

# *Undergraduate Research Symposium*

2017 Event Program

SOCIAL SCIENCES

SCIENCES

ARTS

HUMANITIES



UNIVERSITY OF  
OREGON



# Undergraduate Research Symposium

**2017 Event Program**

*Celebrating  
undergraduate  
research,  
scholarship,  
and creativity*

# UNDERGRADUATE RESEARCH AWARDS 2017



## 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.

**For complete information, visit [library.uoregon.edu/ura](http://library.uoregon.edu/ura)**



UNIVERSITY OF  
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Oregon Undergraduate Research  
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Questions? [ourj@uoregon.edu](mailto:ourj@uoregon.edu)

May 18, 2017

## *High Impact Practices*

The 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, at the very growing edge, 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.

But 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 Research and Innovation.



LISA MYÖBUN FREINKEL  
VICE PROVOST AND DEAN, UNDERGRADUATE STUDIES

# Undergraduate Research Symposium 2017 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 2017 UO Undergraduate 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.

## **Pre-Med Research Poster Award**

The award recognizes a project in the life sciences with unique or innovative medical applications, or which advances the known frontiers of medical research. The award has a value of \$500 and may be used to cover fees and travel costs associated with the presentation of student work at disciplinary or national conferences or symposiums. The Center for Undergraduate Research and Engagement (CURE) will assist the awardee with identifying a conference and preparing their application and presentation.

**Sponsor:** Robert D. Clark Honors College

### **Eligibility and Conditions:**

- Open to students from the life sciences
- Must be accepted to and present at the 2017 UO Undergraduate Research Symposium
- Must install poster by 9:00 a.m. for judging

## **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:**

- Open to students from any biology or marine biology major working in any science lab
- Open to 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 2017 UO Undergraduate Research Symposium
- Must install poster by 9:00 a.m. 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 2017 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 install poster by 9:00 a.m. 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 2017 UO Undergraduate Research Symposium
- Must install poster by 9:00 a.m. for judging

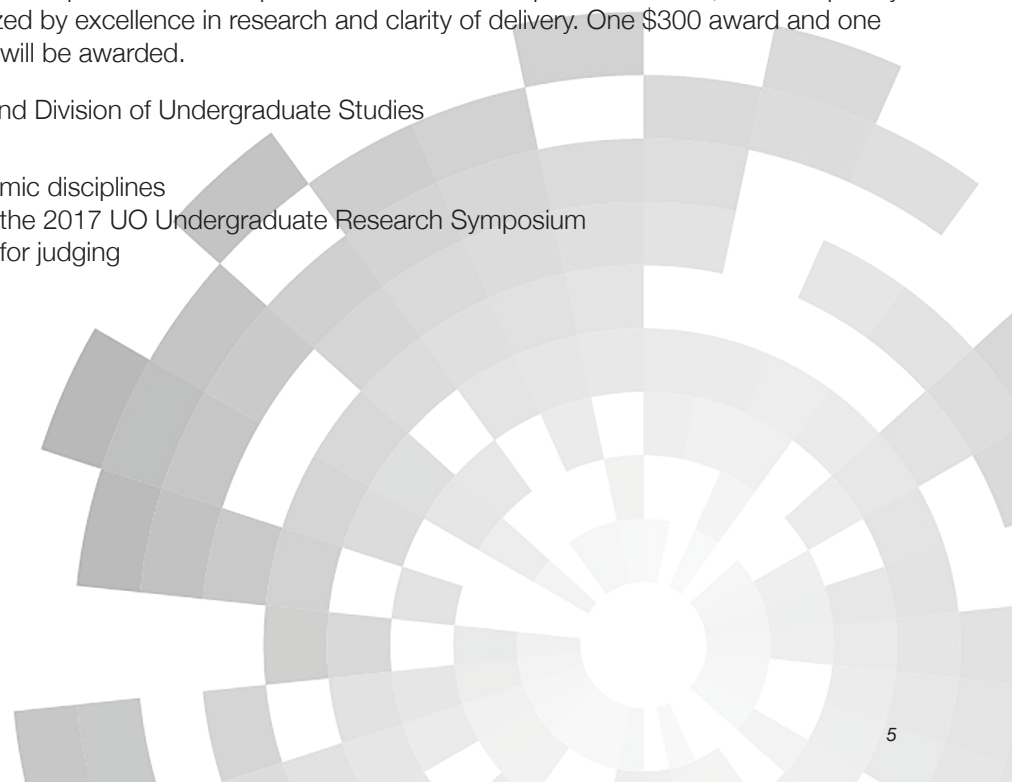
## Food Studies Award

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 2017 UO Undergraduate Research Symposium
- Must install poster by 9:00 a.m. for judging



# Undergraduate Research Symposium 2017 Agenda

Thursday, May 18, 2017

- 8:00 a.m.**                      **Registration/Check-in begins** (EMU Ballroom Lobby)
- 9:00 a.m.**                      **Poster/Creative work installation begins** (installation deadline for posters participating in award judging)
- 10:00 to 11:30 p.m.**        **Concurrent Session 1 Oral Presentations** (Maple, Oak, Swindells, Cedar, Spruce, Gumwood, Redwood)
- 11:00 to 5:00 p.m.**        **Presenter Video Interviews by Ward Biaggne** (Reservations only)—CMET Production Studio in Knight Library
- 12:00 to 1:30 p.m.**        **Concurrent Session 2 Oral Presentations** (Maple, Oak, Swindells, Cedar, Spruce, Gumwood, Redwood)
- 1:45 to 3:15 p.m.**        **Concurrent Session 3 Oral Presentations** (Maple, Oak, Swindells, Cedar, Spruce, Gumwood, Redwood)
- 3:30 to 5:00 p.m.**        **Concurrent Session 4 Creative Works** (Maple, Oak, Swindells, Cedar, Spruce, Redwood);
- 3:30 to 5:00 p.m.**        **Panel Discussion: Lane Community College—University of Oregon Undergraduate Research and Transfer Students** (Spruce)
- 4:30 p.m.**                      **Registration/Check-in Closes**
- 5:00 to 7:00 p.m.**        **Catered Buffet Reception** (EMU Ballroom Lobby)
- 5:05 p.m.**                      Welcome from Undergraduate Research Symposium Co-Chairs **Kevin Hatfield** and **Josh Snodgrass**; and Remarks from **Lisa Freinke**, Vice Provost and Dean of Undergraduate Studies; **Andrew Nelson**, Associate Professor of Management, Lundquist College of Business; and **Benjamin Aleman**, Assistant Professor of Physics
- 5:15 to 7:00 p.m.**        **Poster Session** (EMU Ballroom) and **Academic Residential Community and FIG Sessions** (Maple, Oak, Spruce)
- 7:00**                              **Announcement of Award Winners and Presenter Group Portrait**
- 7:10**                              **Symposium Concludes**

# Undergraduate Research Symposium 2017 Acknowledgments

**Thursday, May 18, 2017**

## **Sponsors**

Division of Undergraduate Studies (Lisa Freinkel)  
University Housing (Michael Griffel)  
UO Robert D. Clark Honors College (Terry Hunt)  
Office of the Vice President for Research and Innovation (David Conover)

## **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  
Karl Reasoner, Program Manager, Undergraduate Research Opportunity Program, Research and Innovation  
Hannah Bishop, Postdoctoral Research Scholar, Department of Neuroscience  
Barbara Jenkins, Coordinator, Outreach and Special Projects, UO Libraries  
Rachel Bash, PathwayOregon Advisor  
EnJolí Alexander, Residence Life Coordinator, University Housing  
Mary Popish, Student Experience Coordinator, Clark Honors College  
Emily Chinn, Clark Honors College and Student Life Liaison (student)  
Grieta King, Undergraduate Research Symposium Assistant (student)  
Mandi Severson, Associate Students of Undergraduate Research (ASUR) (student)

## **Undergraduate Research Symposium Faculty Abstract Review Committee**

Tatiana Bryant, Digital Projects and Engagement Librarian  
Aurelie Clement, Research Associate, Institute of Neuroscience  
Anna Coleman-Hulbert, Research Assistant, Phillips Lab  
Laura Eidam, Class Encore and Undergraduate Support Program Coordinator  
Lacey Guest, MA Student, Department of History  
Jen-Jen Hwang-Shum, Research Associate, Zebrafish International Resource Center  
James Imamura, Professor, Department of Physics  
Jonathan Lavoie, Postdoctoral Research Scholar, Oregon Center for Optical, Molecular, and Quantum Science  
Hillary Maxson, Doctoral Student, Department of History  
Julie Mueller, Faculty Consultant, Teaching Engagement Program  
Hye Ryoung Ok, Adjunct Instructor, School of Journalism and Communication  
Carlissa Salant, MS Student, Oregon Institute of Marine Biology  
Subik Shrestha, Doctoral Student, Architecture  
Genifer Snipes, Social Sciences/Business and Economics Librarian, UO Libraries



