. These images tell a part of the settler colonialism story; they do not tell the full story. Building infrastructure in the American West promoted the extraction of natural

resources, made spaces for American settlers to occupy, and enabled the American military to restock on supplies and quickly traverse foreign landscapes. Roads, sawmills, dams, townships, forts, and other infrastructure changed the physical landscape of central and eastern Oregon during the 19th and 20th centuries. This paper provides case studies of Highway 26, the Powell Reregulating Dam, and the Warm Springs Forest Products Industries, contextualizing the infrastructure projects alongside Northern Paiute history. Creating infrastructure requires an author, a purpose, an implementation, and continued maintenance. Early infrastructure projects in the Oregon frontier came from white settlers and the federal military with the aim being to extract resources from Northern Paiute lands and subdue any resistance from the Indigenous peoples. In contrast, the Confederated Tribes of Warm Springs have exercised agency in the stewardship of reservation lands and natural resources since the mid-20th century. Though the Confederated Tribes of Warm Springs now play a more significant role in the authorship, objectives, implementations, and maintenance of infrastructure projects on reservation lands than they once did, there is still evidence of the settler colonialist nation controlling some infrastructure on the reservation for its own pursuits.

NATALIE TICHENOR – POLITICAL SCIENCE

POSTER 116 Title: War Paints (A Play About the Dangers of Racism and War Hysteria)

Research Area: Political Science and Theatre Arts

Faculty Mentor(s): Priscilla Yamin, Alison Gash

Funding: Wayne Morse Scholarship, Play Selected for New Voices UO Performance in 2018, Received Global Oregon Undergraduate Award

Abstract:

I believe plays have an unparalleled capacity to communicate a complicated and seemingly extraneous period as something relatable. In the same vein, theatre presenting historical periods has a profound capacity to illustrate the repetition of historical events, allowing for the errors of the past to highlight current troubles. This is the reason I, when troubled by the current political climate, I wrote a play. Demagogic claims about the alleged national security threats of immigrants and refugees hits close to home. During the 1940s, my family struggled in vain to obtain refugee visas for Hungarian Jewish relatives. They led rallies and lobbied the State Department, but were rebuffed because officials insisted that East European Jews were prone to radical political ideologies and thereby too threatening to receive asylum. Nearly all of these family members perished in the Holocaust. In the same period, the other side of my family, my German immigrant great-grandparents, and their family, faced discrimination because their loyalty was questioned as enemy aliens. In this prevailing political climate ordinary citizens need to mobilize on behalf of refugees, the most vetted migrants and also the group that political philosopher Michael Walzer calls “the most necessitous strangers.” From Brexit to the Trump administration’s constitutionally contested travel bans on migrants from six Muslim-majority countries, immigrants and refugees serve as convenient political scapegoats in even the most established democratic nations. Even when historical and social scientific evidence shows that these newcomers strengthen national economies and are less apt to engage in violent activity than native-born populations, they’re blamed for taking jobs, consuming public benefits, and posing significant threats. Today’s threats to constitutional principles and basic rights are frighteningly reminiscent of another haunting period in history. During the Second World War everyone with Japanese descent, regardless of citizenship, were forcibly, and without warning, placed into concentration camps. Detainees lost their homes and businesses, their educations and careers were interrupted, and their possessions stolen. They suffered the loss of faith in the government and the humiliation of being confined as traitors in their own country. My play follows closely real events. Dr. Seuss, who’s celebrated for progressive stances in his children’s books, was swept up in racial tensions and hysteria along with the majority of Americans. Seuss later travels to Japan for *Life Magazine* following the bombing of Hiroshima and Nagasaki and, distraught by the destruction he witnesses, writes *Horton Hears a Who* as both an apology and as a plea for future generations to stand up for the rights of others.

KELSEY TIDBALL – JOURNALISM

POSTER 115 Title: Documentary and Verbatim Drama: The Practice and Performance of Responsible Non-fiction Theater

Research Area: Performing Arts

Faculty Mentor(s): Michael Najjar

Abstract:

Journalism and theater are often considered separate entities with separate goals. One is traditionally non-fiction, while the other is traditionally imaginative and fictional. But what happens when the lines between these two art forms are blurred? Documentary and Verbatim Theater is a genre of theater that combines journalism and theater and works to incite social change, encourage community healing, and engage public empathy and awareness. Documentary and Verbatim Theater artists gather information from news articles, paper trails, interviews and public knowledge to tell stories about real people, places and events. They work like investigative journalists, compiling all of this found information and crafting characters, stories, and dialogue that often become full-fledged dramatic plays based on significant or traumatic events. In my research,

I discuss the recent surge in popularity of Documentary and Verbatim Theater, looking at successful productions, discussing effective and ineffective techniques, and researching theater artists who have become known for their documentary work. I look at the space where journalism and theater intersect, and I discuss the ethical, social, and political value of creating and performing Non-fiction Theater. I argue that, while Documentary and Verbatim Theater offers unique challenges for the playwright and performers, its social and political significance makes it a worthwhile pursuit, and, in addition to my more traditional research, I am also crafting my own piece of Documentary and Verbatim Theater about young women who have studied abroad.

CORINNE TOGIAI – BIOLOGY

ORAL SESSION 3M **Title: PTPN₁₁ S502P and Tyrosine Kinase Non-Receptor-2 increase RAS/MAPK signaling in Acute Myeloid Leukemia**

Research Area: Natural/Physical Science (Cancer Biology)

Faculty Mentor(s): Chelsea Jenkins, Dr. Bill Chang

Funding: OHSU Knight Cancer Institute, Oregon Health and Science University, Howard Hughes Medical Institute, Druker Laboratory, Dr. Brian Druker, Dr. Bill Chang, Dr. Jeff Tyner and Dr. Chelsea Jenkins

Abstract:

PTPN₁₁ is a gene which encodes the protein tyrosine phosphatase SHP2, an auto-inhibited protein that dephosphorylates targets in many of the proliferative pathways such as Ras/MAPK. This gene, PTPN₁₁, is the driving force in 35% of Juvenile Myelomonocytic Leukemia (JMML) patients and 10% of Acute Myeloid Leukemia (AML) patients. Moreover, cells from a JMML patient were found to be sensitive to tyrosine kinase inhibitor dasatinib. This is thought due to interactions between PTPN₁₁ and tyrosine non-kinase 2 (TNK2), which is a dasatinib target. Therefore, we hypothesized that HEK 293 T17 cells co-transfected with mutant PTPN₁₁ S502P and TNK2 will display decreased phospho-TNK2 and increased phospho-ERK, as seen in the JMML mutant PTPN₁₁ E76K. In my project, I worked with PTPN₁₁ mutation identified in an AML patient sample (S502P) that has shown sensitivity to the drug Dasatinib, a kinase inhibitor that blocks the action of abnormal proteins that signal cells to proliferate, ultimately helping stop the spread of cancer cells. I performed multiple western blots consisting of transfections, gel electrophoresis, and protein detection. Results show S502P mutant PTPN₁₁ acts like E76K mutant in that it activates the RAS/MAPK pathway, and S502P mutant PTPN₁₁ dephosphorylates TNK2. In conclusion, the patient sample S502P mutant has shown a dephosphorylating effect on TNK2 that has not been seen in any previous studies. Data suggests that this mutant also works with TNK2 to increase RAS/MAPK signaling. Through this interaction this mutation can be tested and targeted by Dasatinib to stop the proliferation of leukemic cells.

ASHLEE VISE – CHEMISTRY

POSTER 49 **Title: Characterization of GaSbP as a photocathode For Water-Splitting**

Research Area: Natural/Physical Science

Faculty Mentor(s): James Young

Funding: Department of Energy SULI Program

Abstract:

A photoelectrochemical cell (PEC) functions as an integrated water-splitting device using the sun's energy to produce clean hydrogen gas. Barriers in the PEC field includes finding a cathode that has a (1) valence and conduction band that straddles the redox potentials of H₂ and O₂, (2) photocurrent density greater than 1 mA/cm², and (3) high photocurrent onset potential. Theoretical calculations have shown that different compositions of GaSb_xP_{1-x} alloys may meet these criteria. For this reason, we grew samples and performed a variety of characterization techniques to analyze the films. The present work shows that films with less than 13% antimony have IPCE (incident photon-to-current efficiency) of up to 60%, direct and indirect p-type band gaps that lie between ~2.0 and 2.2 eV, and photocurrent densities that reach 2 mA/cm². These films show promising characteristics although they do not meet all of the requirements to perform unassisted water-splitting. Future work for this study includes growing more films that span a wider composition range in order to fully characterize the GaSb_xP_{1-x} material system.

CYRUS WATERS – BIOCHEMISTRY

POSTER 20 **Title: Synthesis of 6,13-pentacene-incorporated [10]cycloparaphenylene**

Research Area: Organic Chemistry

Faculty Mentor(s): Ramesh Jasti, Brittany White

Funding: SAACS Summer Research Award

Abstract:

Cycloparaphenylenes (CPPs) have size-dependent optoelectronic properties: the HOMO/LUMO gap size increases as benzene subunits are added. This capacity to tune the band gap makes CPPs attractive for use in organic electronic devices. Similarly, pentacene shows promise as a component of photovoltaic cells because of its uniquely high capacity for singlet

fission (SF), whereby one high-energy incident photon is harnessed to yield two lower-energy triplets. In devices sensitized to SF, two electrons can be pushed per photon, bypassing the Shockley-Queisser efficiency limit and doubling the photocurrent from specific wavelengths of absorbed light relative to traditional, silicon-based photovoltaics. Pentacene-incorporated CPPs combine the two structures in a fully-conjugated system, potentially allowing the size of the CPP to control the energy of light at which the pentacene undergoes SF. Here, the synthesis of 6,13-pentacene-incorporated [10]cycloparaphenylene was attempted. Suzuki coupling of selectively-linked curved precursors yielded a strained macrocyclic intermediate. Attempts at reductive aromatization of the macrocycle have successfully aromatized the CPP backbone but have failed to aromatize the pentacene unit, instead yielding either the insufficiently reduced diol or its overly reduced dihydrogen analogue.

JARDON WEEMS – BIOLOGY

POSTER 33 Title: Effect of Reward Size on the Activity of Auditory Cortical Neurons

Research Area: Neuroscience

Faculty Mentor(s): Santiago Jaramillo

Funding: Peter O'Day Fellowship in Biological Sciences

Abstract:

The neural pathways that allow an animal to select the actions it should take in response to a sound in order to get a reward are not well understood. Recent work in our lab indicates that neurons in the region of the striatum that receive inputs from the auditory cortex fire differently in response to a sound when the sound is paired with a large reward in contrast to a small reward. These data suggest that the auditory striatum may integrate information about sound and reward size in a way that could support sound-action association learning. The primary aim of this study was to determine if reward related modulation observed in the striatal neurons is already present in the inputs arriving from the auditory cortex. To investigate whether auditory cortex integrates information about reward size during decision-making, we examined the activity of auditory cortical neurons in six male wild type C57BL/6J mice. Via chronically implanted electrodes, the mice performed an auditory reward-change task in which the same sound and same action was paired with different amounts of reward. We found that 7.5% of sound responsive auditory cortical neurons were modulated by the amount of reward during the decision-making task. In addition, we found a number of neurons in the auditory cortex that responded to movement, 21.8% of which were modulated by reward size. Our previous research found that 13.9% of sound responsive neurons in the auditory striatum and 25.7% of movement responsive neurons in the auditory striatum were modulated by reward size. Together, our results suggest that auditory cortex contributes to the integration of information about reward size and auditory stimuli during decision-making, but to a lesser extent than the auditory striatum.

SARAH WHEELER – BIOLOGY

POSTER 17 Title: Use of Dichloro-diphenyl-trichloro-ethane and Alternative Methods to Fight Malaria in Sub-Saharan Africa

Research Area: Natural/Physical Science

Faculty Mentor(s): William Bradshaw, Melissa Graboyes

Abstract:

Malaria is a disease that seems foreign to many; a distant memory. Despite the lack of awareness of the breadth of this disease, the World Health Organization reported 216 million cases of malaria across the world in 2016, 445,000 of which resulted in fatalities. While malaria was eradicated in the US in 1951, it's present across the globe, with the epicenter of the endemic in Sub-Saharan Africa. Malaria is a vector-borne disease, meaning an organism transfers the disease to a host. The vector for malaria is *Anopheles gambiae*, which infects the host with the parasite *Plasmodium*. Eradication has been successful through the use of dichloro-diphenyl-trichloro-ethane (DDT) by spraying the interior of homes in the past, but the organic pesticide has been banned in many countries. This research focuses on how eradication occurred in the past, what is used today to fight malaria in Sub-Saharan Africa and methods currently being developed in laboratories. Specifically, a meta-analysis was conducted of studies concerning the effects of DDT on the environment and human health, mechanisms of *A. gambiae* mutations that lead to DDT resistance, alternative methods of fighting malaria and their success rate, as well as cultural and financial barriers that prevent eradication. Comparison of these studies suggests that a rotation of pesticides, including DDT in IRS is effective when paired with pesticide-treated nets.

DEREK WHITE – MUSIC EDUCATION

ORAL SESSION 3C Title: Arranging and Transcribing: More than Just the Notes

Research Area: Performing Arts

Faculty Mentor(s): Michael Grose, Eric Wiltshire

Abstract:

Writing music is a complex process. A composer has to create melody, harmony, and rhythm to convey their artistic message. Many people think that once the notes of the song are written down, the music is finished. However, there is so much more

to creating music. I will be speaking about the aspects of writing music that do not get mentioned as often: arranging and orchestration. I will discuss my creative process and how composers and arrangers utilize the science of sound to create meaningful aural experiences for their audience.

TABOR WHITNEY – BIOLOGY

ORAL SESSION 4S **Title: Effects of Environment and Relatedness on the Gut Microbiome of Ugandan Red Colobus Monkeys**

Research Area: Biological Anthropology

Faculty Mentor(s): Nelson Ting

Funding: Peter O'Day Fellowship

Abstract:

The gut microbiome consists of microbial communities that reside in the gastro-intestinal tract of living organisms. Variation in this system has been linked to health outcomes in human and animal models by affecting digestion, immune system development, and pathogen invasion. However, we still lack a complete understanding of the factors that shape gut microbiome variation, particularly in wild primates. The central aim of this research is to further test how forest fragmentation is associated with gut microbial diversity in the Ugandan red colobus monkey. We sequenced the 16S rRNA hypervariable V₄ region to characterize the gut microbiome from 106 genotyped individuals across eight social groups inhabiting different forest types within Kibale National Park and its surrounding area. We compared alpha diversity in the gut microbiome of individuals inhabiting fragmented versus continuous forest and did not find a simple relationship between gut microbial diversity and forest fragmentation. While individuals residing in some fragments had lower gut microbiome alpha diversity, those residing in well-protected fragments retained gut microbial diversity levels comparable to residents of continuous forest. Furthermore, we discovered numerous highly related red colobus monkey dyads between forests, which allowed us to assess the affects of genetic relatedness on gut microbial similarity. We found that environment plays a larger role than genetic relatedness in shaping the gut microbiome. Our research thus reinforces the role that environment plays in shaping within-species gut microbial variation with potential implications for the conservation of threatened populations in fragmented landscapes.

MOMO WILMS-CROWE – POLITICAL SCIENCE, INTERNATIONAL STUDIES

ORAL SESSION 3SW **Title: Responding to The Hyde Amendment: Abortion Discourse, Race, and a Conspiracy of Silence**

Research Area: Social Science

Faculty Mentor(s): Tim Williams

Abstract:

This research project examines the discourse about abortion and the 1976 Hyde Amendment in order to better understand race relations within the second-wave feminist movement. Specifically, I explore why more black women did not engage in the national debate about abortion, even when restrictive abortion legislation had a disproportionately negative effect on them. Most existing scholarship has focused either on women's liberation and feminism, or on civil rights and black liberation. This paper, however, connects those themes by examining reproductive justice in terms of women's intersecting identities, especially race and gender. This dual identity complicated black women's involvement in the second wave feminist movement. Primary sources, including feminist publications, interviews, and autobiographies reveal that black women were largely absent from the pro-choice feminist discourse in the 1970s. Their silence and lack of involvement was not because access to abortion was unimportant or irrelevant to them. Rather, my research suggests that their silence was rooted in historical and ideological barriers as well as a failure of the mainstream feminist movement to consider their unique history, needs, and circumstances.