# Undergraduate Research Symposium 2017 Acknowledgments *(continued)*

**Thursday, May 18, 2017**

## **Key Collaborators**

Ward Biaggne, UO Libraries (Presenter Video Interviews)  
Lynette Boone, UO Libraries (Oral Panel Filming)  
Amanda Garcia, UO Libraries (Photography)  
David Goodman, UO Marketing and Communications (Graphic Design)  
Trond Jacobsen, Clark Honors College (Public Speaking/Oral Presentation Workshops)  
Lesli Larson, UO Libraries (Photography)  
Rebecca Mellnik, Scheduling Coordinator, EMU (Venue Planning)  
Michaela Hager, Stage Production Coordinator, EMU (Venue Planning)

## **Panel Moderators**

EnJolí Alexander, Residence Life Coordinator, University Housing  
Mayra Bottaro, Assistant Professor, Spanish  
Ed Chang, Visiting Assistant Professor, Women's and Gender Studies  
nedzer erilus, Residence Life Coordinator, University Housing  
Heghine Hakobyan, Slavic Librarian UO Libraries  
Jen-Jen Hwang-Shum, Research Associate, Zebrafish International Resource Center  
Jonathan Lavoie, Postdoctoral Research Scholar, Oregon Center for Optical, Molecular, and Quantum Science  
Jennifer O'Neal, University Historian and Archivist  
Paul Peppis, Professor, English; Director of Oregon Humanities Center  
Michael Peixoto, Instructor, Clark Honors College  
Anna Schmidt-MacKenzie, Director of Residence Life and Educational Initiatives  
Subik Shrestha, Doctoral Student, Architecture  
Dave Soper, Professor, Physics  
Eric Torrence, Professor, Physics  
Kristin Yarris, Assistant Professor, International Studies  
Fehmi Yasin, Graduate Student, Physics  
Naomi Zack, Professor, Philosophy

# Undergraduate Research Symposium Oral Presentations, Creative Works, and ARCs/FIGs Sessions Schedule

Thursday, May 18, 2017

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

### 1. Survival and/of the Fittest: Fatigue, Stress, Mutation, and Potential—Maple Room: Session 1a

<b>Colin Lipps</b>	The Effect of a Fatiguing Run on Hip Abductor Strength and Runner Mechanics
<b>Sally Claridge</b>	Genomic Analysis of Chronic Heat Stress Resistance in the nematode <i>Caenorhabditis remanei</i>
<b>Lila Kaye</b>	Determining the Fitness Advantage Conferred by Anti-inflammatory Gene Expression to Commensal Bacteria
<b>Mandi Severson</b>	Characterizing HoxB Gene Expression in DE-b4u-ENE RARE Mutants
<b>Nathan Bigot</b>	Muscle Cell Regenerative Potential Following Amino Acid Supplementation in Total Knee Arthroplasty Patients

### 2. Speaking in Tongues: Accents, Variations, and Interpretations—Oak Room: Session 1b

<b>Anna Robinson</b>	Effect of Melodic Accent on Perceived Rhythm in Songs
<b>Drew McLaughlin</b>	Individual Variation in the Perception of Different Types of Speech Degradation
<b>Ally Shaw</b>	A Linguistic Anthropological Study of Ggotbatchim “Flower Sepal” in South Korea

### 3. Women’s and Feminist Stories, Histories, and Legacies—Swindells Room: Session 1c

<b>Tate James</b>	A Feminist Analysis of Puella Magi Madoka Magica and its Narrative Treatment of Female Purity and Agency
<b>Cali Hodge</b>	Our Miss Brooks: Leaving a Legacy of Female Teachers in Radio, Television, and Film
<b>Delaney Swink</b>	Social Change in Morocco: Islamic Feminism and Women’s Right to Education
<b>Virginia LaGrow</b>	The Guiding Hand of Saint Boniface
<b>Wesley Bryant</b>	Emotional Labor of Our Gendered First Responders
<b>Yimeng He</b>	The Orient is No Longer an Unknown World: Confusion and Fear in Aubrey Beardsley’s “The Peacock Skirt”

### 4. Patriot, Protester, Spectacle: Representations of Blackness in the United States—Cedar Room: Session 1d

<b>Matthew Kim</b>	Ali Revived?: Colin Kaepernick and Traditions of Black Anti-Militarism
<b>Tristen Bellows</b>	The Tar Heeled Patriot: Black Americans in North Carolina 1916–1920
<b>Sophie Albanis</b>	O.J., Revised and Revisited: Racial Ideology in Contemporary Representations of the Simpson Murder Trial
<b>Aleiya Evison</b>	Design Thinking and Social Change: Creativity as Strategy in Anti-Racist Community Organizing

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## 5. Jorge Luis Borges and his Poetics of Rewriting—Spruce Room: Session 1e

<b>Lillian Loftin</b>	Transculturation as Rewriting in “The gospel according to St. Marc”
<b>Keira Meyer</b>	Translation/Tradition/Betrayal as Rewriting in “The gospel according to St. Marc”
<b>Ana Osorio</b>	Intertextuality as Rewriting in Borges’ “The Gospel According to St. Marc” Biblical References

## 6. Native American Studies and Decolonizing Research—Gumwood Room: Session 1f

<b>Bryce Sprauer</b>	Indian Sovereignty and Rights: The Northern Paiute and the Malheur Judgement Fund and The 1965 Indian Claims Commission
<b>Ayantu Israel-Megerssa</b>	The Other in Their Own Land: Internal Orientalism, Genocide, and the Northern Paiute of the Oregon Great Basin
<b>Helena Klein</b>	The Return to Oregon: The Northern Paiute Exodus from the Yakama Reservation and Reception by Agent Smith at Warm Springs 1880–84
<b>Becca Marshall</b>	History of the Northern Paiute’s Food Sovereignty and Cultural Food Security
<b>Angela Rothman</b>	Well-Intentioned but Ineffective: A Legislative History of the California Native American Graves Protection and Repatriation Act of 2001
<b>Sam McGee</b>	Homeland vs. New Land: The Northern Paiute’s battle for place in the Great Basin
<b>Elizabeth Dyea</b>	Finding Home: Creating Our Own Boundaries

## 7. Oregon Undergraduate Research Journal: Ongoing Issues of Representation: Stereotypes and the Practice of Research—Redwood: Session 1g

<b>Sandra Dorning</b>	Oregon Undergraduate Research Journal
<b>Paulla Santos</b>	Sexuality, Gender, and US Imperialism after Philippine Independence: An Examination of Gender and Sexual Stereotypes of Pilipina Entertainment Workers and US Servicemen
<b>Theodore J. LaGrow</b>	Do You Know Where Your Research Is Being Used? An Exploration of Scientific Literature using Natural Language Processing
<b>Seth Temple</b>	Bean as Our Future: How Ender’s Shadow Disputes the 1997 Backlash Against Human Cloning

## Concurrent Oral Session 2 — 12:00–1:30 p.m.

### 1. Global Health & Development: Contemporary Issues, Student Perspectives—Maple Room: Session 2a

<b>Scout Galash</b>	Water: A Social Determinant of Global Health
<b>Anne Peters</b>	The Global Gag Rule: Implications for Global Reproductive Health
<b>Tina Wang</b>	Racial Disparities in HIV/AIDS Care and Treatment in the United States
<b>Melinda Meyer</b>	Moroccan Health System
<b>Eleanor Franks</b>	Syrian Refugee Health in Jordan and Turkey

### 2. How We Perceive, How We Learn: An Interdisciplinary Approach—Oak Room: Session 2b

<b>Chris Ableidinger</b>	Persuasion Mockery—Consumer Recall of Self-Aware Advertisements
<b>Kyrie’ Rau</b>	The Coping Strategies of USMC Spouses
<b>Vinitha Gadiraju</b>	Happy, Upbeat Musical Moments in Infants’ Everyday Lives
<b>William Komoda</b>	Shifting Perceptions and Outcomes in Public Education for Neurodiversity

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- Katie Kinney** Multiple Perspectives on Formulation of Intelligence: How implementing Gardner’s Multiple Intelligence theory and Einstein’s thinking into curriculum can provide an abundance of variety on learning about and from the world
- Hope Zima** Designing Curriculum for Failure—A Risk Worth Taking?