MOMO WILMS-CROWE – POLITICAL SCIENCE, INTERNATIONAL STUDIES

ORAL SESSION 4M **Title: Shifting the Aid Paradigm: An Exploration into Effective Humanitarian Policy Design through a Case Study analysis of Omnes Volunteer Association**

Research Area: Social Science

Faculty Mentor(s): Nick Macdonald

Funding: CURE Travel Grant, Carnegie Global Oregon Summer Research Grant, Oxford Consortium for Human Rights Fellowship.

Abstract:

The aid world has long been characterized by top-down, donor-directed programs based on largely context-nonspecific tenets and universalizable methods. Traditionally, a complex web of bureaucracy has separated the recipients of aid from the decision makers and there has been a stark divide between short-term needs alleviation and long-term development. Yet, in an ever more complex world with changing needs, these mechanisms are increasingly out of date, held into question by scholars, humanitarian workers, major donors, and global leaders alike. This project explores the changing nature of

humanitarian aid through a case-study analysis of one organization in Northern Greece working to support Syrian asylum seekers and refugees. In addition, I include a comparison to programs running in Turkey and Jordan that similarly emphasize a linking of relief, rehabilitation, and development (LRRD) model. Drawing on historical research, fieldwork findings, and humanitarian literature, my research investigates the drawbacks of the current aid model as described above, as well as highlights potential solutions to those problems. I conclude by outlining the need for further support of and investment in alternative models of aid, including those supporting local NGOs and innovative grassroots organizations.

ZOË WONG – BIOLOGY, PSYCHOLOGY

ORAL SESSION 4S Title: Chitin Binding Protein GbpA promotes Proliferation In The Drosophila Midgut

Research Area: Natural Science (Biology)

Faculty Mentor(s): Karen Guillemain

Abstract:

The microbes that live both in and on us, collectively known as our microbiota, are estimated to include $3.8 \cdot 10^{13}$ cells (Sender, et al., 2016). While this considerable community plays an active role in host health, it also contributes to disease phenotypes including states of inflammation and excess cell proliferation. Previous work has shown that secretion of a bacterial chitin binding protein (CBP), GbpA, by *Aeromonas veronii* is sufficient to induce cell proliferation in zebrafish (Banse et al., unpublished). Chitin serves as an important Carbon and Nitrogen source for hosts and microbes that can breakdown colloidal chitin (Tran et al., 2011). Interestingly, CBPs are found in microbes that are not capable of utilizing chitin as a nutrient source, which suggests that bacteria have an ulterior motive for CBP translation (Tran et al., 2011). To investigate the relevance of GbpA expression, we propose to use *Drosophila melanogaster* as a model organism because of their short generation time, ability to be reared germ-free, and established assay for measuring cell proliferation in the midgut epithelium (Jones et al., 2017). We hypothesize that the CBP domain of GbpA (domain 1, GbpAD1) is necessary and sufficient for increased cell proliferation in *Drosophila*. Chitinases and other CBPs are linked to pro-proliferative states of inflammation and we would expect this result to be replicated in *Drosophila* (Tran et al., 2011). The highly-conserved sequence identity of CBPs makes it an interesting avenue for exploring the intricacies of bacterial-host interactions.

ESTHER WOODING – PUBLIC RELATIONS, FRENCH

POSTER 112 Title: Discovering the Importance of Public Relations in the Hospitality Industry

Research Area: Public Relations In The Hospitality Industry

Faculty Mentor(s): Donnalyn Pompper

Abstract:

The purpose of my research was to investigate how public relations is practiced within the hospitality industry. A study was created to discover how PR skills were being applied within the field, to discover any problems the industry faces, and to connect with professionals and gauge their experiences in their career. The study comprised of three interviews with professionals, along with secondary research about the history, issues, ethics, and valued skills of public relations in hospitality. Throughout my research, I discovered that one of the main aspects of public relations in the hospitality industry is the role of social media and influencers. With increasing competition, I found that it is important to target a wide demographic and maintain a thorough and constant assessment of the public's preferences. After interviewing practitioners in the field, one of the hardest tasks of public relations in hospitality is remaining current and staying ahead of your competitors. My findings indicated that public relations is an extremely important facet of hospitality. Garnering what the public is seeking, shaping your brand to this standard, and explicitly indicating this to that same public is critical for the success of a hotel. These are all jobs of a public relations practitioner. Constantly dealing with people and providing them a service they will enjoy takes a lot of prerequisite research, crisis management, image shaping, and networking. Ultimately, this research demonstrated the importance of public relations in hospitality and the skills necessary for entering and remaining successful in this field.

ROBYN WRIGHT – HUMAN PHYSIOLOGY

POSTER 42 Title: Stress in Your Spit? A Literature Review of The Correlation (Relationship) Between Salivary-Alpha Amylase and the Body's Reaction to Stress

Research Area: Science

Faculty Mentor(s): Jenefer Husman, Shawn Lampkins

Abstract:

Salivary-alpha amylase (sAA), a protein enzyme, is a biomarker of psychological stress. Researchers have used sAA to study the body's processes during stress and its influence on health and human behavior. To conduct future research on students' responses to exam stress using sAA, we first needed to understand the use of sAA as a biological marker and the best methods of collection and analysis. We conducted a literature search using Google Scholar and Web of Science, using

keywords such as “salivary alpha amylase”, “sAA”, “salivary alpha amylase stress tasks”, and “sAA stress”. In six of the eight articles sources we reviewed, we found a strong correlation between the body’s enzymatic activity and the sympathetic and parasympathetic nervous systems. This search provided evidence for the proposition that increases in physiological stress are matched by an increase in sAA level in spit. Several methodological issues related to collecting sAA were identified. Passive drool or salivettes, rolls of cotton that subjects chew on, have consistently proven to be a reliable, accurate collection method. Our literature search also revealed sAA response to stress is faster, ten minutes between activation and release, than other salivary markers (e.g, cortisol). Based on this review, we are confident that sAA is a biological marker for stress and that salivettes are a reliable and accurate method of collection. In the future, we will utilize the results of this literature review to guide our examination of classroom context on students’ stress responses during midterm exams in a critical gateway course on statistics.

EMILY WU – ECONOMICS, MATHEMATICS AND COMPUTER SCIENCE

DATA STORY SESSION 1CS Title: Teaching, Learning, and Achievement: Are Course Evaluations Valid Measures of Instructional Quality at the University of Oregon?

Research Area: Economics

Faculty Mentor(s): Bill Harbaugh

Abstract:

This study explores the legitimacy of the use of Student Evaluations of Teaching (SETs) as a measure of teaching quality. To do so, we seek to answer two questions surrounding the creation and implications of SETs. Using data from the University of Oregon (UO) we first analyze the influence of a variety of factors commonly hypothesized to bias SET scores. Second, we investigate the relationship between SET scores and future student achievement. We find that a many of these factors influence SET scores, and that SET scores for a class are not a useful measure for predicting how well students will do in future classes. These findings suggest that SET scores are not a valid measure of teaching quality at the UO.

SHUXI WU – ANTHROPOLOGY, ASIAN STUDIES, ECONOMICS, INTERNATIONAL STUDIES

ORAL SESSION 3S Title: Transnational Professionals: Agency and Practice of Highly Skilled Foreign Employees in American Transnational Corporations

Research Area: Social Science

Faculty Mentor(s): Tuong Vu

Funding: UROP Mini-grant

Abstract:

Anthropological examination of transnational migration up to current day has focused primarily on the clearly disadvantaged (low-skill workers vulnerable to exploitation) or the driving figures of globalization (what has been termed the “transnational capitalist class”), whereas the middle strata of skilled employees has received scant attention. In policy debates, skilled foreign employees are seen as displacers of American workers. In economic analysis, professional knowledge is regarded as valuable capital. It is imperative to put these fields in dialogue with each other for a non-fractured image of highly skilled foreign workers. This ethnographic study of relocated, highly skilled East and Southeast Asian employees or “global hires” of two Portland-based transnational corporations (Nike, Inc. and Columbia Sportswear Company) examines the experience and agency of global hires in the transnational circuit. I analyze how the status of foreign workers with special knowledge construe both leverages and obstacles in the employees’ relocation experience and result in a variety of strategies for negotiation of better opportunities within their structural position. Drawing theoretical inspirations from global commodity chain (GCC) analysis and discussions of organizational migration, I first attempt to show the methods and rationale with which corporations condition the transnational labor flow in the new knowledge economy. I then discuss global hires’ strategies in negotiating for mobility and workplace niche – strategies informed by agentic considerations of possibilities and limitations attached to their status; Bourdieu’s notions of habitus and practice will be seminal here.

MEGAN WYATT – BIOLOGY, EARTH SCIENCES

POSTER 7 Title: New Geomyoidea from the Miocene Cave Basin Fauna of Oregon

Research Area: Natural Science

Faculty Mentor(s): Samantha Hopkins

Abstract:

Oregon contains a rich fossil record of Miocene flora and fauna, giving us a glimpse into complex ecological interactions in deep time. The Mascall Formation of central Oregon is one of the best-preserved middle Miocene mammal assemblages in the Northwest. Past work on the Mascall fauna has found a rich carnivore and large herbivore fauna, but studies have yet to reveal which small mammals lived there during the Miocene. Recent screen washing efforts by the vertebrate paleontology lab at the University of Oregon have discovered a large small mammal assemblage in the Cave Basin region of central Oregon, which, when identified, will reveal a previously unknown part of the intricate ecosystem that existed in Oregon 17.5 to 15 million years ago. In studying the geomyoids (gophers and pocket mice), I have identified three different genera of rodents

including Perognathus, Harrymys, and Mojavemys, and there are likely other genera within the superfamily Geomyoidea in this collection. I can use measurements and variations of molar enamel cusp patterns to identify them to a species level. However, observation and two-dimensional measurements are often inadequate for distinguishing Perognathus interspecies variation. Researchers have quantified species variation in other rodent lineages including voles and pocket gophers, using geometric morphometrics. I propose to use this method to identify these geomyoid molars. Species identification for these teeth will provide a baseline for future research of Oregon Miocene faunal ecology and be one step closer to understanding these ecological interactions.

JOSEPH YACONELLI – MATH AND COMPUTER SCIENCE

ORAL SESSION 3C Title: Machine Learning of Motifs and Motif Patterns in Probabilistic Jazz Grammars

Research Area: Computer Science

Faculty Mentor(s): Robert Keller

Funding: National Science Foundation (NSF) Research Experience for Undergraduates (REU)

Abstract:

Building on previous work by Keller et al. in computer generated jazz solos using probabilistic grammars, this paper describes research extending the capabilities of the current learning process and grammar representation used in the Impro-Visor software with the concepts of motifs and motif patterns. An approach has been developed using clustering, best match search techniques, and probabilistic grammar rules to identify motifs and incorporate them into computer generated solos. The abilities of this technique are further expanded through the use of motif patterns. Motif patterns enable the learning of multiple lengths of motifs at once and induce coherence in generated solos by learning the patterns in which motifs were used in a given set of solos. This approach is implemented as a feature of the Impro-Visor educational music software. Research has been done in other forms of pattern recognition and motif detection. However, this application of musical motif learning is a special case that requires vastly different techniques to accomplish due to music's temporal nature, the variability of motifs both in length and melody, and the relatively short lifetime of motifs.

ARIANNA ZAROSINSKI – PSYCHOLOGY

POSTER 104 Title: Thin-Slice Socioeconomic Status: Comparing Thin-Slice and Longer Judgments of SES and the Cues That Inform Them

Research Area: Social Science - Social Psychology

Faculty Mentor(s): Sanjay Srivastava, Bradley Hughes

Abstract:

Thin-slice perceptions, or perceptions made of others prior to interaction or after a brief interaction, have been widely studied in personality trait domains. The thin-slice approach has also been used to examine perceptions of social class. Socioeconomic status is an important factor in this discussion, as perceived SES can influence overall perceptions of others. However, few studies on socioeconomic status have been conducted using the thin-slice approach. In this study, we examine whether thin-slice judgements of SES are as accurate as predictions formed from longer observations by comparing thin-slice ratings of 60 second videos with ratings made after a 20-min interaction. We also examine whether observed cues used to express and make judgements of socioeconomic status differ between thin-slice observations (1-minute) and longer (20 minute) observations using a Brunswik lens analysis. This study is preregistered through the Open Science Framework, and a sample of 750 thin-slice ratings of SES and 750 ratings of observed cues are being collected from the University of Oregon Psychology and Linguistics human subject pool. *This is an ongoing study and results will be included in the presentation. It will also be altered to refer to the study in the past tense.

ZIGE ZHAO – EDUCATIONAL FOUNDATIONS

Co presenter(s): Mengfan Zhai

POSTER 105 Title: Fit In & Fit Out: Promoting Women's Belongingness in STEM Majors

Research Area: Motivation on Learning: Gender/Belongingness/STEM

Faculty Mentor(s): Jenefer Husman

Abstract:

In 2013, the gender gap in STEM was nearly the same as it was in the 1960s (Hill et al., 2010) (As cite by Crenshaw, 2017). We argue social belongingness (SB) - a basic human emotional and psychological need for perceiving acceptance in some social group or setting (Baumeister & Leary, 1995; Leary & Baumeister, 2000) - is essential to understand these persistent gender disparities and make the change with tested and potential solutions. We conducted a systematic online review of the research on Social Belongingness Theory (SBT) and women in STEM for the purpose of addressing gender equity by searching the keywords "gender", "belonging", "STEM", and "stereotype" on Web of Science and Google Scholar. We categorized 20 articles into "Why" SBT is important and "How" increase SB promotes female participation in STEM. We found social belongingness affects women's persistence in STEM (Lewis, 2017), and women's STEM interests (Dustin, 2013). We also found that lower

belongingness among women is due to: generally feeling unwelcome in STEM (Settles, 2006); lack of early exposure to STEM experiences (Cheryan, 2017); and lack of female representation (Hill, 2010). Several articles provide data-based solutions and suggestions on improving belongingness of women in STEM, including: Having female peer mentors during the early college years (Dennehy, 2017); increased positive feedback from male authorities (Park, 2017); greater emphasis on effort as expected and normal to achieve success enhancing female's feeling of belonging (Smith, 2013); improving perceived identity compatibility (London, 2011); and receiving support from equity sources (Rosenthal, 2011).

ALLISON ZHOU – BIOLOGY

ORAL SESSION 2SW Title: Does Seeing Something Old Help Infants Pay Attention to Something New in Object Sequences?

Research Area: Developmental Psychology

Faculty Mentor(s): Caitlin Fausey

Funding: UO VPRI, UO WGS

Abstract:

Infants' first words include the names of objects that appear frequently in their lives. Could these frequent objects also help them learn the names of less common objects? We know from prior research that what people see and hear is largely structured so that there are a small number of ubiquitous items and a large number that are much less prevalent. In the present study, we test the hypothesis that the shape of a frequency distribution matters for how infants pay attention to its instances. In ongoing work, infants (16-30 months old) view pictures of novel objects that vary in both color and size. Infants sample the pictures one-at-a-time from either (a) a uniform distribution, where infants see each unique object an equal number of times, or (b) a non-uniform distribution, where infants see one of the objects six times more often than the others. Specifically, we measure how many object pictures the infant chooses to observe before they stop engaging in our task. Data collection is ongoing. We predict infants to pay significantly more attention to sequences of objects sampled from a non-uniform distribution. The non-uniform distribution has higher rates of repetition and may encourage the learner to compare newly seen objects to the familiar anchor. Learning about objects and their names requires encountering them. Our research will yield new insight into how object distributions potentiate the ways infants attend to their world.