**3. Thinking Globally: New Approaches, Social Implications, and “Asparagus Justice”—Swindells Room: Session 2c**

- Elizabeth Bezark** Fuel-Efficient Cookstove Projects in Senegal: A Changing Paradigm for International Community Development Activities
- Carolina Arredondo Sanchez Lira** New Approach to Drug Policy in México
- Josie Kinney** Asparagus Justice: A Case Study of the Peruvian Asparagus Industry and Its Social Implications
- Michael McIntosh** Analysis of the Economic Impacts of Immigration in the United States
- Anna Sablan** Saipan, Marianas Province: A Brief, Chronological Record of History Relating to the United States Territory Island, from the Beginning of Its Inhabitation Up to the Present Year, 2017
- Hannah Steinkopf-Frank** La Sape: Tracing the History and Future of the Congos’ Well-Dressed Men

**4. Of Bees and Men: Pursuing Questions of Climate, Restoration, and Ecology—Cedar Room: Session 2d**

- Jacob Jansen** Perspectives in Honeybee Production: A Gozo Case Study
- Daniel Baldwin** Qualitative Assessment of Success Metrics of River Restoration Projects in the Pacific Northwest
- Annelise Rue-Johns** Climate Impacts Germination Frequency and Rate of Prairie Forbs in the Pacific Northwest
- Sabina Hagen-Botbol** Moss Diversity and Water Retention with Altitude in Neotropical Cloud Forest

**5. Making Connections, Understanding Choices: Issues and Opportunities Facing Today’s Students and Young Adults—Spruce Room: Session 2e**

- Michelle Schaefer** Networking 100 Challenge: An Entrepreneurial Approach to Student Educational and Career Exploration
- Grace Hanich** Recycling American Pop Culture: Memes as Transmission and Expression in Online Communities
- Kiara Kashuba** Textbooks or Groceries: Exploring the Prevalence, Correlates, and Consequences of Food Access among University of Oregon Students
- Julia Mueller** Adapting Literature for Young Audiences

**6. Humanities Undergraduate Research Fellowship: Truth, Experimentation, and Spectacle: An Interdisciplinary Approach – Gumwood Room: Session 2f**

- Drew McLaughlin** The Role of the Listener in Nonnative Speech Perception Research
- Eugenia Lollini** “Before the Spectacle: Shaping Gender and Class in Beirut’s Beauty Salons”
- Keegan Williams-Thomas** Cinematic Adaptations of Modernist Texts: Formal Re-experimentation in the Mid-20th Century
- Francesca Fontana** Seeking Truth through Investigative Memoir

<b>Bryce Sprauer</b>	Current Cuban Migration: Manifestations of Political Privilege and Economic Violence
<b>Iago Bojczuk</b>	Using the Social Media Potential in Post-Impeachment Brazil: Youth Action in Fostering Participatory Politics through Digital Memes

**7. Stories of Yesterday and Visions of Tomorrow in the Field of Literary Studies—Redwood Room: Session 2g**

<b>Maxfield Lydum</b>	Reading Niels Lyhne in the Anthropocene
<b>Erica Heim</b>	The Historical Culture of Romantic Literature and Modern Artworks
<b>Brandon Schmidt</b>	Liminality of Yokai
<b>Basil Price</b>	“I Had to be Somewhere”: The Outlaw’s Failed Quest for Home in Grettir’s Saga
<b>Ross Lench</b>	Comedy, Chaos, and the New Norm in a Post-Network Era: The Tale of Norm Macdonald Live

**Concurrent Oral Session 3 — 1:45–3:15 p.m.**

**1. From Particles to Galaxies: Research in Chemistry, Physics, and Computer Science—Maple Room 3a**

<b>Elliot Parrish</b>	Measuring the Energy Response of Clustering Algorithms in the ATLAS Detector
<b>Michael Womack</b>	Calculating Non-Kernness of Two Black Holes
<b>Elizabeth Olson</b>	Multi-Objective Optimizaton of Electrostatic Lenses
<b>Trace Andreason</b>	Detecting and Characterizing Internet Background Radiation on UONet
<b>Charity Woodrum</b>	Evolution in Solitude: Field Galaxies from Half the Age of the Universe to the Present
<b>Lindsey Oberhelman</b>	Commissioning the Robbins for Undergraduate Research

**2. Environmental Education and Environmental Leadership Program—Gumwood Room: Session 3b**

<b>Chelsea Ingram</b>	School Garden Team: Cultivating Connections: Developing After-School Curriculum for School Gardens Co Presenters: Bianca Flynn, Kaelin Oppedal, Emily Jenkins, Justin Knowles, Abbey Leonardi, Trisha Maxfield
<b>Selena Blick</b>	Re-storying Connections: Developing Place-Based Environmental Education Co Presenters: Nicole Ferer, Josiah Hamovitz, Ryan Mitchell, Adrian Swain
<b>Augustine Beard</b>	The Phenological Response of Native Grasses and Forbs to Climate Change Co-Presenters: Adrienne Bowles, Alena Hartmann, Kylea Garces, Emily Roque, Samantha Hoffman
<b>Sarah Hovet</b>	Countering Nature Deficit Disorder in Eugene Middle Schoolers: Sense of Place at HJ Andrews Old-Growth Forest

**3. Thinking “Green”: Seeing, Imagining, and Interpreting Environmental Studies—Swindells Room: Session 3c**

<b>Makenna Pennel</b>	Environmental Literature through the Eyes of a Chemistry Student
<b>Kathryn Nock</b>	Re-Examining the Scientific Revolution: The Advantages of Analyzing the History of Science within Contemporary Environmental Discourse
<b>Augustine Beard</b>	Reclamation and Imagined Social Changes in Eastern Oregon, 1902–1925

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#### 4. Pieces of the Whole: Ecology, Evolution and Design—Cedar Room: Session 3d

- Lindsay Rasmussen** Accounting for Embodied Carbon in High Performance Design
- Austin Robinette** Spindle-like Microfossils from the 3.0 Ga Farrel Quartzite of Western Australia
- David Lee** Leafcutter Ants inside the Nest Have Sharper Mandibles than Ants Outside the Nest
- Christina Trang** Fundamental Characterization of Mixed-Metal Oxygen Evolution Electrocatalysts
- Sandra Dorning** The Invasion Ecology and Biodemography of *Botrylloides violaceus* in the Coos Estuary

#### 5. The Way Things Were: Resources, Customs and Cultures in the Medieval and Early Modern Periods—Spruce Room: Session 3e

- Chaney Hart** Resource Management in Medieval France
- Blake Holcomb** Assimilation of Western Customs by Byzantines Prior to 1204
- Anton Khokhryakov** An Alternative Perspective on the Benefit of Notaries in Medieval Europe
- Nelson Perez Catalan** Jesuits Missions in Chile, From Religious Conversion to Cultural Salvation

#### 6. Interpreting the Inner “I,” Limiting the Eagle Eye: Philosophical Considerations—Oak Room: Session 3f

- Ghoncheh Azadeh** Shifts in Embodied Meaning: A Look into Depression
- Robert Stanton** Privacy Standard for the Internet of Things
- Tucker Engle** Hans-Georg Gadamer’s Insights on Historical Consciousness Applied to Interpreting the First Person Narrator

#### 7. Rewriting Curriculum, Reimagining the World: New Approaches to Educational Design—Redwood Room: Session 3g

- Caroline Ludlow** The Implication of Heteronormativity in Sex Education
- Amanda Hill** The Hidden Curriculum of Rape Culture: How Schools are Perpetuating a Culture of Sexual Assault with Lacking Sex Education and Discriminatory Dress Codes
- Julia Mauro** The Importance of and Methodology of Teaching and Representing Adoptive Families in Education Curriculum
- Jacqueline Ignacio** Neoliberal Multiculturalism in Elementary School Hidden Curriculum
- McKenna O’Dougherty** Queer Pedagogy and Potential for Sexual Violence Prevention Education in the High School Sexual Health Classroom

### Creative Works Session 4 — 3:30-5:00 p.m.

#### 1. Steeped in Sri Lanka: A Multimedia Exploration—Maple Room: Session 4a

**Kyle Hentschel and Srushti Kamat**

#### 2. Understanding the Creative Aspect of Music—Oak Room: Session 4b

**Logan McClain**

#### 3. Sound Manipulation Techniques and “Meditations on Bilateral Consequences”—Swindells Room: Session 4c

**Nikolai Valov**

#### 4. Piano Performances—EMU Ballroom: Session 4d

**Nicholas Pietromonaco** The Music in the Poetry of a Drunk

**Justin Graff** Understanding Motive: Thematic Development in Art Music

**Pedram Diba** Blending of Two Cultures through Music

*continued next page*

**1. Our Bodies, Our Country, Our World: Freshman Interest Group—Maple Room: Session 5a**

**Kezia Setawan, Mya Clover-Owens, Kaitlyn McCafferty, Cullen Sharp, Alisha Martin**

**Julie Voelker-Morris (Faculty Mentor)**

**2. The History of Black Resistance from Phillis Wheatley to Martin Luther King: Their Contributions and Our Questions: Umoja Pan-African Scholars Academic Residential Community—Oak Room: Session 5b**

**Mykia Hernandez-Taylor, Justice Lawrence, Silas Lobnibe, Lekhoury Smith, Uba Uba,  
Anayla Warren-Prem Singh, Charlie Landeros**