INDIA ZIETSMAN – INTERNATIONAL STUDIES

ORAL SESSION 2O Title: Gender Stereotypes and Gender Inequality's Effects on Chilean Technical Students and University of Oregon Students

Research Area: Social Science

Faculty Mentor(s): Galen Martin, Erin Gallo

Abstract:

My studies in Chile demonstrated the way gendered stereotypes are reflected and reproduced in the education system within technical schools. I visited three technical schools and interviewed 12 of their students to discover that boys felt pressured to choose professional concentrations that were stereotypically male and girls felt the same pressure toward stereotypically female professional concentrations. However, one might believe that this phenomenon is specific to Chile due to the presence of machismo, and gender's effects on career choices would be less pronounced in the United States. To examine this assumption, I looked at the experiences of 24 men and women in 4 majors at the University of Oregon. I found that the stereotypical narratives of these majors impacted the level of inclusion felt by all other genders than the dominant gender. Women studying Computer Science felt excluded and discriminated against due to the overwhelming masculinity of the major and a lack of consideration for women within the major. Women studying business felt included and accepted, but they also felt pressured to work harder than the men studying business in order to compensate for their gender. Whereas, men studying Education and International Studies, which typically have a female majority, noticed that there were less men in their major but felt less exclusion and discrimination. Therefore, the Chilean students and the students in Oregon share similar pressures from gendered stereotypes and exclusive, gendered careers, which disproves the idea that the machista Chilean society has more severe effects on inclusive academic institutions.

BRANDON ZUEL – COMMUNICATION DISORDERS & SCIENCES

Co presenter(s): Melanie Bethancourt

POSTER 130 Title: Comparing Language Exposure Measures in Dual Language Contexts

Research Area: Social Science

Faculty Mentor(s): Stephanie De Anda, Lauren Cycyk

Abstract:

Parent report is a common method for quantifying language exposure in bilingual children however it is not always reliable. A less studied method is analyzing real-world language input. The present study seeks to fill the gap of quantifying language exposure by examining the amount of language input in each language through real-world audio recording in the everyday

lives of bilingual toddlers. This preliminary study presents data on 2 participants from Spanish-speaking homes (Participant A: 18;0, male; Participant B: 18;25, female). Audio recordings were captured using the Language Environment Analysis device (Ford, Baer, Xu, Yapanel & Gray, 2009). 16 hours of language input data were collected over three days. The data was then analyzed in 5-minute increments to quantify exposure to English and Spanish. We calculated exposure during periods when the child had the highest amount of (a) adult words in the environment, (b) linguistically meaningful interactions, and (c) child-directed speech. Results indicated that full-day audio recordings and all discrete segments demonstrated comparable calculations of language exposure. That is, language exposure captured in the three aforementioned methods demonstrated similar measurements, and these mirrored parent estimates as well. Together these results show that several methods of calculating language exposure within language samples yield relatively similar estimates. However, this is based on two participants with relatively stable exposure to Spanish. We plan to provide data on an additional 6 participants at the time of the poster presentation to ask whether children with more exposure to English demonstrate a similar pattern of results.

Academic Residential Communities Presentation Abstracts

MEDIA AND SOCIAL ACTION ACADEMIC RESIDENTIAL COMMUNITY

ARC SESSION 4CQ Title: Media and Social Justice

Student Presenters: Lena Felt, Claire Forsberg, Kelly Franks, Micah Mew, Emma Moyers, Madilyne Nguyen-Acosta, Isa Ramos, Kelsey Reasor, Taylor Schassen, Marin Stuart, Miles Warren

Research Area: Social Science

Faculty Mentors: Charlie Butler and Rachel Allen

Funding: Undergraduate Studies & University Housing

Abstract:

With each passing day social justice issues become more and more prevalent in the United States. With these issues comes the challenge of spreading awareness of injustice and inequality within our society. Media and all that it entails provides a base for spreading awareness, finding a voice, and using that voice to speak up for issues that need resolving. Members of the School of Journalism and Communication's Media and Social Action ARC combine their passion for social justice with their interest in media to create a platform for students to speak up about societal problems such as homelessness, hunger, safety, race, and many more.

In our first year as an ARC we have had several activists and advocates visit and speak to us about their passions. They come to tell us about their passions, experiences, and how they tell stories. We had a sit down talk with Bethany Grace Howe, a transgender graduate student in the SOJC who was the subject of a Register-Guard profile. Through this meeting we were able to peer into the life of someone who faces adversity often. We've visited Food For Lane County and got our hands dirty filling food boxes for hungry Eugene residents. And on the "media" side we've had the opportunity to visit The Register Guard and KEZI TV to get a taste of the professional storytelling world.

We have created a website where we publish pieces that highlight the stories we've seen. All members of the ARC contribute to the website in an area of their choosing, whether it be writing copy, taking pictures, making videos, or designing layouts. In addition to the website we support and promote our activities on our Facebook and Instagram accounts, also run by students in the ARC.

All around campus are people whose voices could be of value and may have the ability to inspire action in others. By finding these people and telling their stories we hope to spark interest and provoke movement towards greater equality among students at the University of Oregon, and hopefully providing a contribution to solving issues that spread across the country.

COMMUNITY FOR MULTICULTURAL SCHOLARS ACADEMIC RESIDENTIAL COMMUNITY

ARC SESSION 4C Title: CMS ARC Cultural Assets and Advocacy through Identity Poems and Artistic Expression

Student Presenters: Nasistu Bedada, Symone Cole, Damaris Garcia-Rios, Donyé Green, Ben Her, Courtney Holman, Raquell Johnson-Mendoza, Joey Lim, Juan Mancillas, Natalie Perez, Jaden Salama, Katrina Villacarlos

Research Area: Education

Faculty Mentor: Jeanne Nagayama Hall

Funding: Undergraduate Studies, University Housing, Student Life, Equity & Inclusion, College of Education, Academic Affairs

Abstract:

The cultural assets and identities of underrepresented university students are not always valued or understood, especially in predominantly White institutions. Although the student of color enrollment numbers has slightly increased over the last

ten years at the University of Oregon these numbers are still below the national percentage of underrepresented groups. Numerical underrepresentation can increase belonging uncertainty, especially for students who value their racial identities in a dominant culture group setting. Therefore, it is important to hear the cultural identity stories of UO students of color. In the Fall 2017, the Community of Multicultural Scholars academic residential community focused on supporting and developing each other's racial and other identities and identifying one's own cultural assets that support one's thriving through adverse circumstances, such as discrimination and campus climate issues. The Winter 2018 discussions developed each other's scholarly identity as students of color, and the Spring 2018 now provides opportunities for each student to advocate for equity in the face of stereotype threat and micro-aggressions. Based on the inspiration of Christensen's (2015) activist approach to poetry, and in collaboration with the Jordan Schnitzer Museum of Art, each student will present and advocate for their cultural assets and stories through the presentation of their identity poem and artistic expression.

NATIVE AMERICAN AND INDIGENOUS STUDIES ACADEMIC RESIDENTIAL COMMUNITY

ARC SESSION 5M Title: Research as Ceremony: Documenting and Stewarding UO Indigenous Community History

Student Presenters: Lofanitani Aisea, Cydney Taylor, Kata Winkler, Damian White Lightning, Toni Viviane Asphy, Allyson Alvarado

Research Area: Social Science and Humanities

Faculty Mentors: Kirby Brown and Jennifer O'Neal

Funding: Undergraduate Studies and University Housing

Abstract:

Members of the Native American and Indigenous Studies Academic Residential Community will present on the year-long collaborative project they developed regarding the core values, relationships, and responsibilities to Kalapuya Ilihi. They will present their collective UO Indigenous Mapping Project that highlights key Indigenous locations, history, and groups across campus. In addition, they will also share their Indigenous Oregon Language Map that highlights the unique native languages of the state of Oregon. Both projects will be shared gifted back to the indigenous communities which are represented.

GLOBAL ENGAGEMENT ACADEMIC RESIDENTIAL COMMUNITY

ARC SESSION 5O Title: Global Engagement, Global Connections

Student Presenters: Amy Alfredson, Jessica Cade, Karmen Clark, Thomas Johnson, Samantha Lazarescu, Ashley Martinez, Rebecca Mayer, Colette Meyer, Shea Stevens, Flannery Trexler

Research Area: Humanities, Chinese, French, German, Japanese, Spanish

Faculty Mentors: Jay Steinmetz, Matthias Vogel, Laurie deGonzalez, Yukari Furikado-Koranda, Maria Licia Aldana Rogers, Monica Zikpi, Muzi Li, Shengwei Lai

Funding: Undergraduate Studies and Student Services and Enrollment Management

Abstract:

The Global Engagement Academic Residential Community is composed of worldly scholars who focus on a particular language (Chinese, French, German, Japanese, and Spanish) and various cultural aspects that put these languages into context. Among the themes discussed this year was the risk of global populisms around the world and the relationship between populism and human rights. The GE ARC students are pleased to present these experiences at the Undergraduate Research Forum.

LGBTQIA+ SCHOLARS ACADEMIC RESIDENTIAL COMMUNITY

ARC POSTERS 207-211 Title: Queer Genealogies

Students Presenters: Maia Abbruzzese, Alex Aguirre, KinsleyBallas, Devon Boom, Olivia Cain, Amelia Clapper Flynn, Avi Davis, Alex Har, Audrey Harper, Forest Kreutz, Jacob Lee, Madelyn Ragsdale, Sorrel Rosin, Ari Sepulveda, Stella Tarnoff, Marcelo Torres, Mason Williams, Maela Wirfsmith

Research Area: Social Science

Faculty Mentors: Judith Raiskin, Haley Wilson

Funding: Undergraduate Studies, Student Life, University Housing

Abstract:

This year the academic focus for the LGBTQ+ Scholars ARC has been "Queer Genealogies." We have had a number of queer "elders" come in to the ARC to address issues of LGBTQ community, history, and changing understandings of gender and sexual identity. We have also had guest presentations from a several queer faculty members about their work, specifically talking about what "queer research" is, both thematically and methodologically. In the fall and winter we also collaborated with the Intersectional Events Committee to plan the Queer Film Festival and we spent some of our meetings analyzing the representation of LGBTQ people in film over time.

This spring we will be bringing these various strands together in a Special Collections Queer Archive project. We will be working in the Special Collections with Curator Linda Long, examining a number of archival collections relevant to LGBTQ history. Linda will be meeting with the students during four class periods to introduce them to specific relevant collections, to explain how to handle such material, and to help them in their own research in these collections. The class will divide into four groups, each researching a particular collection. Among the ones they can choose are the SOCLAP Collection of Southern Oregon Lesbian Land, the Tee Corrine collection, the James Ivory Collection, the James Tiptree Jr. Collection, and the Rochester/Hutchinson papers. While they are having the experience of learning about established collections, they will be initiating a new collection called the University of Oregon LGBTQ Collection as part of the Documenting University of Oregon History Project (<https://library.uoregon.edu/documentinguohistory>). They will be contributing their own interviews, ephemera, and papers into this collection as the base for an ongoing collection of LGBTQ life at the University of Oregon. This is an opportunity for the student to learn how collections are developed, cataloged, and made available for scholarly research.

For the Undergraduate Research Symposium, the students groups will present posters of the four collections they have researched and will present together about their work on starting the UO LGBTQ Collection. Among the topics they will address is the need for preservation of queer history, sexual/gender identity and the politics of cataloging, and the hurdles to access of queer history. They will also view the “Patient No More” traveling exhibit about the Disability Rights movement and meet with the Curator of that collection, Catherine Kudlick, from the Paul Longmore Institute on Disability at San Francisco State University. After this presentation, the ARC students might be interesting in presenting on the intersections of a variety of “rights” archives from around the country.

Climate, Public Lands, and Environmental Justice Mini-Conference

5:30 – 7:30pm (Poster Session) EMU Ballroom

As part of this year’s Undergraduate Research Symposium, several UO professors are bringing students together from four different courses to present their research on climate change, public lands, and environmental justice in a mini-conference within the larger Research Symposium. Stop by the EMU Ballroom during the poster session (5:30 – 7:30pm) to see their posters. This is an extraordinary opportunity to see how students from four different disciplines (History, English/ Environmental Studies, Earth Sciences, and Political Science) tackle the topics of climate, diversity, and justice in different but complementary ways.

The posters in this mini-conference will address these critical issues from many perspectives—from Professor Mark Carey’s course in the Clark Honors College on “Climate and Culture from the Arctic to the Andes,” to Professor Sarah Wald’s Environmental Studies course on “Diversity Initiatives in Public Lands,” to Professor David Sutherland’s Clark Honors College course in Earth Sciences on “The Cryosphere: Ice’s Role in the Earth System,” and Professor Ronald Mitchell’s Political Science course on “Climate Change: Science and Politics of a Global Crisis.” The students in these four courses have all grappled with these climate and justice themes throughout the term and will showcase their innovative multi-disciplinary research in the special section of this year’s Undergraduate Research Symposium.

This mini-conference is co-sponsored not only by the Undergraduate Research Symposium but also by the Robert D. Clark Honors College, Environmental Studies Program, Native American Student Union, Office of the Vice President for Equity and Inclusion, Office of the Provost and Academic Affairs in partnership with the Teaching Engagement Program (TEP), University of Oregon Fund for Community Engaged Teaching Program, UO Climate Change Research Group, Affiliated Tribes of Northwest Indians, and USDA Forest Service Pacific Northwest Research Station. This event is also part of the Pacific Northwest Tribal Climate Change Project.

Climate, Public Lands, and Environmental Justice Mini-Conference Presenter Abstracts

EGE AKINCI – ENVIRONMENTAL STUDIES

POSTER 138 Title: Creating A Language Audit To Avoid Ableism For Bark Organization

Research Area: Humanities

Faculty Mentor(s): Sarah Wald

Abstract:

Inclusive language can easily be ignored in most media sources like web pages or Facebook pages and include such words that carry colonialist, racist, sexist or ableist language without intentions. To avoid such language, this project will create a

language audit and I will be focusing on ableism and accessibility in language, which is to make sure that the language used is including people with disabilities as this aspect can be easily ignored in writings. Through creating the language audit, I will use different previously created language audits and scholar papers written on ableism and how to avoid ableist language. This language will be created for the Bark-Out's website and Facebook account. Bark-out's mission is to transform Mt. Hood National Forest to a place where wildlife can be protected and local communities can have a social, economic and cultural investment in its preservation. Creating a language audit is particularly important to include each and every person in Barks mission, to preserve the natural, social and cultural aspects of Mt. Hood National Forest.

AUGUSTINE BEARD – HISTORY, ENVIRONMENTAL STUDIES

POSTER 139 Title: Sami Sovereignty and International Climate Change Mitigation

Research Area: Social Science

Faculty Mentor(s): Mark Carey

Abstract:

This paper seeks to understand the intersection of climate change and geopolitical challenges to the sovereignty and self-determination of Sami people in Sápmi, the arctic region of modern-day Norway, Sweden, Finland, and Russia. While much of previous research on climate change and Sami people has focused on traditional ecological knowledge (TEK) and management for reindeer herding or other natural resources within single states, fewer scholars have engaged the linkages between the challenges to sovereignty posed by the partition of Sami territory. This research will situate intergovernmental climate discourse within a longer narrative that includes colonization, partition, European integration, and globalization. Further, I will examine the impacts of inter-state approaches (or lack of such approaches) to climate mitigation and adaptation on local communities and cultures. There are two major areas of interest/questions for this research: (1) How do inter-European and international conversations about climate change compound or complicate the geopolitical challenges that the Sami face in self-determination? (2) How do the impacts of climate change on reindeer herding and Sami natural resource management impact their capacity to assert sovereignty to multiple state actors? In sum, this paper will demonstrate how international agreements and organizations such as the Intergovernmental Panel on Climate Change and the Paris Accords have perpetuated a pattern of marginalization and exclusion seen in previous geopolitical challenges to Sami sovereignty and natural resource management.

ADRIANN BECHTLE – ARCHITECTURE

POSTER 140 Title: The Effect of Climate Change on Coastal versus Inland Snow: The Expected, the Counter-Intuitive and their Connection

Research Area: Earth Science

Faculty Mentor(s): Dave Sutherland

Abstract:

Although the impact climate change has on the cryosphere as a whole is generally understood, the way it plays out in different regions varies and may sometimes seem counter-intuitive. The west coast and midwestern United States are two regions that exemplify the dichotomy between familiar and surprising effects of climate change because their weather is affected by different things and their cryospheres take on nuanced forms. On the west coast the snow is largely limited to high altitudes and it accumulates there to create glaciers. In the midwest, on the other hand, the vast majority of snow is annual and is highly dependent upon weather patterns. The observable trends in both regions is a decline in snowpack, whether that is annual or accumulative snowpack. Both trends appear to be a direct products of global warming. What differentiates these regions is the change in precipitation and the ways these changes affect the environment and human populations. The west coast is largely suffering from a decline in precipitation and is losing snowpack as a result. This creates a drought because the snowpack is a significant water source. Meanwhile the midwest is actually having an increase in severe winter precipitation, this has its own catastrophic consequences. The question is how these phenomena are connected and if they share an underlying cause. By comparing and contrasting trends in winter precipitation and snowpack from both regions we can see what aspects of climate change are universal versus regional and potentially answer our question.

PAYTON BECKER – ECONOMICS, POLITICAL SCIENCE

POSTER 141 Title: Industrialization vs. Environmental Protection: The Intersection of a Growing Asian Economy and a Melting Himalayan Cryosphere

Research Area: Natural/Physical Science

Faculty Mentor(s): Dave Sutherland

Abstract:

As a region of the world with great potential for economic growth, Southern Asia faces unprecedented levels of air pollution and snow melt. Darkening the Himalayan snow's surface and increasing its ability to absorb sunlight, the presence of natural and man-made air particulates on ice trigger glacial melting that requires human response. Emission-creating practices in the industrial and agricultural sectors - such as those that originate from factories, long-distance transportation, and biomass

burning (“slash and burn” farming) - combine with natural phenomena such as wind storms to spread Black Carbon and other aerosols. These contributors to air pollution lower the single-scattering albedo of snow after landing on it, leading to potential catastrophes and the need for human-initiated mitigation. As this region of the cryosphere continues to warm, countries such as Nepal and India must face the question of whether to formulate policies that pursue economic development or responsible climate practices. Here we show the effects of air particulates on glacial albedo using data collected over multiple years as well as society’s response to the symptoms of Himalayan melting. Actors working to prevent and reduce the severity of the problem take the form of governmental institutions implement policies, spanning from within Himalayan countries to the international community. At risk of facing destruction from a melting cryosphere, human lives and sacred places within the Asian continent rest in the hands of those with the power to regulate industrialization and raise albedo to levels that better reflect the sun’s rays.

SELENA BLICK – ENVIRONMENTAL STUDIES

POSTER 142 Title: A Just Transition: Renewable Energy and Indigenous Voices in the Nunavut Community

Research Area: Social Science

Faculty Mentor(s): Mark Carey

Abstract:

In order to combat climate change, renewable energy sources must replace fossil fuels, and quickly. However, just like fossil fuels, renewable energy projects can create other environmental harms, many of which are felt unfairly by Indigenous communities. The territory of Nunavut, located in Northeast Canada, has a population comprised of over 85% Indigenous People. This community is currently reliant on imported diesel and looking to make the transition to renewable energy, but is hesitant about the ways that renewable energy projects, especially hydroelectricity, might impact their natural environment. This research will explore these issues that the people of Nunavut currently face in terms of energy use and renewable energy production and how Indigenous People in other parts of Canada have worked to resolve these issues. While climate change is a pressing matter, urgency can not be an excuse to mistreat Indigenous People or their land. By exploring how these energy issue impact Indigenous People, this research seeks to provide a better understanding of why energy projects need to be approached in a way that is both just and sustainable.

JOHANNA BOYERS – ENVIRONMENTAL STUDIES

POSTER 143 Title: CO₂ Emissions From France, Italy, Denmark, and the Netherlands Pre and Post Signing the Kyoto Protocol

Research Area: Environmental Studies

Faculty Mentor(s): Ronald Mitchell

Abstract:

The purpose of this research is to identify CO₂ emission changes in countries before and after signing the Kyoto Protocol. Throughout this research I will be analyzing what the impact was of the Kyoto Protocol for pusher versus dragger countries in the European Union. I expect to find all countries having reduced CO₂ emissions post signing the protocol, however based on France and Italys history of being draggers, I expect their emissions to be higher than Denmark’s and the Netherlands. I expect the change in CO₂ emissions for France and Italy to be much smaller than those of Denmark and the Netherlands, based on their history of being pushers. By identifying the change, or lack thereof, in CO₂ emissions post signing the Kyoto Protocol, we can see whether protocols like this one are useful in lowering CO₂ emissions for future use.

ISABELLA CAO – JOURNALISM

POSTER 144 Title: Heavier Snowfall and Snow Distribution Patterns as a Result of Global Warming

Research Area: Natural/Physical Science

Faculty Mentor(s): Dave Sutherland

Abstract:

Low temperatures and the presence of moisture are conditions that allow for snowfall. When parcels of warm air containing moisture rise and cool, the water vapor condenses to form clouds. These clouds form precipitation, in the form of either water droplets or tiny ice crystals depending on surrounding air temperature. Precipitation and snowfall are a normal part of the hydrological cycle; however, global warming has changed the hydrological cycle and thus affects patterns of snowfall. A 4% increase in atmospheric moisture has been observed (warmer atmospheres holding 7% more moisture per 1). Many studies have been done on global warming’s contribution to dwindling snowpacks and high rates of snowmelt, however, few have studied heavy snowfall as an effect of climate change. Here I show patterns of decreased and increased snowfall in various regions. I found that warming of ocean surfaces and other water supplies can result in patterns of heavier snowfall. Japan predicts decreases in total winter snowfall, as well as an unusual heavy snowfall occurrence every 10 years. Further, I found that while most regions experience an overall decrease in snow, the distribution pattern changes significantly, with some places having much less or more more than usual. Climate change does not always result in immediate depletion of snow, but

rather a continuous changing pattern that shows decreasing over time. This report could instigate more accurate portrayals of snowfall patterns, leading to more accurate studies. These findings will be useful in better utilizing water resources that rely on snowfall.

LEVERETTA CHEN – ARCHITECTURE

POSTER 145 Title: What Patterns in Ice Cores Can Reveal About the Earth's Past, Present, and Future

Research Area: Natural Science

Faculty Mentor(s): Dave Sutherland

Abstract:

Ice cores are core samples formed from snow buildup over a range of years. By identifying the age of each layer formed (the oldest on the bottom and newest on the top), we can identify characteristics such as gas contents and temperature variations, potentially allowing us one of the oldest atmospheric records available on the earth. In this study, we will identify and analyze long term patterns in ice cores, specifically for patterns that allude to climatic events such as ice ages, seismic, and volcanic activity. Through the various peaks and valleys in carbon dioxide and sulfur in the ice core samples, we can find a somewhat consistent pattern in the timeline of ice ages that occur, but less so in terms of seismic and volcanic activity. We then were able to estimate the time of the next ice age.

JOHN CREEL – ENVIRONMENTAL SCIENCE

POSTER 146 Title: Passing Through Barriers Progressively

Research Area: environmental policy

Faculty Mentor(s): Sarah Wald

Abstract:

This project will examine how various barriers can deflect social movements away from useful information, specifically Bark and it's advocates for the protection of Mt. Hood National Forest. I will be showing that race, discrimination, language, settler colonialism, and religion can create various types of barriers. My questions are, what factors lead to these groups being put behind these barriers? Also, are there correlations that can be drawn to help mitigate these barriers from arising? As well as how is it beneficial for these groups to gain access to information and be able to participate? The major research strategies I will be using: the gathering of qualitative/quantitative research as well as any case studies that can be found, and an interview would be beneficial as well. The goal is to let anyone's voice be heard and show that it is beneficial to Barks collective. Can this then be used as an outline for other organizations to help them facilitate information in a more productive manner to society. Thus, forming policies and coalitions that are devoid of barriers that all promote the same goal, which is environmental sustainability and protection.

JACOB DICKEN – ANTHROPOLOGY

POSTER 147 Title: Changing Climate in Ancient Peru and the Rise and Development of the Norte Chico Civilization

Research Area: Social science

Faculty Mentor(s): Mark Carey

Abstract:

The Norte Chico civilization represents the earliest known example of an urban society in the Andean region and the Americas as a whole, having existed from around 3500 BC until its gradual decline around 1800 BC. The economy of ancient Norte Chico relied on both the growth of early domesticated plants such as cotton as well as the harvesting of wild resources such as fish. The success in attaining these resources hinged largely on the climatic conditions which made them possible. The Norte Chico civilization first emerged during a period of relatively low El Niño activity, allowing for a relatively stable agricultural economy and abundant marine resources, creating the food surplus necessary for the emergence of a large-scale civilization. This presentation will focus on both climatic and archaeological data to show how climatic conditions thousands of years ago made large-scale civilization both viable and attractive. Norte Chico can provide for us an important case study on the use of environmental resources in an early civilization and how climatic changes which affect the viability of these resources can shape the nature of the societies as they develop in relation to them.

SHANNON ELLIS – ENVIRONMENTAL STUDIES

POSTER 148 Title: Barriers based on Class and Ability in Community Engagement with Bark

Research Area: Social Science

Faculty Mentor(s): Sarah Wald

Abstract:

There are many barriers that limit various stakeholders from being able to visit national parks and forests on a regular basis in a way that allows them to positively engage with nature. I will be working with Bark, a Mt. Hood National Forest-based

non-profit, to analyze the different barriers based on class and ability that limit the participation of people that would like to be involved with Bark. Some of the major barriers found for Bark so far include accessibility, availability to transportation, and potentially exclusive volunteer and engagement opportunities. I will be using scholarly and peer reviewed journals primarily, including articles from "Leisure Sciences; An Interdisciplinary Journal", "The International Journal of Special Education", and an article written by University of Oregon Professor Betsy Wheeler. I will also be gathering information from meetings with representatives from Bark. It is important to first acknowledge the potential barriers that restrict the participation of underrepresented stakeholders and groups in order to eventually make Bark a more inclusive, diverse and equitable organization.

ELEANOR ESTREICH – ECONOMICS, ENGLISH

POSTER 149 Title: Mental Health in Indigenous Inuit Communities and Canadian Climate Change Legislation: Conceptualizing the Link Between Research and Policy

Research Area: Humanities

Faculty Mentor(s): Mark Carey

Abstract:

An emergent literature emphasizing community-based research examines the relationship between climate change and mental health in Inuit communities in Canada, which is driven in part by the fact that Inuit communities are "particularly vulnerable to health-related climate change impacts" (Harper et al. 2015: 1)*. While this academic research has identified approaches toward conceptualizing the link between climate change and mental health, national legislation in Canada about climate and health does not sufficiently reflect the lessons of these community-based efforts. By using methodological, theoretical, and rhetorical criticism, this paper will attempt to provide an answer for how the relationship between climate change and mental health is conceptualized for indigenous Inuit communities in the academic literature, and by comparison, how Canadian national laws dealing with climate change currently address this relationship. This paper will compare academic and legal approaches with the overall aim of judging to what extent national legislation has addressed the important link between climate change and mental health in indigenous Inuit communities. This comparative task is needed, because national climate change legislation shapes priorities and may help determine the extent of the human impacts of climate change in the future. The preliminary research seems to suggest that Canadian legislation primarily focuses on adaptive policies that target the general health of indigenous Inuit peoples as a result of a globally framed climate change issue; as a result, national legislation is currently poorly set-up to incorporate the insights from community-based participatory research. *Harper, S. L., Edge, V. L., Ford, J., Willox, A. C., Wood, M., & McEwen, S. A. (2015). Climate-sensitive health priorities in Nunatsiavut, Canada. *BMC Public Health*, 1–18. <http://doi.org/10.1186/s12889-015-1874-3>

MILES EVANS – MUSIC, HUMANITIES

POSTER 150 Title: Climate and Water Privatization in the Andes: Indigenous Livelihood and Political Agency vs. the World Bank's Professed Faith in the Free Market

Research Area: Natural Science, Social Science, Political Science

Faculty Mentor(s): Mark Carey

Abstract:

Water and climate change are inextricably linked on numerous levels: ecological, experiential, and political, to name a few. In the Peruvian Andes, climate change has had a profound impact on hydrology, which has in turn threatened the water supply of indigenous agricultural peoples. In the early 1990s, growing water scarcity provoked persistent criticism of the ability of Andean governments to provide water to their people, effectively paving the way for water privatization in the Andes, an effort spearheaded by the World Bank (WB). Although privatization has since been dismantled in countries such as Bolivia and Ecuador, it has more often endured despite various public protests, such as those in Lima and Santiago. These protests decry both the failure of private corporations to provide quality, affordable water and the growing political sway of multinational corporations in the Andes. This paper will analyze WB documents on climate change, water scarcity, water privatization, and Peruvian hydrology alongside academic articles on these same subjects (as well as on indigenous perspectives and political agency) in order to assess and criticize the WB's arguments for water privatization. The stated rationale and intent of the WB will be compared to its apparent impact on Andean water supplies and to various indigenous criticisms. In particular, this paper will explore the following criticisms of the WB's efforts in water privatization: they undermines indigenous political agency, have not meaningfully improved water supply, and espouse a free-market fundamentalist approach that is conducive to climate change.

AMANDA GANJE – ENVIRONMENTAL SCIENCE**POSTER 151 Title: Conservation Efforts in the Progressive Era: A Timeline****Research Area: Humanities****Faculty Mentor(s): Sarah Wald, Paul Guernsey****Abstract:**

Attempts to conserve and preserve the environment in the United States have been around for over hundred years with roots in the Progressive Era. This time period, from 1890-1920s, saw notable figures like John Muir and Theodore Roosevelt rise up to speak out on the importance of preserving the environment, and under Roosevelt's presidency came the formation of national parks and monuments. I've made a timeline capturing the most significant events from this time period to show the foundation of the conservation movement. This timeline is being used as a part of BARK's, the watchdog organization for Mt. Hood National Forest, efforts to teach the community on the history of conservation. BARK's mission is making Mt. Hood National Forest a place where local communities have social, cultural, and economic investment in its restoration and preservation which this timeline hopes to help accomplish this by engaging the community more with the natural environment through learning about the background of its management. The events included in this timeline were found using relevant scholarly journals and books. This information is significant as it is an essential part of the United States conservation history, and educational for the general public.

HANNAH GERTON – ARCHITECTURE**POSTER 152 Title: The Changing Climate and its Effect on Winter Tourism Economies in the United States****Research Area: Natural Science****Faculty Mentor(s): Dave Sutherland****Abstract:**

Increasing global temperatures and decreasing precipitation levels in the United States have caused a rapid decline in the snowpack over the last few decades. Many regions across the country contain economies that depend largely on a reliable climate. With such drastic changes in the cryosphere and the global temperature, challenges arise surrounding winter tourism. Winter sports are known for being a fun pass-time, but the stability created by their profit and job opportunities are often overlooked. Mountainous locations and areas of high elevation depend on winter tourism; it is critical that such areas begin to prepare for climatic changes by adapting to the new environment. As temperature increases, the snowpack declines causing shorter ski seasons in addition to unsuitable conditions at many of the ski resorts. These poor conditions may cause a large drop in ticket sales and tourism earnings. This often forgotten correlation between climate and winter tourism will only worsen as time goes on. Very little research has been done in this field, so it is important to evaluate the areas of risk and determine what preventative steps can be taken in order to avoid further damage to the economies of winter tourism. It is difficult to stop temperature changes, or decreases in the snowpack, however, it is possible to detect trends and predict patterns that allow for proper planning and adaptations. Implementing such adaptations could save countless regions of the U.S. from the loss of winter tourism and its benefits.

ARNAUD GONZALEZ – ENVIRONMENTAL SCIENCE**POSTER 153 Title: Gender, Inclusion, and Communication in the Environmental Movement: The Case of Organization Bark****Research Area: Social Science****Faculty Mentor(s): Sarah Wald****Abstract:**

I am part of a project to audit the online resources of environmental organization Bark, which is dedicated to "defending and restoring Mt. Hood National Forest", and to make a protocol for the use of inclusive language in their communication. I personally focus on gender-inclusiveness: how to avoid representations that demonstrate misogyny (oppression against women), heteronormativity (assumption that everyone is or should be straight), cissexism (assumption that everyone is or should be cisgender – vs. transgender) and dyadism (assumption that everyone is dyadic – vs. intersex); and how to use, instead, gender-neutral and LGBT+-inclusive language. I analyze both the terms used and the visuals shared on the organization's website and Facebook page in recent publications. Based on academic and activist resources, I suggest changes and goals to the organization. The environmental movement traditionally reproduces oppressions against women and sexual and gender minorities. It often shows prejudice against them and gives unfair power to men and cisgender, straight and/or dyadic individuals, especially through a predominant visibility and a larger credibility given to them. This protocol is meant to inspire environmental organizations to offer inclusive information and spaces where people who face oppression feel safe, accepted, respected and welcome.