**Naomi Zack and Kendaris Hill (Faculty Mentors)**

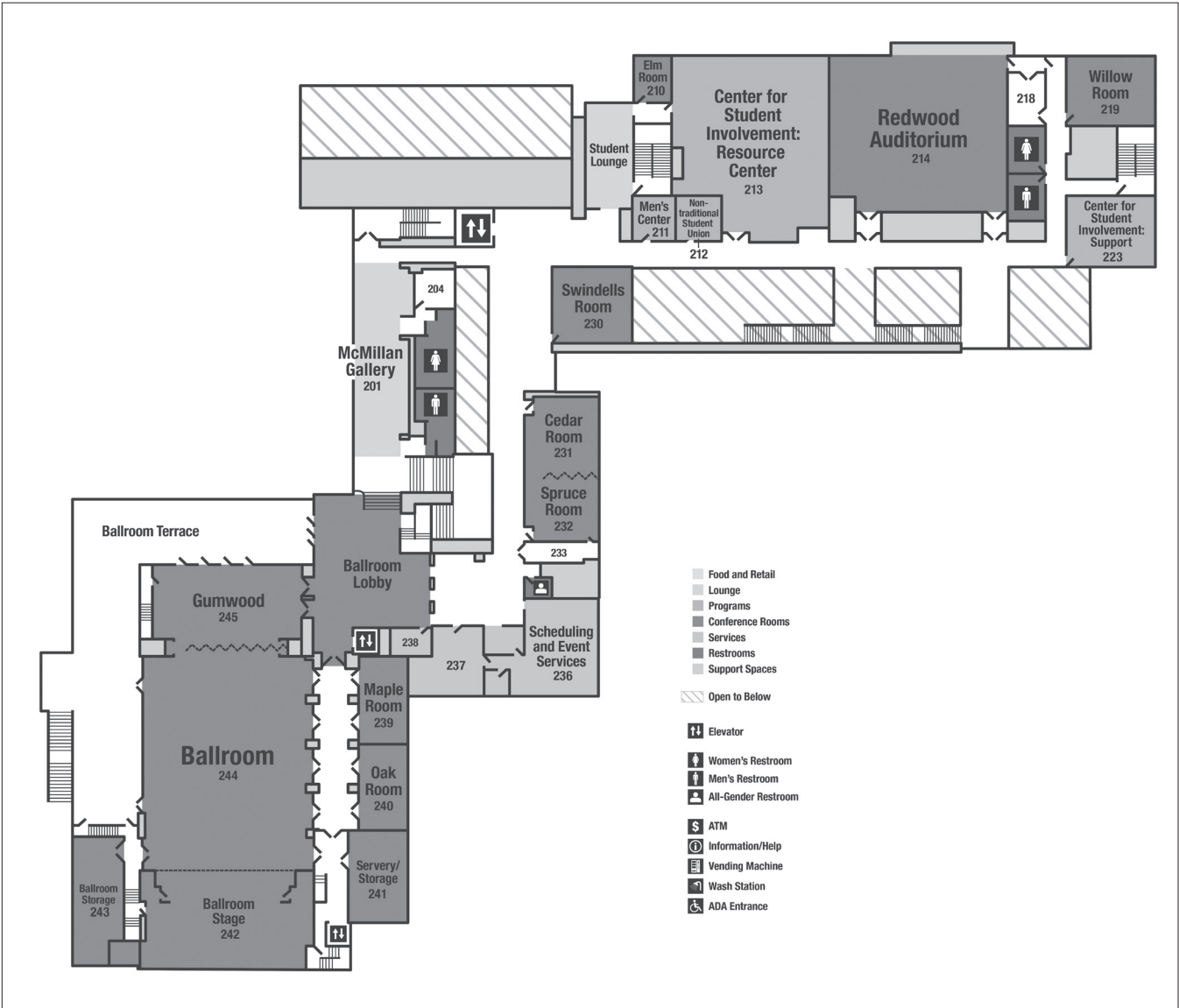
**3. Project Pronoun: The LGBTQIA+ Scholars Academic Residential Community Year-Long Colloquium Project—  
Spruce Room: Session 5c**

**Josie Fields, Danny Jenkins, Charlie Keene, Haleigh Patten-Trujillo, Rachel Peri, Mathieu Wilson**

**Ed Chang (Faculty Mentor)**

# Undergraduate Research Symposium 2017 Venue Maps—Erb Memorial Union

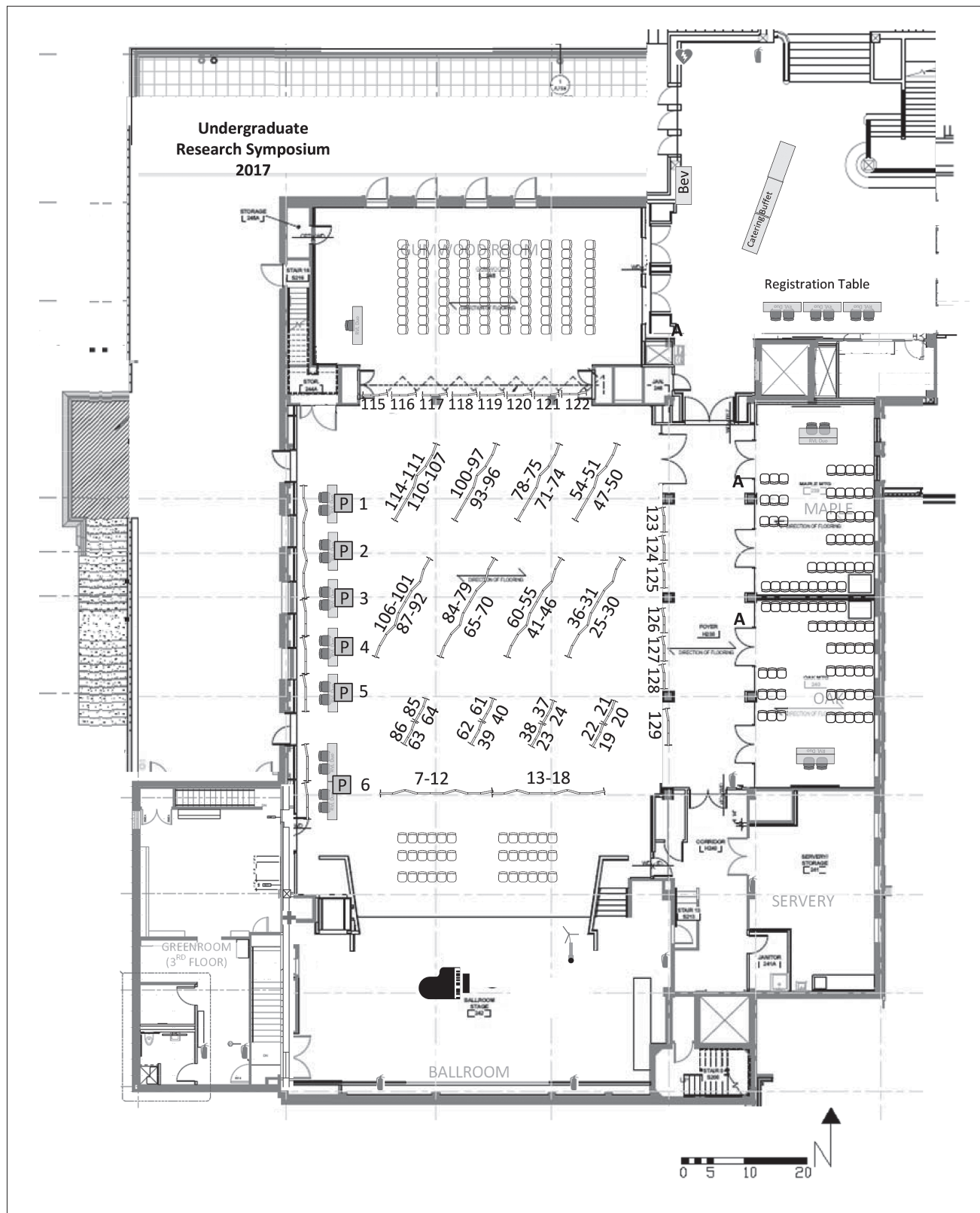
Thursday, May 18, 2017





# Undergraduate Research Symposium 2017 Venue Maps—EMU Ballroom

Thursday, May 18, 2017



# Undergraduate Research Symposium Presentation Abstracts

**Thursday, May 18, 2017**

**CHRIS ABLEIDINGER**

**ACCOUNTING, JOURNALSIM**

**ORAL SESSION 2B Title: Persuasion Mockery—Consumer Recall of Self-Aware Advertisements**

**Research Area: Social Science**

**Faculty Mentor: Kim Sheehan**

**Funding: UROP—Mini-Grant**

**Abstract:**

Advertising gets a bad rap. People don't like advertisements. We mute the television, avoid solicitors, and even download browser extensions to eliminate ads as if they weren't even there. Yet advertising exists everywhere; it is estimated that in the United States alone over \$187 billion was spent on ads in 2015. Amidst all of this competition, how can these advertisers expect to successfully persuade us? Perhaps by recognizing and making light of the inundation of persuasion attempts, advertisers can elicit more favorable consumer responses from their own attempts. This Thesis Prospectus will outline plans to investigate elements within advertisements that transparently mock and satirize conventional persuasion attempts; what I call persuasion mockery. While this phenomenon is well documented amidst pop culture media—described as 'meta advertising' or 'self-referencing'—very little research has been done to suggest why agencies continue to pursue this strategy. This project will therefore explore to what extent persuasion mockery within advertisements can increase the ability of the consumer to successfully recall the brand advertised. Results in favor of this hypothesis could suggest that consumer's favor more transparent communication between brands and their consumers. Positive and lasting reactions to elements of self-deprecation and corporate transparency may help to evolve advertising discourse and improve the consumer's everyday experience with ubiquitous advertising.