CALLY GUSTAFSON – ENVIRONMENTAL STUDIES**POSTER 154 Title: Diversity, Equity and Inclusion in On-boarding for Event Policy for Volunteers****Research Area: Environmental Studies****Faculty Mentor(s): Sarah Wald****Abstract:**

Diversity, equity and inclusion are necessary to think about when planning an event that involves groups of different backgrounds and cultures. I will work to help Bark (an organization whose mission is to help preserve and restore Mt. Hood National Forest back to a thriving forest with help from the community) plan events for their organization that uses diversity, equity and inclusion for the benefit of their guests. In developing a policy about how Bark welcomes volunteers to events, I hope to help Bark choose a friendly way to welcome their guests that will allow everyone to feel comfortable and appreciated enough to come to the following event. I want to allow all races and cultures to feel comfortable at the events through making the events friendly for everyone and to not offend any of them. I would enjoy finding out that through my research I have improved the overall acceptance rate of their guests and also their guest total for events (how many people show up). Through my research I hope that Bark will have an improved onboarding process for volunteers and that their guests will feel welcomed enough to want to come to as many events as they can. The significance of my research is to help Bark be able to have an on boarding process that is diverse enough for everyone to feel welcome and included.

SIMONE HALLY – PRE-PPPM, SPANISH LITERATURE AND CULTURE**POSTER 155 Title: Climate Change's Impacts on Indigenous Women, Responsibility, and Adaptability****Research Area: Environmental And Social Studies****Faculty Mentor(s): Mark Carey****Abstract:**

While climate change discourse increasingly recognizes the unique vulnerabilities of indigenous peoples, the experiences of indigenous women with respect to climate change continue to receive less attention, especially with respect to scientific and policy writing. In this paper, I aim to apply Kyle Whyte's framework that binds "collective continuance" and systems of responsibility with regards to the relationship between climate change and indigenous women. I will apply his framework based on the relationship between the Anishinaabe women and water. I will then test it on the indigenous women in South Goulburn Island's relationship and responsibility to marine resources, the Baka women's relationships to the Nbwakha fish, and Indigenous Peruvian women's responsibility to seed saving and harvesting. I will ultimately argue that Whyte's lense effectively explains how ability to adapt to and carry out traditional responsibilities factors into climate change's impact on indigenous women. In all these examples, the ecological effects caused by climate change disrupt the responsibilities of the indigenous women and enables them to adapt in order to fulfill their responsibilities, or create new ones altogether. This adaptation reveals the both oppressive and emancipatory nature of climate change's effect on women's responsibilities. Writing about indigenous women and climate change is important not only because of their wealth of experience and knowledge of the environments in which they live, but also because incorporating their voices perpetuates a balanced discourse surrounding indigenous women and climate change. Their perspectives are instrumental in global and regional climate change mitigation and adaptation efforts.

KATLYN HAR – PSYCHOLOGY, POLITICAL SCIENCE**POSTER 156 Title: Creating Climate Change Debate Through Think Tank Politics****Research Area: Humanities and Environmental Studies****Faculty Mentor(s): Mark Carey****Abstract:**

Scientists across the globe reached a consensus that anthropogenic climate change poses a serious threat to the human race. With little scientific dispute on the climate science, governments should be able to implement actionable policy to mitigate the consequences of climate change and prevent further anthropogenic warming. However, today's climate discussion involves a two-sided debate with the climate scientists on one side and the climate change skeptics on the other. These skeptics are not climate scientists but rather physicists or economist that attempt to discredit the existing climate science. Despite their seemingly misaligned credentials, they have gained an audience with powerful politicians and American constituency. Why has scientific research been thwarted at the expense of officials not in the field, especially in the political realm that is critical to policy change? This think tank works to politicize the issue, claiming the climate change has been propagated by leftists, in order to gain party support and thus creates a formidable obstacle to climate change policy. This paper will investigate how The Heartland Institute, a conservative think tank, contributes to climate change denialism by attacking renowned environmentalists, mystifying climatology, and glorifying the fossil fuel industry. The research will involve analyzing the Heartland Institute's main website and the surrounding literature on think tanks and conservatism. The following will analyze the methods and tactics used in order to attack climate change. This paper outlines the misinformation disseminated by the Heartland Institute so that we can dismantle unfounded denialism and promote progressive legislation.

NICK HAWES – BIOLOGY**POSTER 157 Title: Melting Sea Ice and its Effects on Indigenous Arctic People****Research Area: Social Science****Faculty Mentor(s): Mark Carey****Abstract:**

The purpose of this research is to identify how melting sea ice affects the indigenous people of the arctic. The indigenous people of the arctic, or Inuit, are very susceptible to changes in their environment due to their strong connections with the land and ice. Over many years the Inuit have adapted special techniques to survive in the harsh conditions of the arctic environment. As the natural environment gets disrupted due to climate change, the sea ice melts, changing their cultures. Melting sea ice affects the Inuit both physically and spiritually and has an impact on how they travel and interact with the environment. The other major problem produced from melting sea ice is the effect it has on the migration patterns of native species such as whales and seals. The effect on whales and seal is a problem since the changing migrations patterns force changes and adaptations of the Inuit hunting techniques, as well as representing increased vulnerability of the Inuit people to climate changes. The effect melting sea ice has on the Inuit people was determined through case studies of communities, studies on the migration of whales and seal, as well as other readings.

TAYLOR HERMAN – MARINE BIOLOGY, ENVIRONMENTAL SCIENCE**POSTER 158 Title: To What Degree Do Economic Circumstances Determine Compliance Costs That Consequently Push Like-Minded Nations Apart?****Research Area: Political Science****Faculty Mentor(s): Ron Mitchell****Abstract:**

Rainforest nations that are exposed to similar environmental conditions are often driven to implement different international policies out of economic necessity. The establishment of the Coalition for Rainforest Nations was intended to unite rainforest nations despite their differences. According to Vaahtoranta and Sprinz, countries are more likely to participate in coalitions if the costs of compliance are low. This paper will analyze the degree to which economic circumstance determines compliance costs that consequently push like-minded nations apart, using Costa Rica and Brazil as model nations. Though these are both rainforest nations, they each took different positions regarding their participation in the United Nations Program on Reducing Emissions from Deforestation and Forest Degradation (REDD), which may be due to differences in economic standing.

KENZIE HUDLER – PUBLIC RELATIONS**POSTER 159 Title: How Melting Rates of East and West Antarctic Ice Sheets Differ and What This Means for Global Mean Sea-Level Rise****Research Area: Natural/Physical Science****Faculty Mentor(s): Dave Sutherland****Abstract:**

Glaciers are formed from heavy snow accumulation and compaction. Glaciers also experience ablation or surface melting, which involves a loss of glacier mass, as glaciers are viscous fluids. There are numerous factors that control the ice flow speed of glaciers, including temperature of the ice, slope of the glacier, thickness of the ice, and the subglacial environment. Greenhouse gas emissions released into our atmosphere cause a warming that even the continental glaciers of East and West Antarctica cannot withstand, resulting in a rise in global sea-level. Here we show that the West Antarctic ice sheet is melting at a faster rate than the East Antarctic ice sheet, which seems relatively stable at the moment. However, recent data has revealed that the East Antarctic ice sheet could be more vulnerable to climate change than originally thought, after analyzing its past behavior in previously similar climate conditions. Consequently, global mean sea-level is rising at an accelerating rate. The results demonstrate how differently the East and West Antarctic ice sheets are melting, and how these increasing melting rates are impacting global sea-levels. My essay will serve as a comparison of the evolution/recent patterns of retreat and melting in the East and West Antarctic ice sheets and a starting point for how these patterns are impacting global sea-levels. Furthermore, the Antarctic glaciers are melting at accelerating rates, and even cutting back on greenhouse gas emissions may not be able to reverse this process.

KELSEY HUNTER – ENVIRONMENTAL SCIENCE**POSTER 160 Title: The Correlation in Climate Efforts Between the “Umbrella Groups” Nations****Research Area: Environmental Politics****Faculty Mentor(s): Ronald Mitchell****Abstract:**

The umbrella Group is a sub group of developing nations that are outside of the European Union. The group includes but is not limited to nations like the United States and Norway. While the group aligns themselves together, the views on climate action between the individual nations differs. The Umbrella group represent over 30% of the worlds emissions, therefore the stance that these nations take on climate action is extremely important to the future of climate justice. As nations that group themselves together when meeting about climate actions the “umbrella” nations have differing views. The causation of these views is what is intriguing. The culture within the countries, politics, and overall nationwide view on climate action may be the result in the differing views.

DANTE IBARRA – ENVIRONMENTAL STUDIES**POSTER 161 Title: Environmental Justice Within the United States Prior to 1980****Research Area: Environmental Justice Movement****Faculty Mentor(s): Sarah Wald****Abstract:**

My work will include creating a timeline, about the Environmental Justice Movement, that BARK can use as a teaching tool, which will quickly educate new and current members. I am working with a team, to cover the large amount of diverse information that the Environmental Justice Movement has. The other group members' timelines will further increase the education at BARK as they will help will the understanding of other topics. In order to find out as much information as I can I will read books and journals within society and environment sections of libraries. Once I have a list a few notable events I will have to examine their significances on the rest of time to decide which to include on the timeline. The environmental justice movement was created with the goal of equally distributing environmental benefits and burdens amongst all people regardless of race, color, origin or income. In America the first time civil rights were used to challenge the placement of a waste facility was in 1979, Houston wanted another dump in a primarily African-American neighborhood so the residences protested using their given rights. More communities began to challenge unfair treatment and with no time the government was involved, signing acts such as the Clean Air Act. Without having this type of information easily available it can be lost and with it the meaning.

LAUREN JIN – PRE-JOURNALISM**POSTER 162 Title: The Cascades and Snow Drought: What it Means for the PNW****Research Area: Earth Science****Faculty Mentor(s): Dave Sutherland****Abstract:**

For much of the Western United States, mountain snowpack is one of the main sources of water. This is especially true for the Pacific Northwest states, Oregon and Washington, because while rainfall provides sufficient water during the wet months, residents rely on water stored in the snowpack during the summer. This snowpack has been declining: snow water equivalent (SWE) records show this and there have been many studies on the extent and causes of this loss. While it is understood that the snowpack in the Cascades is declining, it is less understood how this loss relates to drought, and specifically snow drought. Snow drought is the combination of general drought and reduced snowpack, but only a few drought metrics account for the water stored in snow. This project will attempt to better quantify snowpack drought in terms of snowpack loss and examine the variables behind it. In this study we will use SNOTEL records from the NRCS and previous research relevant to the project. Snow drought is major concern for water resource managers and must be better understood in order to prepare for it in the future.

JASON JOHN – ENVIRONMENTAL SCIENCE**POSTER 163 Title: Environmental Justice Timeline in the Global South****Research Area: Humanities****Faculty Mentor(s): Sarah Wald****Abstract:**

This project focuses on key events in the environmental justice timeline in relations to the Global North and the Global South. According to the Environmental Protection Agency (EPA), Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Does actions of the Global North affect

environmental justice in the Global South? This is important because a lot of the countries in the Global South are often overlooked because they are classified as either Developing or Third World. These countries are often rich in natural resources but are mismanaged and exploited by some countries in the Global North. I decided to focus on the Global South because it is home to me. In addition, this project is to inform Bark, an environmental organization about Global environmental justice. I used peer-reviewed articles and books for this research. What I think I will find is that Environmental Justice in the Global South is largely dependent on countries in the Global North. Living in a developed country, one can easily forget about other countries and the problems that they encounter regularly. This project will start conversations and will enlighten others about the environmental injustice that's been happening in the Global South.

MEGAN JOHNSON GUTHRIE – ENVIRONMENTAL GEOSCIENCE

POSTER 164 Title: Environmental Justice and Injustice Timeline Specific to Oregon

Research Area: Environmental Studies

Faculty Mentor(s): Sarah Wald

Abstract:

By disregarding our states past, we contribute to the continued mistreatment and injustices that built the foundation of our government, specifically in relation to environment. Systemic white oppression building the foundation of Oregon's governmental legislations led to a prevalent history of environmental injustices leading up today. In order to shed light on environmental justice and injustices in Oregon, my project involves researching and materializing an environmental justice and injustice timeline specific to Oregon for the organization, Bark. Beginning with what began with Indigenous peoples building communities and forming traditions on the land. To major historical dates, people, and communities contributing to environmental justice or injustice. To today where governmental policies systemic oppressive, inequitable, and unjust regulations prevent equity and inclusion in environmental use. The environmental justice movement only began to bubble up in US 1980's so this timeline will include dates, people, and communities that lead to the need of the environmental justice movement. Then after the 1980's the timeline will focus ore on movements that have improved inclusion and equity in the environment but also including the injustices that continue today. Understanding Oregon's environmental history can help us and Bark gain insight and understanding on the importance of improving inclusion and equity within our environment. Also, how to contribute change in current and future oppressive, environmental regulations.

RENNIE KENDRICK – BIOLOGY

ORAL ORAL SESSION 1M Title: Climate Change, Water Policy, and Society in the Peruvian Andes

Research Area: Social Science, Humanities

Faculty Mentor(s): Mark Carey

Abstract:

Climate change has posed a threat to fresh water supplies, which has worsened conflicts over water. Simultaneously, corporations have strategically offered water privatization schemes as a solution to climate change problems. Although privatization may benefit key economic interests, a review of literature examining its impact on water users in Peru as a case study and its impact on the environment at large, calls into question the viability of this model. I argue that water privatization in Peru has produced negative social impacts on water access, including reduced water access for certain groups, violation of traditional meanings of water, and changes to water's legal character. More broadly, the privatization of water resources represents a larger flaw in current approaches to climate change, which often rely on market-based solutions over governmental regulation. Because market-based solutions rely on the integrity of private actors, these private actors may, and often do, make decisions that further undermine the natural environment. An understanding of both the negative social and environmental impacts of water privatization will eventually lead to creation of new forms of water governance in the face of climate change and social inequities.

HELENA KRESKY – ENVIRONMENTAL STUDIES

POSTER 165 Title: Event Outreach to Underrepresented Communities on Public Lands

Research Area: Humanities

Faculty Mentor(s): Sarah Wald

Abstract:

My research seeks to address the ways in which Bark and other public land organizations can reevaluate their outreach and advertising methods to foster diverse and inclusive events that all can enjoy. Working with Bark's public events, my research is tailored to provide them with ways they can improve their strategies to reach out to groups currently underrepresented on public lands. Public land exploration and survival has become a way to define the American identity yet many individuals are excluded from enjoying public lands even if that exclusion is not intentional. This research addresses some of the ways in which event outreach and advertising can exclude individuals, and how we may be able to adjust outreach in order to help others feel included and address their needs.

BARBARA LOMBARDI – BUSINESS**POSTER 166 Title: The Environmental Integrity Group: Each Country's Intended Nationally Determined****Contribution Commitments****Research Area: Policy****Faculty Mentor(s): Ronald Mitchell****Abstract:**

This research will explore the Environmental Integrity negotiating Group's position on climate change and how that aligns with the five individual country's stances. The primary research question is: despite the fact that Mexico, South Korea, Lichtenstein, Monaco, and Switzerland belong to the same negotiating group, did each country make the same Intended Nationally Determined Contribution commitments? The position of the Environmental Integrity Group will be examined and compared to each individual country's previous activities, Greenhouse Gas emissions, and policy implementations. Primary research suggests that these countries have different emission patterns and mitigation targets. These five country's all agreed to be apart of a common group adopting the same values, but do they individually all end up making the same individual contributions? Each country's vulnerability to climate change may play a vital role in their decision to form a group. These questions are important to answer because if these vastly different country's are able to agree on solutions to global warming, then possibly all country's can reach an agreement to make a significant impact on reversing climate change.

ALLISON LUDDEN – ENVIRONMENTAL SCIENCE**POSTER 167 Title: Inclusive Language Protocol for Environmental Organizations to Avoid Classist Language****Research Area: Environmental Studies****Faculty Mentor(s): Sarah Wald****Abstract:**

I am part of a team developing a protocol for the environmental organization Bark to check whether they are using inclusive language. I am developing the part of the protocol that will address classist language, including general principles to follow and suggested vocabulary. I will be researching existing protocols and applying them to an environmental context in order to develop a socioeconomic inclusive protocol. Inclusive language is essential for the equal treatment of all groups that have been marginalized because of their ethnicity, culture, race, gender, disability, age, socioeconomic status and more. These groups are especially vulnerable to issues like environmental racism and climate change, yet we fail to see them represented in the environmentalist movement. This protocol will allow organizations to audit their websites, canvassing material and social media in order to adapt their language to reach out and represent these groups.

TRENTON MARTINEZ – ENVIRONMENTAL SCIENCE**POSTER 168 Title: Traditional Knowledge as the Essential Component in Preservation of the Environment and Culture in the Arctic****Research Area: Environmental Science****Faculty Mentor(s): Mark Carey****Abstract:**

Indigenous communities within the Arctic region directly experience the consequences of climate change and have been disproportionately impacted. However, environmental projects and research concerned with these regions have failed to consider the cultural values and traditions of the local people. Popular world-views have contributed to the marginalization of indigenous populations in the Arctic as they are perceived as insignificant in relation to the global population. Thus, traditional knowledge is an essential component in collecting observational data and developing sustainable practices that maintain the community's values, traditions, and relationship with the environment. Through examination of specific cases, the importance and use of traditional knowledge is demonstrated in its implementation, or lack thereof, within environmental strategy, design, and practice. Collectively, some of the most valuable data and information was obtained from oral narratives that provide an environmental history, personal experiences of environmental events and disasters, and the cultural adaptations, including hunting and traveling behaviors, as a response to local observations of environmental changes. This type of data is scientific knowledge specific to the region and culture, which prevent generalizations to be made through comparisons between similar environments without comparing differences between indigenous cultures as well. Incorporating these cultural aspects ensures that strategies to combat climate change protect the lives as well as the values and traditions of the people.

BROOKE MCKINNEY – ENVIRONMENTAL STUDIES

POSTER 169 Title: The History of a Modern Era of Conservation in the United States from 1964 to the Present

Research Area: Social Science

Faculty Mentor(s): Sarah Wald

Abstract:

The Modern Era of conservation and the conservation movement is extensive in political, racial, social, ethical, and ecological controversies. To understand the definition and benefits or setbacks of conservation my research seeks to explain the effects of conservation on racial issues and ecological issues in order to create a comprehensible timeline of events. Important components to this collective timeline are to identify effects of conservation on tribal communities and the environment in the US and in Oregon from literature, legislation, and creation of National Parks and how racial, social, and ecological issues changed conservation and its efforts from 1964 to the present. The timeline will be used by the organization Bark to help educate the public of the history of conservation and in training within the organization. My research is important because it intends to educate the public on how conservation efforts and legislation often lacks input from tribal communities, has historically excluded those communities from benefiting from these efforts and National Parks, and how conservation has, and could, change for the future.

TREVOR MEYER – ENVIRONMENTAL STUDIES

POSTER 170 Title: Contextualizing the Role of Pre-20th Century Conservation Initiatives in the Contemporary Environmental Conservation Movement

Research Area: Humanities

Faculty Mentor(s): Sarah Wald

Abstract:

Modern environmental conservation initiatives are inseparable from centuries-old traditions, and attitudes toward nature. The purpose of this project is to present early conservation initiatives and interpretations, prior to the progressive era, that are especially foundational in the context of the contemporary conservation movement in the United States. It is critical to acknowledge the parallelism between contemporary and traditional environmental conservation issues—deforestation, urbanization, and industrialization that spurred the first Euro-American conservation ideas during the 17th century. Despite the 18th and the 19th centuries being characterized mostly by the manifest destiny and the exploitation of natural resources, this time in history is also responsible for fostering immensely transformative valuations, understandings, and attitudes toward natural resources. During the 18th and 19th centuries the overuse and misuse of natural resources under traditional utilitarian conservation regimes was questioned, and contested by alternative conservation initiatives that perceived value in the preservation of nature, and wildlife habitat. From which values arose the nation's first state parks, national parks, national forests, forest management practices, and wildlife protection organizations. In order to understand the complexities of decision-making in the contemporary environmental conservation movement we first ought to consider the age-old traditions and attitudes toward natural resources that provided foundation for the earliest conservation ideologies.

MORGAN MOONEY-MCCARTHY – POLITICAL SCIENCE, SPANISH, INTERNATIONAL STUDIES

POSTER 171 Title: How Two Ice Sheets Are Causing Accelerated Distress on Sea Level Rise

Research Area: Natural Science

Faculty Mentor(s): Dave Sutherland

Abstract:

Two of the largest ice sheets in Greenland and Antarctica are experiencing expedited mass loss which is contributing to sea level rise. The estimated sea level rise per year is 0.54 mm/year and the respective ice sheets contribute 19% of the annual sea level rise. There has been a steady increase of glacial mass loss since the late 19th century, however, within the last two decades glacial mass loss has increased rapidly. The recent years of accelerated glacial mass loss has dramatically increased the rate of sea level rise. If this trend continues it will rapidly influence and impact coastlines. The research methods currently being used involve satellites and remote sensors. If the Greenland and Antarctic ice sheets were to completely melt the sea level would increase up to seven meters. While 55% of the annual sea level rise can be attributed to all types of glacial melt, Greenland and the Antarctic ice sheets make up 19% of that rise, which is nearly $\frac{2}{3}$ of the sea level rise from all glacial ice. The results show that these two ice sheets add a disproportionate amount of ice mass loss compared to other factors affecting sea level rise. I anticipate research to accelerate as mass loss does in order to provide strong scientific arguments to present to the public and political leaders.

MARIE MOORE – ENVIRONMENTAL SCIENCE**POSTER 172 Title: An examination into the Success or Failure of the EU Negotiating Group's Climate Policy on Lowering Emissions****Research Area: Political Science****Faculty Mentor(s): Sarah Crown, Ronald Mitchell****Abstract:**

For my poster project I have chosen to research the climate policy of the European Union (EU) negotiating group. The EU negotiating group consists of 28 countries that have collaborated on one official climate policy. For my research I am investigating what carbon dioxide emission reduction commitments the EU negotiating group have established. I am exploring which European countries have met their goals or if they were unsuccessful in lowering emissions and why that is. I am researching variables, such as clean energy sources, that have led to countries successfully lowering emissions. By gaining a deeper understanding of what has worked for other countries in combating climate change, we as a country would have an effective template on how to successfully lower our emissions.

HALEY NICHOLSON – ENVIRONMENTAL STUDIES**POSTER 173 Title: Climate Change and Indigenous Food Systems in the Andes****Research Area: Social Science****Faculty Mentor(s): Mark Carey****Abstract:**

Climate change will have substantial impacts on agriculture which may affect our modern food system as we know it. Despite all of the climate change research that has been conducted, there is not enough importance placed on how climate change impacts indigenous food systems, particularly in the Andes region. Indigenous food systems are at particularly high risk for adverse climate change impacts because of their reliance on environmental predictability. Modern climate changes result in immediate nutrition and food security consequences for farmers in the Andean region, which is why it is so important that these impacts and possible mitigation strategies are studied. Through research in various peer-reviewed journals and United Nations and World Bank reports I will discuss how climate change has resulted in decreased food sovereignty, security, and nutrition for indigenous food systems in the Andes. I will also examine how climate change has already spurred adaptation strategies based on traditional knowledge of the agricultural landscape in the Andes. These adaptation strategies demonstrate the importance of traditional knowledge in the face of climate change.

ANNALEE NOCK – ENGLISH**POSTER 174 Title: Welcome to the Jam: Effects of Climate on Mid-winter River Ice Breakup****Research Area: Earth Science****Faculty Mentor(s): Dave Sutherland****Abstract:**

Dynamic breakup of river ice cover and subsequent ice jamming, or damming, can cause flooding with socio-economic and ecological impacts. Breakup processes are sensitive to weather conditions, so changing climatic patterns engender concern over their potential impacts. Understanding how to predict ice jamming events could both mitigate destruction and offer insight toward climate's effect on river ice. Usually, breakup and flooding happen in the spring, but occasionally perturbations in winter temperatures invoke mid-winter 'thaws'. These are influenced by rainfall, augmented river flow, and ice decay. By synthesizing hydroclimatic studies on mid-winter breakup and ice jams, my research shows these mid-winter events have repercussions on ensuing spring breakup. This demonstrates the magnitude of even slight warming on river ice. With more high-resolution data and quantifying research, cryologists can look at mid-winter breakup as both a predictor for spring events and an easily-perceptible representation of climate change.

MAYA O'BOYLE – RUSSIAN, EAST EUROPEAN AND EURASIAN STUDIES (REEES), INTERNATIONAL STUDIES**POSTER 175 Title: Moss to Prevent Loss?: Exploring Methods for Halting Permafrost Deterioration in Siberia****Research Area: Natural/Physical Science (Cryosphere)****Faculty Mentor(s): Dave Sutherland****Abstract:**

Permafrost, a layer of subsurface that remains frozen for two or more uninterrupted years, plays a significant role in the global cryospheric system. Permafrost lends stability to some of the world's most barren environments, perhaps most important to no other place than Russia, of which it covers "more than 60%" (Anisimov and Reneva 169). This particularly applies to the Siberian region, whose factories, nuclear plants, large cities, and abundant natural resources remain under threat, vulnerable to permafrost thawing that often leaves the ground unstable, contaminated by leached mercury, and disrupted of vegetation. This permafrost deterioration also impacts the global climate, "acting through release of greenhouse gases to the

atmosphere” and accelerating climate change (Anisimov and Reneva 174). However, while many studies have been conducted on thawing impacts, few have explored the roll vegetation can have in preventing permafrost shrinkage, particularly native mosses, which serve as an effective natural insulator. This study will explore the impacts of permafrost thawing on these native mosses, paying particular attention to how thawing affects moss thickness, in order to better understand and predict Siberian climate change. What can studying this moss cover reveal about methods to halting permafrost deterioration and global warming?

EMMA PALEN – EARTH SCIENCES - ENVIRONMENTAL GEOSCIENCE TRACK

POSTER 176 Title: Individualistic countries lack of commitment to Climate Change mitigation

Research Area: Social and Natural Science

Faculty Mentor(s): Ronald Mitchell, Sarah Crown

Abstract:

Climate Change mitigation is discussed globally by groups of countries that have chosen to bond together. Preliminary research was conducted to identify which countries were considered individualistic and which were considered to be more community-based. For the purposes of this research, the Geert Hofstede model was used to categorize these countries into one or the other. The question that is addressed in this paper is are countries with individualistic culture less committed to climate change mitigation efforts? Policy makers are interested in this question because Climate change is an imperative issue that should be taken seriously and one of the first steps is identifying why certain countries have less commitment. The methods used to analyze this question included looking at the countries CO₂ emissions 10 years before and 10 years after the Kyoto climate change agreement. It is expected that those countries who are identified as individualistic will be less committed to mitigating Climate change and this will be shown with no change or an increase in their CO₂ after the Kyoto agreement. Those who demonstrate a more community-centered culture will have lower CO₂ emissions after the agreement displaying their commitment to mitigating the issue. The primary results indicate that individualistic countries are less committed to climate change mitigation.

ERIN PARKER – MARINE BIOLOGY

POSTER 177 Title: Effects of Climate Change on Subsistence Fisheries Communities in the Coral Triangle

Research Area: Social Science

Faculty Mentor(s): Mark Carey

Abstract:

Coral reefs provide critical habitat for over one-third of all marine fish species, including many commercially valuable species. They also provide humans with a wide variety resources and services, including coastline protection, food and drugs, and the bases for booming tourism economies. Unfortunately, these valuable ecosystems are in decline worldwide due to the effects of both human caused global climate change and localized threats that include pollution and overfishing. Many coastal populations in the Coral Triangle, a biodiversity hotspot in the Indo-Pacific, rely heavily on subsistence reef fisheries for their livelihoods and for most of the protein in their diets. Without the reef, they likely would not be able to get enough food for themselves and their families, in addition to losing a job that provides both a steady source of income and a great deal of satisfaction and enjoyment. The importance of reef fish to these communities means that falling fish stocks encourage increased fishing effort, which depletes stocks even further, creating a positive feedback loop of overfishing and reef destruction. This research will explore the negative impacts experienced by coastal subsistence-based fishing communities in the developing nations of the Coral Triangle when reefs are degraded or destroyed by human actions and climate change. I will evaluate impacts in terms of fishers' ability to provide for themselves and to maintain their cultural identities, and argue that climate-caused reef degradation is contributing to the positive feedback loop of reef destruction by adding stress to reefs and preventing their recovery.

VALESKA RAMIREZ – GENERAL SOCIAL SCIENCE: GLOBALIZATION, ENVIRONMENT AND POLICY

POSTER 178 Title: Does A Country's Level of Development Affect or Determine Their Commitment to Climate Change Mitigation Efforts?

Research Area: Social Science

Faculty Mentor(s): Ronald Mitchell, Sarah Crown

Abstract:

It is known that climate change is an ever pressing issue, and that countries around the world face different levels of vulnerability associated with their abilities to mitigate climate change issues. The research will analyze if a country's level of development affects or determines their commitment to climate change mitigation. I will be researching this question by analyzing theory in relevant literature that allows us to quantify level of development of different countries being researched. The theory in turn will allow us to categorize a country as developed or developing. There will be control for variation by researching four countries, two developing and two developed, that are a part of the Cartagena Dialogue, a negotiating

group of alliances that were formed at the Paris climate conference. Countries within the Cartagena Dialogue are working towards an ambitious, legally binding agreement under the United Nations Framework Convention. Mitigation levels will be researched and measured for each country, with the Cartagena Dialogue serving as a baseline year for each of the four countries researched. Levels of mitigation will be looked at before and after to conclude if the countries joining the dialogue have taken initiative in climate change mitigation efforts. People should have the opportunity to mitigate and adapt to climate change regardless of where in the world it is happening. There are interests to investigate how environmental impacts vary across a country's level of development and who bears the cost of climate change. Possible implications or conclusions I hope to find based on analysis is whether or not a country's level of development motivates climate change mitigation efforts through policy.

TAYLOR REICHERT – ENVIRONMENTAL STUDIES

POSTER 179 Title: Gender Identity and Location Barriers to Engaging with Bark: A Mt. Hood Preservation and Restoration Organization

Research Area: Humanities

Faculty Mentor(s): Sarah Wald

Abstract:

Individuals from sexually marginalized groups along with differing urban and rural communities experience a wide variety of barriers when it comes to accessing the outdoors. Oppression, safety and discomfort are major concerns for women and members of the LGBTQ community if they ever desire to partake in national park services or environmental spaces. Transportation and economic barriers face the differing groups from rural and urban communities striving to enjoy these public spaces as well. As an Oregon based environmental protection organization, Bark has expressed a pressing need for a more inclusive environment for community engagement. What are the barriers that have historically restricted individuals from diverse gender identities and varying locations from accessing and enjoying US national parks and how have these trickled into the present society? I will conduct a literature review on the relationship between LGBTQ-identified individuals and outdoor recreation, along with the relationship between individuals from urban/rural communities and outdoor recreation. I hope to develop a better understanding of existing barriers and practices that might combat those barriers. The findings I hope to come across will lead to alternative solutions to a more inclusive outdoor recreation environment for all genders and rural/urban communities to create a more diverse society that utilizes its public spaces. Alternative programs and policies must be implemented for public outdoor spaces in order to increase its diversity and utilization so that all groups of individuals may partake in a physically and mentally healthy lifestyle with the environment.

DOUG SAM – ENVIRONMENTAL STUDIES, GEOGRAPHY

POSTER 180 Title: Collaboration and Conflict: Exploring Contemporary Relationships of Indigenous Peoples and the Government in Oregon

Research Area: Humanities

Faculty Mentor(s): Sarah Wald, Paul Guernsey

Abstract:

When constructing a history of public lands and examining diversity, equity, and inclusion (DEI) efforts on public lands, it's important to recognize that all lands in the United States have an Indigenous history and that Indigenous peoples have a distinct relationship to both the land and to government entities. This study examines the nature of this relationship. Using case studies from around the state of Oregon, which contains nine federally-recognized tribes and various non-recognized peoples, it explores conflicts and collaborations between Indigenous nations and government agencies across space and time. These case studies range widely, including wars and reservations, the cancelled sale of the Elliot State Forest to a coalition including the landless Cow Creek Band of Umpqua Tribes of Indians, and traditional use of land in of the Mount Hood National Forest. As part of a greater project to illustrate the relationship between Indigenous peoples and public lands, this work hopes to show the conditions in which Indigenous nations and the government can build convivial relationships and the conditions which create disagreements and conflicts. In a time when tribal sovereignty is being again being actively eroded, this work also makes the case that the relationship between government agencies and Indigenous nations in the United States is a distinct one and one that resists merely recategorizing Indigenous issues as merely one of race.