**ANISHA ADKE**

**BIOLOGY**

**POSTER 5 Title: The Genetic Basis of the First Connections of the Brain**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Adam Miller**

**Abstract:**

There are an estimated 100 billion neurons in the human brain, equal to the number of stars in our galaxy. These neurons are connected at specialized junctions called synapses, one type of which is electrical. Gap junction channels connect neurons at electrical synapses, allowing small molecules to pass between cells. Initial synapse formation is determined by the genetic code, which instructs where, when, and how neurons wire together to create circuits. Genetic defects believed to alter normal circuit wiring have been linked to neurodevelopmental disorders such as autism and schizophrenia, but the exact circuits and molecular mechanisms affected remain unclear. Critical to normal circuit wiring is the formation of the first synapses between neurons, as these 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 and drive the continued development of the networks. This project aims to identify the genes required for the first synapses and investigate their roles from a genetic, neural circuit, and behavioral standpoint. We examined the first spinal cord circuits that wire together in zebrafish. These neural networks provide advantages to studying synapse formation because they wire together within 24 hours post fertilization via electrical synapses, are visualizable at the levels of neurons, circuit function, and behavior, and are genetically accessible. With this approach, we can identify the genes responsible for the first synapses formed in the brain and examine how these synapses impact early circuit wiring.

**SOPHIE ALBANIS**  
**WOMEN'S AND GENDER STUDIES**  
**ORAL SESSION 1D Title: O.J., Revised and Revisited: Racial Ideology in Contemporary Representations of the Simpson Murder Trial**  
**Research Area: Social Science**  
**Faculty Mentor: Sharon Luk**

**Abstract:**

This project explores the restructuring and revision of racial ideologies in the United States as a result of the O.J. Simpson trial. Unlike most of the existing literature on the Simpson trial, however, this project is situated firmly in the modern day. Rather than utilizing court transcripts and police reports as research tools, this paper employs the FX television series, *The People v. O.J. Simpson: American Crime Story* and the ESPN documentary, *O.J.: Made in America*, both released in 2016, as the primary objects of study. In analyzing these very recent cultural productions, the central questions of this project are, "Why O.J., and why now?" In this project, I argue that the recent resurgence of interest in the Simpson trial is no coincidence, but in fact has to do with the current state of American society, from the Obama presidency to the Black Lives Matter movement. To what extent, my project asks, does the renewed fascination with O.J. Simpson have to do with history repeating itself? My research investigates how and why the Simpson trial still provokes us, over twenty years later, to confront issues of race in the United States. Thus, in asking, "Why O.J., why now?" this project aims to uncover the crux of contemporary U.S. racial ideology. In essence, the FX and ESPN portrayals of the O.J. Simpson trial reveal that Simpson's is not merely a captivating tale of celebrity and crime, but a paradigm of racial ideology's responsiveness to—and influence over—sociopolitical and pop-cultural change.

**STEFANI ALEMAN**  
**PSYCHOLOGY, BIOLOGY**  
**POSTER 7 Title: Extracting Abstract Knowledge from Specific Experiences: Spontaneous Category-Learning from Paired-Associates Training**  
**Research Area: Social Science**  
**Faculty Mentor: Dagmar Zeithamova**

**Abstract:**

The ability to find similarities across multiple experiences allows us to link related information and form category representations. While category learning in the laboratory typically involves explicit labeling as to which items belong in which category, naturalistic category learning is often much less direct. In this study we tested whether individuals formed categories spontaneously, even when instructed to remember specific items with their specific context. Further, we sought to understand whether the formed category representations were abstract in nature or instead driven by memory for specific exemplars. Participants were first shown cartoon stimuli paired with distinct habitats and asked to remember the specific cartoon-habitat association. Unbeknownst to participants, cartoons that lived in similar environments also shared features in a systematic way. Following training, we tested participants' memory for cartoon-habitat associations as well as their ability to judge the habitat for cartoons they had not yet seen. In addition to successfully remembering specific animal-habitat associations, participants were able to successfully place never-seen animals into the correct habitat type at above-chance rates, indicating that they had detected the pattern in the features without being told to do so. Further, about half of participants relied on abstract category representations while the other half extracted the category directly from individual category exemplars. The participants' ability to spontaneously form abstract category representations without explicit demand is analogous to how we may form categories in the real world.

**PERLA ALVAREZ LUCIO**  
**ETHNIC STUDIES**  
**POSTER 6 Title: Indigenous Danza in Mexico and the United States**  
**Co-Presenters: Abel Cerros, Romario Garcia Bautista**  
**Research Area: Social Science**  
**Faculty Mentor: Ana-Maurine Lara**  
**Funding: UROP – Mini-Grant**

**Abstract:**

Ceremonial danza documents stories, describing historical events through the eyes of indigenous people. Danza is

a counter-narrative to Eurocentric ways of storytelling and a way to build community. Indigenous peoples in Mexico and in the U.S. maintain danza practices despite historical social exclusions (Huerta 2009). In a similar way, the codices, which are an ancient form of recorded history in the form of glyphs, provide a different counter narrative to the Eurocentric views of history (Luna 2011). Our research focuses on danza ceremonies as storytelling and as acts of resistance to colonization in indigenous communities in Mexico and the U.S. “Danza is a term used throughout Mexico to identify dances whose choreography draws heavily from indigenous dance traditions and have spiritual or religious foundations” (Huerta 2009). Each Co-Investigator within the study will focus on an explicit aspect of danza. Collectively, we are applying critical ethnographic methods such as interviews, participant-observation, film & audio recording, and close readings to interrogate the pedagogical practices used in ceremonial danza (Gray 2003). I am asking: 1) how is indigenous traditional knowledge articulated and conveyed? And 2) how can indigenous traditional knowledge be incorporated into educational curricula geared towards community organizers?

**TRACE ANDREASON**

**COMPUTER and INFORMATION SCIENCE**

**ORAL SESSION 3A Title: Detecting and Characterizing Internet Background Radiation on UONet**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Reza Rejaie**

**Abstract:**

Each Internet connection often requires a series of requests and replies messages that are exchanged between two computers. However, Internet Background Radiation, or IBR, refers to those unusual connections where one or more requests are sent to another computer without any response, i.e. one-way connections. In many cases, IBR are considered unsolicited messages associated with malicious activities. The legacy technique for detecting IBR is to observe messages that are destined to unused IP addresses on the Internet. The major limitation of this approach is that it only captures IBR associated with the unused portion of Internet address space. In this study, we develop techniques to identify individual one-way flows (IBRs) that are destined to the UO campus network. Furthermore, we characterize various features of these one-way flows and leverage these features to infer the likely malicious activity that individual one-way flows are associated with. We find that incoming IBR can make up to 30% of all messages on the campus network. We find attacks targeting a wide variety of services as well as attacks coming from cloud computing platforms such as Amazon Web Services and Google Cloud Platform.

**CAROLINA ARREDONDO SANCHEZ LIRA**

**POLITICAL SCIENCE, LATIN AMERICAN STUDIES**

**ORAL SESSION 2C Title: New Approach to Drug Policy in México**

**Research Area: Social Science**

**Faculty Mentor: Reza Kristin Yarris**

**Abstract:**

In Latin America, the “War on Drugs” was promoted by the United States government, shaping the way drug policy is understood and fought within the region and abroad. The US has supported the militarization of Latin American countries. In Mexico, ex-president Felipe Calderon implemented the so-called “War on Drugs” in an attempt to end drug cartels. With aid from the US, Calderon implemented the Merida Initiative, which was a cooperative agreement between the US and Mexico to combat the threats of drug trafficking. However, this plan resulted in more violence in border towns such as Ciudad Juarez and Tijuana. My study population within this paper is focused in the city of Tijuana. The qualitative research includes interviews from individuals in two different programs using a series of questions about the development of two different projects in Tijuana. A public health and social approach to drug policy will mean that instead of incarcerating people, there could be “harm reduction programs” that focus on the rehab of drug users. Government officials have refused to consider new alternative reforms from a social and public health approach. In this paper, I aim to address how México can adopt social and public health strategies to decrease violence, mass incarceration and the spread of blood diseases. I argue that these approaches can be an answer for the reduction of the negative effects caused by the War on Drugs.

**GHONCHEH AZADEH**  
**PHILOSOPHY, PSYCHOLOGY**  
**ORAL SESSION 3F Title: Shifts in Embodied Meaning: A Look Into Depression**  
**Research Area: Humanities**  
**Faculty Mentor: Erin McKenna**

**Abstract:**

William Styron's "Darkness Visible: A Memoir of Madness" offers an in-depth look into his personal experience with depression. The experience described allows readers to analyze what role meaning may take on for someone who is facing depression. Drawing from this, the widely held idea that "mental illness" or experience in general is bound to the mind becomes problematic. This separation leads to a failure in fully appreciating the interaction between the self and its immediate environment. This emphasizes that "mental disorders" might more appropriately be understood as a shift in an individual's embodied state. So the question follows: How can the process of an individual's meaning-making be affected by their embodied experience of depression? In addressing this issue, a clear definition of meaning will be offered, following a general theory of embodied meaning, largely drawing from the work of Mark Johnson and neuroscientist Antonio Damasio. Then our theory of embodiment will be applied to the case of depression so as to exemplify the way in which an individual's embodiment can be transformed. Styron's memoir will be used as an individual case demonstrating such a transformation in embodiment in order to depict a more honest understanding of the actual experience of depression. I argue that depression is one instance of a shift in the embodied state of an individual, which disrupts the process of body-mind and environment interaction. Such a disruption of routine functioning causes complexities in the meaning-making experiences of individuals.