ELLEN SCHARFF – ENGLISH

POSTER 181 Title: Causes and Hazards of Thaw Settlement in Central and Coastal Alaska

Research Area: Natural Science

Faculty Mentor(s): Dave Sutherland

Abstract:

Much of the ground in polar areas such as Alaska consists of permafrost, a subsurface layer of soil that remains frozen throughout most of the year. Alaskan tundra vegetation, wildlife, and infrastructure rely on the preservation of permafrost,

which is made of frozen soil, rock, and water. Rising global temperatures have resulted in thaw settlement: the compression of ground due to thawing. Typically, thaw settlement is a seasonal occurrence, but several studies have observed an abrupt uptick in the extent of permafrost thaw and subsequent ground compression. This research compiles and synthesises the results of various studies of permafrost degradation and thaw settlement in central and coastal Alaska. Data from these studies shows a significant increase in permafrost active layer depth and clear compression of thawed soil. The implications of settlement on carbon dioxide release, vegetation, and infrastructure are outlined by the studies, as well as a consensus on climatic and ecological changes as the cause. By cultivating an awareness of the sources and hazards of permafrost settlement, measures can be enacted on vulnerable areas in order to mitigate degradation.

CARSON SCHMITTLE – ENGLISH

POSTER 182 Title: The Great Deluge: Are Heavier Rains and Greater Temperatures Responsible for The Sierra Nevada Snowpack Retreat?

Research Area: Natural Science

Faculty Mentor(s): Dave Sutherland

Abstract:

Mountain snowpack acts as an important natural reservoir for much of California. In the Sierra Nevada mountain range, it builds primarily through snow, accumulated in winter storms. We measure the amount of water stored in a snowpack as the snow water equivalent (SWE), which is dependent on both the density of the snow and the thickness of snow. In recent years, the mean peak measurement of SWE in the Sierra Nevada has declined dramatically. Here, I demonstrate that decreased precipitation, in conjunction with greater surface temperatures, is the primary factor in the downtrend of snowpack in this mountain range. The accumulation of soot and dust also contributes to snowpack depletion (by reducing average albedo and increasing melt rates), but I predict that lesser precipitation correlates most strongly to the observed retreat of snowpack. This is evidenced by comparing available climate data with trends in peak annual SWE. Precipitation in a cold climate collects as snow, while precipitation in a warmer climate falls as rain and actually does more to melt snow. Therefore, the heavier and more infrequent precipitation predicted for the coming century will translate to less snow accumulated in the winter and more snow melted in the spring and summer. Snowpack provides a tremendous amount of water to California for agricultural, industrial, and recreational purposes, so future infrastructure development must prepare for snowpack depletion.

LAUREN SCOTT – POLITICAL SCIENCE

POSTER 183 Title: Placing the Burden: Obligations of Fast-Developing States to Adopt Climate Mitigation Policies

Research Area: Social Science

Faculty Mentor(s): Ronald Mitchell, Sarah Crown

Abstract:

As demonstrated by the U.S. withdrawal from the Paris Climate Accord, one of the most adversarial issues in international climate change politics is whether developed countries have the responsibility to assume the global burden of mitigating climate impacts. Without an authoritative body to enforce international law, negotiations have devolved into developing states demanding that developed states reduce their emissions first, whilst refusing to set limits on their own emissions. However, quickly developing states, like China, India, and Brazil, now diverge substantially from their developing peers in their emissions levels and their increasing capacity to lower them. Therefore, the international community must question when a developing country should assume responsibility for its emissions. A dissonance exists between prioritizing fast development and making an effort to mitigate driving factors of climate change. By temporally examining the policies and stances of these quickly developing states versus other developing and developed states involved in climate talks, it becomes increasingly clear that the international community lacks a consensus on a clear responsibility that these states should assume.

ALLY SHAW – ASIAN STUDIES, LINGUISTICS

POSTER 184 Title: Impacts of Climate Change on Indigenous Languages of the Arctic Region

Research Area: Environmental Studies

Faculty Mentor(s): Mark Carey

Abstract:

This study investigates the impacts of Arctic climate change on indigenous language sustainability. I argue that: climate change leads to a loss of biodiversity and ecosystem functions necessary to support human survival; reductions in ecosystem services can or may trigger community upheavals, human migrations, and cultural change; and community and cultural changes - most often for small, dispersed indigenous populations - lead to documented language changes that historically have included linguistic shifts, language attrition, and language loss. This investigation focuses primarily on North American and northern European Arctic regions, where climate change is affecting the predominant ecosystems at some of the fastest rates on the planet. I synthesize available scientific evidence from the fields of linguistics, climate science, wildlife studies, and anthropology to evaluate climate-induced language change in several indigenous, subsistence-based communities. Study

results suggest that anthropogenic climate change and consequent impacts to ecosystem services coincide with language change, and, therefore, that sustainability of one (i.e., language) must involve sustainability of the other (i.e., ecosystem functions) in order for indigenous communities to persist physically and culturally. Language is tied to cultural identity; when languages change, ways of interpreting the world also change, inter-generational communication pathways are challenged, and a vast abundance of cultural knowledge cannot be passed on to the next generations without a shared common vocabulary. It is vital, therefore, that language sustainability be considered when assessing climate-change prevention and mitigation strategies.

LAURALEI SINGSANK – POLITICAL SCIENCE, GENERAL MUSIC

POSTER 185 Title: Role of the Media in Micronesia’s Climate Change Activism

Research Area: Natural Science

Faculty Mentor(s): Mark Carey

Abstract:

Climate refugees are those who have been displaced from their homes for reasons relating to climate (floods, rising sea levels, etc.). This presentation focuses on climate refugees in Micronesia and their media presence. Micronesians have utilized the political atmospheres of other countries to further their causes. An important example is Kathy Jetnil-Kijiner, a Marshallese poet activist who presented a spoken poem to the 2014 United Nations Climate Summit. By utilizing her platform to increase empathy rather than using statistics or facts, Jetnil-Kijiner furthered her cause of raising awareness of climate change’s effects in Micronesia. The sources used in this presentation include scientific studies on climate change, scholarly articles addressing its effects in Micronesia, and media sources from Micronesian advocates. Videos by Jetnil-Kijiner and other activists will serve as primary sources. By examining how Micronesian citizens and those of Micronesian descent present their causes in the media, this presentation emphasizes the importance of increasing empathy to the effects of climate change alongside scientific facts. Audiences react more strongly to emotional pleas than scientific when presented by those suffering the effects of climate change. By appealing to audience’s pathos rather than logos, Micronesian climate activists raise awareness about their challenges with climate change.

CONRAD SPROUL – POLITICAL SCIENCE, ECONOMICS

POSTER POSTER 186 Title: Buying Time: A Survey of Geoengineering Techniques to Slow Mass Loss on the Antarctic Pine Island Glacier

Research Area: Natural Science

Faculty Mentor(s): Dave Sutherland

Abstract:

Geoengineering, or artificially modifying climate conditions, is the cutting edge of environmental science research. A range of techniques have been suggested, including the sequestration of carbon from the atmosphere, increasing Earth’s average albedo through solar radiation management (SRM) technologies, and the construction of large structures to halt or alter the path of flowing glaciers. However, these technologies are almost always examined in terms of their effects on the global climate, with only limited investigation of how smaller scale geoengineering could be used in specific, important areas. Here we examine several different potential geoengineering methods and their potential efficacy at abating mass loss from the Pine Island Glacier (PIG) in Western Antarctica. We show that due to the basal conditions of PIG, atmospheric and surface level SRM are unlikely to be effective at preventing further ablation and destabilization of the glacier. More promising would be some combination of basal freezing/pumping to reduce flow rate, artificial structures to increase stability, and a medium scale pumping operation to redirect remaining meltwater to inland Antarctica. As the single biggest contributor to Antarctic sea level rise, and an area at high risk for destabilization in the coming decades, it is crucial that research be done now on the Pine Island Glacier to determine what can be done to slow its ongoing mass loss. These results provide specific direction for more elaborate modelling and investigation to be done on these projects in the future.

CAMILLE SULLIVAN – BIOLOGY

POSTER 187 Title: Climate Change as the Catalyst for Decreasing Mental Health Among Circumpolar Indigenous Communities

Research Area: Social Science

Faculty Mentor(s): Mark Carey

Abstract:

While pedestrian climate change knowledge likely incorporates notions of global warming exacerbating physical health conditions, mental health often remains unnoticed. This indiscernibility remains coupled with the frequent disregard of indigenous circumpolar communities by legislators who affect climate change policies, which leads to drastically disproportionate rates of mental illness and suicide within these regions. Already lacking accessibility to various traditional mental health services, many indigenous people report utilizing the land as a coping mechanism for prevailing mental health issues. However, with this Arctic land remaining among the areas most irrevocably and severely affected by climate change,

feelings of sadness, frustration, and isolation emerge from the inability to comprehend a land that is now transforming in new ways after thousands of years of its identifiable patterns. Climate change spurs life-altering transformations culturally, socially, economically, and politically for many members of these communities, many of whom are unprepared to manage these startling and unjust fluctuations. Although mental health issues within indigenous Arctic communities have existed as long as the communities themselves, research on the issue was only recently popularized. These novel findings promote the urgency of incorporating indigenous perspectives into climate change legislation not only to address physical health, but also to support mental health.

MAYA TAGWERKER – PRE-BUSINESS ADMINISTRATION

POSTER 188 Title: The Thawing Permafrost: How Its Loss is Changing the Qinghai-Tibet Plateau

Research Area: Science

Faculty Mentor(s): Dave Sutherland

Abstract:

The world is changing around us. The change has been expertly linked to the detrimental effects of climate change. The cryosphere is the portion of the Earth with water in solid form. The understanding of the cryosphere has allowed for more in-depth discussion surrounding the implications of climate change on ecology, geology, and hydrology. Within the cryosphere lies the permafrost. The permafrost is the thick surface layer of soil that should generally remain frozen throughout the year. However, the permafrost, has been steadily melting at a rapid rate. Through research in peer-reviewed journal articles, I have come to understand the effects of a changing permafrost, the land, as well as the surrounding rivers and lakes, must to analyzed. The tremendous work provided in Geophysical Research Letters journal have shown that the thawing of permafrost caused by warmer temperature has increased groundwater contribution to annual flow. Therefore, my research question is how is the current degradation of the permafrost disrupting the hydrology of the surrounding ground surface in the Qinghai-Tibet Plateau? By understanding how the loss of permafrost not only affects the oceans, but our land and vegetation as well. The purpose of this is to have the public be more willing to learn about the dangers that will surround us if the permafrost were to completely disappear.

NATALIE TICHENOR – POLITICAL SCIENCE

POSTER POSTER 189 Title: Most Necessitous Strangers: Causes and Impact of Sea Level Rise

Research Area: Cryosphere

Faculty Mentor(s): Dave Sutherland

Abstract:

This project investigates the extent, causes, and impact of sea levels rising. More specifically, the project analyzes sea level rise in relation to regions that will be most devastated by sea level rise, looking at steps that could be taken in order to mitigate damages. It is clear that sea level rise is caused by two things: thermal expansion of sea water due to ocean warming and water mass input from land ice melt and land water reservoirs. Further, it is known that sea level does not rise uniformly due to currents, ocean temperature, and many other factors. The main questions I hope to answer in my research are: Which areas are predicted to be most gravely affected by sea level rise? And what sorts of steps could be taken to prevent the potential destruction of sea levels rising? The goal of this research is to create a scientific framing for understanding the increasingly prevalent issue of climate change refugees that, when applied, can either provide preventative measures for a more sustainable environment or at least offer solutions for how to handle the destruction.

CORINNE TOGIAI – BIOLOGY

POSTER POSTER 190 Title: The Effects of Climate Change and Sea Ice Within Inuit Populations in the Arctic Region

Research Area: Humanities and Natural Sciences.

Faculty Mentor(s): Mark Carey

Abstract:

Sea ice is used as a bright surface to reflect sunlight back into space to help maintain cool temperatures in polar regions and to moderate climate change. However, as sea ice melts, more sunlight penetrates the ocean surface causing the ocean to heat up and Arctic temperatures to rise. Therefore, the decline of sea ice is greatly affecting the Inuit Arctic population's livelihood such as hunting and transportation. The purpose of this study is to bring attention to the importance of sea ice within Inuit Arctic culture that is often neglected. Hence, preservation of Inuit Arctic culture and preventing climate through the lens of scientific raw data, indigenous Arctic knowledge via story-telling and qualitative observations, and political perspectives on how to address the effects of climate change, will help this indigenous population learn to adapt, and/or preserve their land and culture. Moreover, a collection of sources about sea ice in the Arctic region, Inuit Arctic culture, and issues/questions at a national and international level of what is currently in place to address the melting sea ice and climate change will be used to draw conclusions. Research has found an appearance in new species, and an increase in sea traffic resulting in Arctic Inuit

people to feel loss of control of their homeland as sea ice used to be their separation from the outside world. This research is significant because with global climate change contributing to a shift in sea levels and temperature, indigenous Arctic people are in danger.

TAYLOR WALKER – ENVIRONMENTAL STUDIES

POSTER POSTER 191 Title: Historical and Contemporary Relationships Between Environmental Organizations and Indigenous Peoples in Oregon

Research Area: Humanities

Faculty Mentor(s): Sarah Wald

Abstract:

There is a growing concern with the security of Earth's environment. Environmental organizations in Oregon argue that our responsibility as humans is to care for our ecological surroundings in a way that is largely based on how scientific research has determined the best way of doing so. Modern science explains many ways we can live sustainably, though there is still room to broaden and deepen our understanding of the Earth. The purpose of my research is to show how past and present relationships between environmental organizations and indigenous peoples in Oregon can help to create a more ecologically knowledgeable and engaging community. Online databases, course readings, and local institutions provided information necessary for me to understand correlations and any disconnects between the groups. Including indigenous relationships, experiences and knowledges in the ecological narrative enriches environmental organizations' functionality, ultimately influencing the mainstream perception of how to, and who can, interact with the environment. My goal is to construct a concise report that emphasizes the importance of indigenous representation in the ecological narrative.

NATALIE WEAVER – MATH

POSTER POSTER 192 Title: Do Arctic Sea Ice Extent and Permafrost Temperature Co-Vary?

Research Area: Natural Science

Faculty Mentor(s): Dave Sutherland

Abstract:

In recent years, many components of the cryosphere have experienced rapid decline as global temperatures continue to increase. My project will focus on two of these components: Arctic sea ice and permafrost in the Norwegian archipelago Svalbard. Using data from the National Snow and Ice Data Center and the NORPERM Permafrost Database, I will explore whether there is any correlation between Arctic sea ice extent and permafrost temperature at several locations in Svalbard. Finding a correlation, if it exists, is important because while sea ice can be measured easily by satellite, gathering data on permafrost is much more challenging. When permafrost thaws, it releases large amounts of methane into the atmosphere, which reinforces a feedback loop of global warming, endangering even more permafrost. If we can use sea ice cover as a proxy for permafrost health, we can become more aware of this global threat and take steps to prepare for its consequences.

ALEXANDER WINKLER – POLITICAL SCIENCE

POSTER POSTER 193 Title: Why Certain Countries that Are Part of the Environmental Integrity Group (Switzerland, Mexico, and South Korea).

Research Area: Climate Change

Faculty Mentor(s): Ronald Mitchell

Abstract:

My research question is 'Why certain countries that are part of the Environmental Integrity Group (Switzerland, Mexico, and South Korea), although spread across different parts of the world, are together and disagree with the other negotiation groups, specifically compared to more, developed countries that surround them.' This question is important to research because the countries in the Environmental Integrity Group make up for many different kinds of ecosystems, and are not the biggest producers of emissions on their continents. It is important to compare their beliefs to others to find common ground. I will research articles online to help bring me to a conclusion. I will examine individual CO₂ emissions per country and related data that is relevant. I expect to come to a conclusion that the countries associated with the Environmental Integrity Group believe what they do because their countries are factors of more industrialized countries emitting greater amounts of CO₂, and are trying to find ways to sustain their environments from their emissions and from neighboring countries.