**DANIEL BALDWIN**  
**ENVIRONMENTAL STUDIES**  
**ORAL SESSION 2D Title: Qualitative Assessment of Success Metrics of River Restoration Projects in the Pacific Northwest**  
**Research Area: Natural/Physical Sciences**  
**Faculty Mentor: Patricia McDowell**

**Abstract:**

In the Pacific Northwest, many rivers have been severely degraded in the last century. Changes in land use, widespread development and dam construction, among other practices, have disconnected rivers from their historic floodplains, resulting in countless simplified habitats and a decrease in water quality (Palmer et al. 2005). The active restoration of river systems is a relatively new tool available to land managers, traditionally emphasizing the placement of large woody debris or boulders into a channel to facilitate the development of complex conditions. Many recent projects emphasize a "process-based" design, emphasizing system resiliency over designing for specific perceived "good" habitat characteristics (Beechie et al. 2010). There is only a small amount of literature focusing on these projects, and success can be difficult to quantify. This study aims to qualitatively compare process-based restoration projects to assess various success metrics, as well as to describe the evolution of this field within the past two decades. Central question: how has the design of in-stream restoration projects developed in recent years, and how do different organizations monitor projects to accommodate these changes? Methods: to develop a qualitative methodology in which compare river restoration projects in the Pacific Northwest, design documents were reviewed and interviews were conducted with restoration professionals. Results: preliminary results have showed an emphasis on report-centric or one-dimensional success metrics, often aimed at meeting stakeholder requirements. This study stresses the need for more experimental design, and the inclusion of success metrics that better reflect dynamic ecosystem processes.

**FRED BARDEN**  
**BIOLOGY**  
**POSTER 9 Title: The Search for Cis-Acting Signals that Trigger Histone H3 Lysine 27 Methylation in *Neurospora crassa***  
**Research Area: Natural/Physical Sciences**  
**Faculty Mentor: Kevin J. McNaught, Eric U. Selker**

**Abstract:**

In multicellular organisms, each cell contains the same "instructions" encoded in their DNA sequence, yet cells can adopt a diversity of functions and morphologies. These differences are largely attributable to cells "reading"

distinct parts of their DNA “instructions.” DNA is tightly packaged within a cell’s nucleus by being wrapped around nucleosomes, which are composed of eight histone molecules. Histones can be chemically modified and particular modifications are implicated in promoting or impeding cellular machinery from “reading” the associated DNA. The addition of methyl groups onto the end of histone H3 at lysine 27 (H3K27me) is a hallmark of DNA that is not being “read.” In the common fruit fly, *D. melanogaster*, histones associated with specific DNA sequences, known as Polycomb Response Elements, acquire the H3K27me modification. In mammals, however, the reason why particular histones acquire H3K27me is not well understood. To expand our knowledge of the control of H3K27me, I am utilizing the simple filamentous fungus, *Neurospora crassa*, to identify and dissect DNA sequences that are necessary and sufficient to trigger the deposition of the H3K27me mark. Preliminary transplantation experiments demonstrate that small segments of DNA that are normally associated with H3K27me are not sufficient to trigger H3K27me at an ectopic locus. I am currently making a series of deletions within a region normally marked with H3K27me to identify DNA sequences necessary for the maintenance of this histone mark. Insights gained from *Neurospora* may inform our understanding of H3K27me regulation in humans, which is commonly perturbed in cancer.

**ELLIE BARTLETT**

**HUMAN PHYSIOLOGY, BIOCHEMISTRY**

**POSTER 10 Title: Analysis of Search and Rescue GPS Tracks towards Development of Physical Fitness Standards for Volunteers**

**Co-Presenter: Cameron Colbert**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Christopher Minson**

**Abstract:**

California Oregon Search and Rescue (COSAR) crews are partly composed of volunteers who are trained through the Oregon State Sheriff’s Association. To obtain the Oregon State Search and Rescue basic certification, volunteers must pass a set of core competencies, which are meant to assess whether volunteers are physically and mentally capable of performing assigned tasks. While there are standardized skill--based tests, physical fitness standards remain more subjective, and “specific and appropriate tests [are] to be determined by each Sheriff...” (14). Often, a “moderate” or “arduous” pack test, is borrowed from Firefighter assessments used by the U.S. Forestry Service in lieu of a test specific to COSAR. **PURPOSE:** To gather preliminary data about the physical demands of search and rescue missions in order to inform a reasonable standardized physical fitness field test for volunteers in training. **METHODS:** Google Earth was used to analyze GPS data from 11 different OSSA missions. We collected the duration, distance, speed, elevation, and slope of 59 tracks from nine searches. **RESULTS:** The average duration of active searches (n=59) was 3:34 ± 0:23 hours, with an average distance covered of 4.9 ± 4.1 km, at an average pace of 1.5 ± 0.5 km/hr, with an average elevation gain of 201 ± 182 m, and an average slope of 8 ± 6 % grade. **CONCLUSION:** This preliminary data will serve as a foundational step in creating standardized, reasonable, and specific fitness standards so as to minimize the risk of Search and Rescue volunteers injuring themselves in the field.

**AUGUSTINE BEARD**

**HISTORY, ENVIRONMENTAL STUDIES**

**ORAL SESSION 3C Title: Reclamation and Imagined Social Changes in Eastern Oregon, 1902–1925**

**Research Area: Humanities**

**Faculty Mentor: Mark Carey**

**Funding: VPRI Undergraduate Research Fellowship**

**Abstract:**

Ever since Walter Prescott Webb wrote that aridity is the primary characteristic of the American West in 1931, a great body of scholarship on the environmental history of deserts, waterways, reclamation, and irrigation has emerged. Most recently, historians have begun to examine irrigation and reclamation projects that did not meet the expectations of avid boosters. While this scholarship has detailed the ways people have imagined how nature changes, there is a need for an understanding of how they believed their communities would change as well. This essay uses Eastern Oregon in the early twentieth century as a case study to examine how boosters of arid land reclamation and dry farming believed their attempts to alter their relations to nature would usher in social changes in the region as well. Boosters managed to convince a new wave of homesteaders to settle in Eastern Oregon between 1902 and 1929 by casting the region as a social paradise with abundant natural resources. Their beliefs about reclamation and society fell into two categories: first, they believed that history progressed in stages with agrarian municipalities as the final development of American civilization; second, they thought that transforming the desert

to a garden would resolve class conflicts in eastern United States and Willamette Valley cities. This essay provides conceptual tools to understand how people in the homesteading period understood the relations between natural resources and social change.

**AUGUSTINE BEARD**

**HISTORY, ENVIRONMENTAL STUDIES**

**ORAL SESSION 3B Title: The Phenological Response of Native Grasses and Forbs to Climate Change  
Co-Presenters: Augustine Beard, Adrienne Bowles, Alena Hartmann, Kylea Garces, Emily Roque, Samantha Hoffman**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Peg Boulay**

**Abstract:**

Pacific Northwest prairies are biodiversity hotspots with a high number of endemic, endangered, and rare species, but have been depleted to 2% their extent in 1850. Climate change threatens to further threaten biodiversity and ecosystem function in these prairies. Confronted with a changing climate, individual populations have three options: migrate, adapt, or go extinct. While numerous studies have examined the capacity of plants to adapt to climate change, fewer have sought to understand adaptations across a regional scale. In this study, we contribute to ongoing work to analyze the phenological response of 12 native grasses and forbs to manipulated climate parameters in three site locations at different latitudes. The climate parameter treatments are drought, temperature increase, temperature increase plus precipitation increase, and control. We hypothesize that the plants within the heated plots will experience a greater rate of primary productivity, allowing for a greater chance of overall success within the species. This study will contribute to our understanding of the capacity of plants to adapt or migrate under climate change and inform restoration projects of Pacific Northwest prairies.

**TRISTEN BELLOWS**

**HISTORY, ETHNIC STUDIES**

**ORAL SESSION 1D Title: The Tar Heeled Patriot: Black Americans in North Carolina 1916-1920**

**Research Area: Humanities**

**Faculty Mentor: Ellen Herman**

**Abstract:**

My research topic is on African-Americans in North Carolina during the Great War (World War I) and their labor contributions to the United States. I will examine the ways in which these contributions lead to black racial uplift and opportunities, particularly in contributing to movement out of the South to the North. The focus on North Carolina is a deliberate one, it is the state that produced the most amount of soldiers for the Confederacy during the Civil War and has the most soldiers from the South in WWI. I will examine how and why North Carolina has such a great track record with black soldiers vs. other parts of the South. My mission is to shake up the way in which the South is viewed as a monolithic region instead of a collection of different states with different experiences from the perspective of the "Negro" of the early 20th century.