NEIL YOTSUYA – ARCHITECTURE

POSTER POSTER 194 Title: Climate Change and Snow: How Pollutant Aerosols Impact Snow Grain and Albedo in Seasonal Snow Packs

Research Area: Physical Science

Faculty Mentor(s): Dave Sutherland

Abstract:

The ability for snow to reflect light, otherwise known as albedo, plays a key role in both local and global environmental conditions. Snow grain size and snow albedo have an inverse relationship; the larger that a snow grain is, the lower its albedo will tend to be. Environmental factors that impact grain size are many and factors such as solar zenith, aerosol pollutants, time, and extreme weather must all be accounted for when understanding why snow grain changes in size. Crystal metamorphosis, the process by which ground snow increases in grain size, is susceptible to aerosol pollutants. Black Carbon (BC), in particular, is one major pollutant that can increase the speed at which snow grain undergoes metamorphosis. The exact degree to which BC and other aerosols have altered snow albedo of seasonal snowpack near urban regions is still not fully understood. Data seems to show a strong correlation between pollutant level and grain size. However, the amount of pollutants has no direct correlation with albedo. A possible conclusion may be made that, while not directly impacting snowpack albedo, BC and other aerosol pollutants do impact grain size, thereby impacting snowpack albedo. Better understanding how exactly pollution and climate change has impacted snowpack albedo through grain metamorphosis can help us to better understand the exact impact that urban pollution has on local and global environmental factors.

TYLER YOUNG – ENVIRONMENTAL STUDIES

POSTER POSTER 195 Title: Navigating Ancient Waters; An Endeavor to Describe the Historical Relationships Between the Warm Springs Reservation, Mt Hood National Forest, and BARK Forest Protectors

Research Area: Humanities

Faculty Mentor(s): Sarah Wald, Paul Guernsey

Abstract:

Spreading from the Cascades to the Deschutes river, the Warm Springs, Wasco, and Paiute Native American tribes have been relocated by the U.S. Government to the Warm Springs reservation, a sovereign nation in itself which has a shaky relationship with the U.S. Government. My small team and I are researching the historical parallels, intricacies, and difficulties that exist between; The Warm Springs Reservation and its people, the Mt Hood National Forest which borders the reservation, and an organization by the name of BARK who has been a protector of the Mt Hood National Forest since 1993. These three entities have an intimate relationship with Mt. Hood and its surrounding area, and navigating those ancient waters has been challenging for the Forest Service, for BARK, and for the people of Warm Springs due to the diverse ideologies of these groups. We will be creating an introduction, and written history of these relationships for new BARK volunteers attempting to help protect the Forest. We will also be producing a short video for the BARK website which will highlight a few of these relationships. The tribe of Warm Springs, the Organization of BARK, and the U.S. Forest Service all have good intentions, but working together can sometimes be tricky, so we're here to help!

Undergraduate Research Symposium

2018 Presenters

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 Cahill Shpall
 Chelsea Sussman
 Drew Donahue
 Dylan Plummer
 Hailey Gilliland
 Kiana Seto
 Kyra Ortiz
 Ned Maynard
 Philip Hou
 Riley Olson
 Aaron LeFore
 Adeline Fecker
 Adrian Gordon
 Adrian Gutierrez
 Adriann C Bechtel
 Aida Goma Petit
 Aidan Grealish
 Aimee Herubin
 Alejandra Miranda
 Alejandro Cruz
 Alex Aguirre
 Alex Denton
 Alex Har
 Alex Winkler
 Alexander Lygo
 Alexander Miller
 Alison Hamilton
 Allison Dona
 Allison Ludden
 Allison Zhou
 Ally Shaw
 Allyson Alvarado
 Amelia Clapper Flynn
 Amelia Delgado
 Ammas Tanveer
 Amy Alfredson
 Ana Garibay Mares
 Andres Erasto Rosales
 Anisha Adke
 Anna O'Boyle
 Annabelle Lind
 Annalee G Nock
 Annalise Cameron
 Anne Peters
 Anson Dang
 Anyasha Aragon
 Ari Sepulveda
 Arianna Zarusinski
 Ariella Dahlin
 Arnaud Gonzalez
 Arunima Bhattacharjee
 Asha Rao
 Ashlee Vise
 Ashley Dresen
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 Audrey Harper
 Augustine Beard
 Avi Davis
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 Becca Marshall
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 Damian White Lightning
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 Daniel Hernandez
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 Daria Wonderlick
 Denae Brocksmith
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 Donye' Green
 Doug Sam
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 Dylan Carlini
 Dylan Martins
 Dylan Plummer
 Eamonn Needham
 Ege kinci
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 Elizabeth Baach
 Ellen R Scharff
 Ellie Jones
 Elmira Louie
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 Emily D Gordon
 Emily Myers
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 Emma Palen
 Emma Rasmussen
 Emma Silverman
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 Ethan Niyangoda
 Evelyn Meador
 Fiona Byrne
 Flannery Trexler
 Forest Kreuzt
 Fountane Chan
 Geena Littel
 Genevieve Dorrell
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 Gracie Williams
 Guy Jones
 Ha Eun Kim
 Haden Kingrey
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 Haley Nicholson
 Haley Segelke
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 Hannah Schandelmeier-Lynch
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 Haozhe Li
 Harrison Satterthwaite
 Helena Klein
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 Ingra Buys
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 Peace Kotamnives
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Undergraduate Research Symposium

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Alejandro Brambila
Alex De Verteuil
Alexander Dracobly
Alexander Murphy
Alfredo Burlando
Alice Barkan
Alicia DeLouize
Alison Gash
Alison Schmitke
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Amy Connolly
Ana-Maurine Lara
Anneliese Morrison
Annie Zemper
April Lightcap
Ariel Wightman
Arnaldo Carreira-Rosario
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Caitlin Fausey
Carrie McCurdy
Casey Shoop
Cathy Robinson
Cathy Wong
Charles Kimmel
Charlie Butler
Chelsea Jenkins
Chris Doe
Christina Holzapfel
CJ Pascoe
Colin Brand
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David Frank
David Johnson
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Devin Fitzpatrick
Diana Libuda
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Kryn Stankunas
Larry Ulibarri
Lauren Cycyk
Laurie deGonzalez
Lawrence Sugiyama
Leigh Johnson
Licia Maria Aldana Rogers
Li-Shan Chou
Lucas Nebert
Lucas Silva
Madonna Moss
Mai-Lin Cheng
Marc Vanscheeuwijck
Mariko Plescia
Mark Blaine
Mark Carey
Mark Reed
Matt Ely
Matt Smear
Matt Streisfeld
Matthew Napolitano
Matthew Norton
Matthew Polizzotto
Matthias Vogel
Melissa Baese-Berk
Melissa Graboyes
Melynda Casement
Michael Grose
Michael Hahn
Michael Haley
Michael Najjar
Michael Posner
Mike Hahn
Mike Harms
Molly Jud
Monica Zikpi
Muzi Li
Nagalingeswaran Kumarasamy
Nané Kochoian
Nash Unsworth
Natalia Fernandez
Natascha Reich
Nelson Ting
Nichole Kelly
Nick Macdonald
Nicole Kurhanewicz Codd
Nicole Paterson
Pascale Voelker
Patricia McDowell
Patrick Phillips
Peg Boulay
Pete von Hippel
Peter Alilunas

Peter Walker
Philip Romero
Priscilla Yamin
Rachel Allen
Raghu Parthasarathy
Raghuveer Parthasarathy
Ramesh Jasti
Ray Weldon
Richard Castenholz
Richard Emlet
Robert Chavez
Robert Keller
Robert Lipshitz
Ronald Mitchell
Ronald Mitchell
Samantha Hopkins
Samantha Shune
Sanjay Srivastava
Sara Brock
Sara Hodges
Sarah Horn
Sarah Stednitz
Sarah Wald
Schyler Reis
Scott Fitzpatrick
Scott Stewart
Shannon Boettcher
Shannon Mockli
Sharon Luk
Shawn Lampkins
Shengwei Lai
Shoshana Kerewsky
Sienna Howells
Sierra Dawson
Sonia Sen
Stacey Kiser
Stephanie De Anda
Stephanie Lani Teves
Stephanie Majewski
Stephen Fickas
Stephen Frost
Stephen Wooten
Steven Brence
Tasia Smith
Taylor Guthrie
Teresa Chen
Teresa Findley
Thomas Desvignes
Thomas Giachetti
Tim Cohen
Tim Williams
Tom McDonnell
Tristan Ursell
Tuong Vu
Vera Keller
Will Pitt
William Bradshaw
William Johnson
Win McLaughlin
Yukari Furikado-Koranda
Yvonne Braun

Undergraduate Research Symposium 2018 Presenter Statistics

The Undergraduate Research Symposium debuted in 2011 with 69 presenters and 40 faculty mentors spanning 20 majors and four colleges, and in its eighth year has grown to 382 presenters and 260 faculty mentors spanning 71 majors, 13 minors and eight colleges. Over the past eight years the Symposium has hosted nearly 1600 student presenters.

Total presentations:	310	Study abroad/international research projects:	8 (2%)
Total presenters:	382	Service learning projects:	2 (1%)
	(310 presenters and 72	Community based research projects:	3 (1%)
	co-presenters)	Poster presentations:	211 (68%)
Total faculty mentors:	260	Oral presentations:	89 (29%)
Total Majors:	71	Creative works presentations:	5 (1.5%)
Total Minors:	13	Academic Residential Community presentations:	5 (1.5%)
First-Year Students (0-44.99 credits):	49	Natural/Physical Sciences:	144 (46%)
Sophomores (45-89.99 credits):	15	Social Science projects:	123 (40%)
Juniors (90-134.99 credits):	45	Humanities projects:	37 (12%)
Seniors (≥135 credits):	201	Fine/performance arts projects:	4 (1%)
Multi-term projects:	196 (63%)	Design:	2 (1%)
Single-term projects:	101 (33%)		

Majors and Minors Represented:

All Colleges: 71 Majors, 13 Minors

College of Arts and Sciences

Environmental Studies: 62

Biology: 53

Human Physiology: 33

Environmental Science: 27

Political Science: 26

Psychology: 24

Mathematics: 20

International Studies: 19

Economics: 18

English: 16

Physics: 16

Spanish: 14

Marine Biology: 13

General Science: 12

Anthropology: 11

Biochemistry: 11

Biological Anthropology: 11

Chemistry: 10

Computer and Information Science: 9

Geological Sciences: 7

Sociology: 7

Earth Sciences: 6

History: 6

Geography: 5

Undeclared: 4

Women's, Gender, and Sexuality Studies: 4

Asian Studies: 3

Russian, East European and Eurasian

Studies: 3

Comparative Literature: 2

Spatial Data Science and Technology: 2

Theater Arts: 2

Anthropology: Archaeology: 1

Chinese: 1

Cinema Studies: 1

Classics: 1

Cultural Anthropology: 1

Ethnic Studies: 1

French: 1

General Social Science: 1

German: 1

Humanities: 1

Japanese: 1

Korean: 1

Linguistics: 1

Philosophy: 1

Pre-Chemical Engineering: 1

Food Studies: 8

Creative Writing: 5

Ethics: 5

Global Health: 5

Latin American Studies: 4

Middle East-North African Studies: 4

African Studies: 2

Arabic Studies: 2

Comics and Cartoon Studies: 2

Native American Studies: 2

Film Studies: 1

Robert D. Clark Honors College: 110

College of Education

Educational Foundations: 8

Family Human Services: 6

Communication Disorders and Sciences: 5

Pre-Family and Human Services: 3

Prevention Science: 3

Counseling Psychology: 2

Pre-Education: 1

Special Education: 3

College of Design

Architecture: 8

Planning Public Policy and Management: 3

Art: 2

Art & Technology: 1

Art History: 1

School of Music and Dance

Dance: 2

Music: 2

Music Education: 2

School of Journalism and Communication

Journalism: Advertising: 9

Journalism: 6

Journalism: Media Studies: 5

Journalism: Public Relations: 5

Pre-Journalism: 2

Lundquist College of Business

Pre-Business Administration: 3

Business Administration: 2

Accounting: 1

Business: 1

School of Law

Pre-Law: 1

Legal Studies: 5

Sponsored/Funded Research:

Adrienne Huxtable's Parker B. Francis Fellowship 1
Alden Scholar Research Award 3
American Physiological Society Undergraduate Summer Research Fellowship Program 1
Americorps Kupu Hawai'i 1
Apex 1
Carnegie Global Oregon Summer Research Grant 1
CAS Continuing Student Scholarship 1
Center for Asian and Pacific Studies 1
Clark Honors College Extraordinary Expenses Thesis Grant 4
Clinton Foundation 1
Community for Minorities in STEM (CMiS) Travel Award Scholarship 1
CURE Travel Grant 1
DAAD Research Internship for Science and Engineering (RISE) 1
DC Ducks Alumni Award 1
Dean's List 1
Department of Energy SULI Program 1
Dr. Bill Chang 1
Dr. Brian Druker 1
Dr. Jeff Tyner and Dr. Chelsea Jenkins 1
Dreyfus Undergraduate mentorships 1
Druker Laboratory 1
Edna English Trust for Archaeological Research 1
ESPRIT 1
Ford Family Foundation Scholarship 1
Friends Without A Boarder 1
General Chemistry Achievement Award 1
Global Education Oregon Ambassador Scholarship 1
Global Education Oregon Map Your Future Scholarship 1
Global Education Oregon Mills Scholarship 1
Global Oregon Undergraduate Award 1
Global Studies Institute 1
Global Studies Undergraduate Award 1
Gloria Tover Lee Scholarship in Art History 1
Howard Hughes Medical Institute (HHMI) 2
Humanities Undergraduate Research Fellowship (HURF) 6
Hutchison Lab 1
IMB Summer Scholarship Award 1
International Studies 1
Judy Fosdick Oliphant Scholarship in International Studies 1
Knight Campus Funding 1
Mercer Family Foundation Scholarship 1
META Grant 2
Ministry of Health in Mexico 1
National Geographic 1
National Institute of Diabetes and Digestive and Kidney Diseases 1
National Institutes of Health (NIH) 5
National Science Foundation (NSF) 1
National Science Foundation (NSF) Research Experience for Undergraduates (REU) 3
National Science Foundation grant CHE-1503550 1
National Science Foundation grant no. 1543012 1
National Science Foundation Iceberg Grant 1
NICHD Grant 2
NIH NIA Interagency Agreement 1
O'Day Fellowship in Biological Sciences and the Office of the Vice President for Research and Innovation 4
OHSU Knight Cancer Institute 1
ONR Grant N00014-15-1-2148 to the University of Oregon 1
Oregon Health and Science University (OHSU) 1
Oregon Undergraduate Researchers in SPUR (OURS) 5
OSEA Guy Davis Scholarship 1
Oxford Consortium for Human Rights Fellowship 1
Pacific Internship Programs for Exploring Sciences 1
Phil and Penny Knight Campus for Accelerating Scientific Impact 1
Presidential Undergraduate Research Scholars (PURS) 8
Robert and Catherine Miller Foundation 1
Ronald E. McNair Scholars Program 4
SAACS Summer Research Award 1
Sigma Tau Delta Study Abroad Scholarship 1
SIT Study Abroad Scholarship 1
SIT Study Pell Grant Match 1
SIT/ UO Scholarship 1
Society for the Psychological Study of Social Issues 1
Sue Grigsby Scholarship 1
Summer Program for Undergraduate Research (SPUR) 4
Tims Ellis Endowed Scholarship 1
Undergraduate Anthropology Award for Research 1
Undergraduate Research Opportunities Program (UROP) 18
Division of Undergraduate Studies 1
UnderGrEBES Research Award 1
University of Hawai'i at Hilo 1
University of Oregon 1
University of Oregon Bray Fellowship 1
University of Oregon Department of Earth Sciences: Walter Youngquist Fellowship, James C. Stovall Fellowship 1
University of Oregon Department of Mathematics Juilfs Scholarship 1
University of Oregon Presidential Scholarship 3
University of Oregon Summit Scholarship 5
University of Oregon's Environmental Studies Program 2
Vice President for Research and Innovation (VPRI) Undergraduate Fellowship 12
Wayne Morse Scholarship 2
William and Marjorie Shearon Memorial Scholarship 1
Women's, Gender and Sexuality Studies 2