**ELIZABETH BEZARK**

**INTERNATIONAL STUDIES, FRENCH**

**ORAL SESSION 2C Title: Fuel-Efficient Cookstove Projects: An Exploration of the Effects of Top-Down vs. Bottom-up Development Ideologies**

**Research Area: Social Science**

**Faculty Mentor: Dennis Galvan**

**Abstract:**

Since the end of World War II, Western industrialized societies have intervened in rural non-western communities around the world, following the mentality that the western world is responsible for the development of the non-western world, which more often than not, does not leave room for cross-cultural understanding and solidarity. To explore the nature of Western development activities, I question the social and cultural effects of fuel-efficient cookstove projects. Common literature on development indicates that organizations following top-down development ideology in their projects exhibit limited to no collaboration with the communities in which they work. Their cookstove models prove incompatible with local cultures. In these cases, members of global communities are likely to reject

the stove, which prevents it from providing a solution to environmental issues and health risks associated with traditional open-fire cooking. On the other hand, development initiatives following bottom-up ideology work with local communities and draw upon their knowledge. Their cookstove models tend to be culturally compatible by design and by implementation, and people are more likely to regularly use a cookstove that fits their lifestyle. Overall, bottom-up projects provide a solution to environmental challenges and human health risks while top-down projects perpetuate the paradigm of technocratic Western development.

**NATHAN BIGOT**

**HUMAN PHYSIOLOGY, BIOCHEMISTRY**

**ORAL SESSION 1A Title: Muscle Cell Regenerative Potential Following Amino Acid Supplementation in Total Knee Arthroplasty Patients**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Hans C. Dreyer**

**Funding: National Institute of Aging**

**Abstract:**

More than 600,000 Americans receive total knee replacements (TKR) annually. Our goal is to improve functional outcomes following TKR by mitigating the extensive muscle loss that occurs during the first two weeks post surgery. Previously, we showed that amino acid supplementation improves function and reduces gross muscle loss as measured by MRI. This study aimed to determine muscle cell-level changes related to regenerative potential in TKR patients receiving amino acid supplementation compared to placebo. Methods: Thirty-eight patients (age 50-80) completed the double-blind study. Biopsies of both surgical and non-surgical vastus lateralis (VL) tissue were taken prior to surgery and at either 1 or 2 weeks post TKR. Histological analysis determined cross-sectional area of VL cells (anti-laminin), number of myonuclei per muscle cell (DAPI), fiber type composition (anti-MHC1), and satellite cell number (anti-Pax7). In addition, we assayed for shifts in inflammatory (M1) vs regenerative (M2) macrophage populations. Statistical treatment will determine the cellular-level changes we observed with functional outcomes as measured by standard walking, balance, and strength tests. Results: Our initial observations have revealed cellular-level changes occurring after surgery, particularly regarding satellite cell number and cross-sectional area. Conclusions: Our study reveals the muscle cell-level changes that occur in total knee patients receiving amino acid supplementation and provides a resource for understanding how changes at the cellular level correlate with outcomes after surgery.

**SELENA BLICK**

**ENVIRONMENTAL STUDIES**

**ORAL SESSION 3B Title: Re-storying Connections: Developing Place-Based Environmental Education**

**Co-Presenters: Nicole Ferer, Josiah Hamovitz, Ryan Mitchell, Adrian Swain, Graham Talaber**

**Research Area: Social Science**

**Faculty Mentor: Kathryn Lynch**

**Abstract:**

Early childhood experiences in nature are vital in nurturing children's health, creativity, and learning abilities, as well as motivating children to care for natural places. However, opportunities for these experiences have dwindled as technology and standardized education have increased. As the Restoring Connections team, a project of the Environmental Leadership Program at the University of Oregon, we are working in collaboration with Adams Elementary School and Mount Pisgah Arboretum to combat this problem by developing a place-based environmental education curriculum. The Restoring Connections project provides elementary school students with three opportunities to visit Mt. Pisgah throughout the year. As they progress from kindergarten to fifth grade, students will focus on a different ecosystem and ecological concept each year. The curriculum utilizes inquiry-based education and moves from awareness to action throughout the day, year, and finally, the entire six-year program. This year, our team developed the curriculum for second graders, focusing on the Douglas-fir forest and the concept of biodiversity. By giving children repeated opportunities to participate in journaling, interactive learning games, species identification, questing, and stewardship projects, we are helping to restore their connection to the natural places where they live. This year, we will reach over 200 students over the course of nine field trips and in-class lessons. These experiences also help us grow as environmental stewards and educators as we work to cultivate a lasting connection between the children and the land, changing the story to one of reciprocity and respect.



**MARIAH BLOOM**

**BIOLOGICAL ANTHROPOLOGY**

**POSTER 12 Title: Linearity and Stability in Ring-Tailed Lemur (*Lemur catta*) Dominance Hierarchies**

**Research Area: Social Science**

**Faculty Mentor: Frances White**

**Funding: American Museum of Natural History (St. Catherine's Island Foundation)**

**Abstract:**

Studies of an animal's behavior begin with observing the interactions it has with others. Interactions can be friendly (affiliative) or unfriendly (agonistic). The pattern of these interactions reflect the social ranking of the individuals and these ranking collectively are referred to as the dominance hierarchy. Dominance hierarchies can differ greatly between species in the consistency of wins and losses between individuals within a social group: this is referred to as the linearity of the hierarchy. A highly linear hierarchy happens when rank is clear and wins and loses are predictable. Ring-Tailed Lemurs (*Lemur catta*) are known to have dominance hierarchies with adult females consistently outranking adult males. But, it is unknown if these hierarchies are linear and, if so, how linearity may change during periods of social instability such as male and female rank changes with age. We predicted that Ring-Tailed Lemurs would have linear hierarchies and linearity would decrease during periods of rank instability. Data were collected in 2010 and 2014 on a group of free-ranging Ring-Tailed Lemurs (the Windmill troop) on St. Catherine's Island, Georgia. We constructed dominance hierarchies and calculated the dominance linearity ( $h'$ ) monthly for each year. The dominance hierarchy changed from being non-linear ( $h' = 0.29$ , ns) during an unstable period to being significantly linear ( $h' = 0.75$ ,  $p < 0.001$ ) after rank changes. Our data show that linear hierarchies become unstable during rank change but return to linearity with the establishment of new dominance positions. Thus, periods of instability must be considered when assessing a social group's dominance linearity.

**CAITLYN BOATMAN**

**BIOLOGY**

**POSTER 13 Title: Variation of Tooth Number and Palate Length to Tooth Row Ratio in *Zalophus californianus***

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Samantha Hopkins**

**Abstract:**

An organism's post canine tooth row length is dependent on the prey it captures. Individual variation in the amount of palate dedicated to the post canine tooth row indicates that a species has recently changed diet. Most specimens of California Sea Lion, *Zalophus californianus*, have a post canine tooth row made up of two sets of five post canine teeth on either side of their palate. Some specimens have an extra post canine in each tooth row. This extra post canine could change the amount of palate the animal dedicates to tooth row. To determine if the tooth rows with an extra tooth take up a greater amount of space in the palate, we examined the ratio of palate length to post canine tooth length of thirty adult *Z. californianus* skulls from the Museum of Vertebrate Zoology. This ratio would indicate if total tooth row length relative to palate length is conserved across individuals or if the total tooth row length changes depending on tooth number. For specimens with five post canines, the palate length to tooth row length is 1.98. For specimens with six post-canines (13%) the average ratio is 1.64. These results suggest that organisms dedicate a greater amount of palate space to overall tooth row when a sixth tooth is present. The greater ratio of palate to tooth row in samples with five post canines imply that *Z. californianus* recently changed to a diet that does not require an extended post-canine tooth row.

**IAGO BOJCZUK**

**JOURNALISM – MEDIA STUDIES**

**ORAL SESSION 2F Title: Using the Social Media Potential in Post-Impeachment Brazil: Youth Action in Fostering Participatory Politics Through Digital Memes**

**Research Area: Humanities**

**Faculty Mentor: HyeRyoung Ok**

**Funding: Humanities Undergraduate Research Fellowship**

**Abstract:**

The purpose of this research is to understand the relationship between youth and civic media practices in fostering political participation in Brazil during and after the 2016 impeachment proceedings against Brazil's first woman

president Dilma Rousseff. The ongoing political scandals in Brazil, which empowered youth to use social media as a vehicle to share internet memes, suggest significant changes in participatory politics in the country. Within this context, participatory politics can be defined as interactive, peer-based acts through which individuals and groups seek to exert both voice and influence on issues of public concern. Despite being one of the largest democracies in the world, Brazil still has a long way to go in terms of diversifying its media sources in order to allow impactful youth participation in the public opinion. However, the number of Brazilian youth on the internet continues to increase as Brazil becomes one of the most active countries on social media, despite the economic recession. This new culture of increased participation indicates the beginning of a remarkable political transition in Brazil's democratic history because it directly challenges the country's long-standing dominant media, television. This diversification suggests a new era of civic engagement that fuels discussions on social media and expands them into the public sphere. Therefore, this research will describe the various roles that social media and internet memes increasingly play in empowering youth in Brazil to engage in civic and political discussions within the context of the impeachment and participatory politics.

**VARNEET BRAR**

**HUMAN PHYSIOLOGY**

**POSTER 14 Title: Symmetry Differences in Running Gait between Achilles Tendinopathy and Medial Tibial Stress Syndrome and Controls**

**Research Area: Natural/Physical Sciences**

**Faculty Mentors: Li-Shan Chou, JJ Hannigan**

**Abstract:**

Achilles tendinopathy (AT) and medial tibial stress syndrome (MTSS) have been identified as common overuse injuries prevalent in the running population (Gallo et al, 2012). Susceptibility to such injuries may arise from training errors, but biomechanical and structural asymmetries are also thought to contribute (Zifchock, 2008). The purpose of this study was to evaluate differences in running gait asymmetry between injured AT and MTSS subjects and healthy, matched controls. 21 AT and MTSS injured subjects and 21 healthy, uninjured subjects running at least 20 miles per week participated in the study. Ankle kinematics were collected as subjects ran continuous laps in the UO Motion Analysis Laboratory using a 10-camera motion capture system. Injured and healthy asymmetry between limbs was then calculated using an established method: the symmetry index (SI). Differences in SI index between groups were compared using an unpaired, two-tailed t-test. No significant differences in SI were found between injured and healthy runners at the ankle. Measures at the knee and hip are currently being analyzed. Any significant differences between the injured and healthy population may indicate an area focus for clinicians, but a lack of significant differences may suggest that AT and MTSS injuries are not strongly influenced by asymmetry. REFERENCES: 1. Gallo, Robert A., Michael Plakke, and Matthew L. Silvis. "Common Leg Injuries of Long-Distance Runners Anatomical and Biomechanical Approach." *Sports Health: A Multidisciplinary Approach* 4.6 (2012): 485-495; 2. Zifchock, Rebecca Avrin, et al. "Side-to-side differences in overuse running injury susceptibility: a retrospective study." *Human movement science* 27.6 (2008): 888-902.

**INDIA BROCK**

**ENVIRONMENTAL SCIENCE, BIOLOGICAL ANTHROPOLOGY**

**POSTER 15 Title: Crossing Structure Design and Effectiveness for Primate Conservation**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Frances White**

**Abstract:**

Habitat fragmentation is an increasing problem for wildlife populations, including primates. Infrastructure such as roads can dissect primate habitats, separating populations. There are publications on habitat fragmentation and some methods used to reconnect habitat patches, but there is a near absence of literature on the specific use of canopy bridges to aid primate movement. The objective of this review is to gather published data so that we may apply those findings in the development of suitable road-crossing structures for primates both in the wild and in captivity. In particular, this study synthesizes published data on the design and effectiveness of crossing structures across various primate taxa including one studies on strepsirrhines, three on New World monkeys, four on Old World monkeys, and one on apes. We found that the literature highlights overall success with most crossing structure designs however, we argue that these results may be biased as less successful trials are usually not published. In order to effectively conserve primate populations the results of both successful and unsuccessful trials need to be published. Additionally, though structure material, length, and bridge access are major factors influencing the

effectiveness of crossing structures, our review stresses the need for species specificity in their design. We encourage the publication of both captive and wild studies on the effectiveness of crossing structures. Given that conservation resources are limited, we also argue the utility and necessity of captive studies to contribute to the development of crossing structures and reduce costly trials in wild settings.

**PATRICK BROWN**

**BIOLOGY**

**POSTER 16 Title: Stereo-olfaction in Mouse Olfactory Navigation**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Dr. Matt Smear**

**Funding: Oregon Undergraduate Researchers in SPUR-NIH**

**Abstract:**

Accurately locating sights, sounds, and smells is one of the brain's most important functions. In order to do this, all senses that use symmetrical sensory inputs must compare inputs from right and left sense organs, a process known as bilateral comparison. While this process is well understood in vision and audition, aspects of the mechanism of bilateral comparison in the olfactory system (stereo-olfaction) are still unknown. Higher odorant concentrations result in earlier and greater activity in glomeruli, regions where olfactory sensory neurons make connections with the main olfactory organ. However, it is not known which component of neuronal activity: firing rate, latency after inhalation, or both, carries information that is useful for bilateral comparisons. We investigated the neural mechanism by which mice compare odor concentrations between nostrils. By expressing a light-sensitive protein in olfactory sensory neurons, and stimulating the neurons with a laser, we induced fictive olfactory activity in the right and left M72 glomeruli. This allowed us to bilaterally vary the timing of activity, while inducing the same firing rate in both glomeruli. We find that mice can discriminate differences in firing latency as small as 50ms. This suggests that bilateral timing differences in glomerular activity encode information about odor concentration, and can be used to make stereo-olfactory comparisons. This finding sheds light on the functional circuit linking the left and right olfactory organs.

**DYLAN BROWN**

**POLITICAL SCIENCE**

**POSTER 17 Title: Native Revegetation and Restoration of Riparian Ecosystem at Goose Creek**

**Co-Presenters: Michelle Alameda, Amber Johnson, Rachael Cleveland, Eleki Romans, Zhou Lou, Andi Ebright, Carson Pike, Mary Gerhart, April McCalmont**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Peg Boulay**

**Funding: Small Grant Program from the Oregon Watershed Enhancement Board**

**Abstract:**

For a grower to express that their produce can be classified as organic, it is essential that growers include ecosystem health and crop management methods in their agricultural and economic priorities. An example of doing would be farmers at Whitewater Ranch restoring Goose Creek that runs through their fields. Through the process of removing invasive species and introducing riparian buffers along Goose Creek, we will monitor if plantings increase the abundance of local pollinators in the blueberry fields of Whitewater Ranch in Leaburg, Oregon. Riparian buffers are dense concentrations of vegetation that protect against soil erosion and runoff from nearby roads. How the survival, growth, and vigor of our plantings of native species changes Goose Creek is necessary data to ultimately observe effects on stream temperature and aquatic macroinvertebrate diversity. We will use various qualitative and quantitative methods to interpret and monitor the effects of riparian plantings on the surrounding ecosystem, as well as percent pollinators in designated zones and assortment of macroinvertebrates in Goose Creek. We will also incorporate research instruments such as water temperature monitor stations to record stream temperature, and photo point data for visual comparisons. Through the use of natural riparian ecosystem functions, we anticipate a beneficial outcome in the practice of sustainable approaches to increase blueberry yields on Whitewater Ranch. We believe the Riparian Restoration project will show the benefits of farmers working as stewards of the land they live off and that long term economic benefits can be reaped from well-managed restoration projects.

**JORDYN BROWN**

**JOURNALISM—MEDIA STUDIES**

**POSTER 18 Title: Schooling the Public: How Education Reporting Influences the Public Agenda**

**Research Area: Social Science**

**Faculty Mentor: Ed Madison**

**Abstract:**

Though education has been found to consistently rate within the top five most salient issues to citizens, it is hardly ever on the front page. Furthermore, the education beat at newspapers is often understaffed, underfunded and placed at a lower priority than other beats. This thesis aims to understand: How does the media representation of lower education (K-8th grade) impact the public opinion on the issue of education? I will analyze the way education news functions at Oregon's local newspapers – more specifically, how the type of reporting done (or the lack thereof) affects what the public believes to be salient issues surrounding lower education. I will address that for the 2014–2015 school year, Oregon ranked 46th in the nation for high school graduation rates. But before high school there are nine more years in a classroom. The research will examine how these first nine years of education are presented to the public and assess how it affects opinion by judging reactions from working citizens, lower educators, and education journalists. This research will also draw on and complement scholarly work on related subjects. The end of this thesis will reveal the reporting priorities of education in Oregon, as my preliminary research to date has shown ways where media has misrepresented issues in K-8 education (demographics, negative news, no news, etc.) With this thesis, I am hoping to reveal areas for improvement in Oregon's coverage, and provide a solution that can help better represent the issues facing the Oregon K-8 education system.

**KAITLIN BRUNIK**

**BIOLOGY, ENVIRONMENTAL SCIENCE**

**POSTER 19 Title: The Role of Anaerobic Oxidation of Methane in Peatlands Under Climatic Change**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Anya Hopple**

**Funding: Department of Education—OURS Program**

**Abstract:**

Although peatlands cover < 3% of the Earth's surface, they are among the most important terrestrial ecosystems partially because they are responsible for roughly 10% of global methane flux. The consumption of methane (methanotrophy) is an important control on wetland methane emissions. The anaerobic oxidation of methane (AOM) was thought to be unimportant in peatlands. However, recent studies suggest that this process is ubiquitous in freshwater wetlands, but report a wide range of rates of AOM in peatlands. Due to the lack of understanding of the magnitude and controls over AOM, it is not currently included in Earth system models. The Spruce and Peatland Responses Under Climatic and Environmental Change (SPRUCE; <http://mnspruce.ornl.gov>) experiment is assessing how northern peatland ecosystems react to a changing climate with a regression-based, ecosystem-scale climate manipulation. Soil cores were collected from 30-200 cm depths from each enclosure at the SPRUCE site throughout the 2016 growing season. Anaerobic incubations were done within 1°C of in situ temperatures using samples slurried with a 1:3 mixture of peat and porewater collected from the same plot and depth. Radiolabeled methane was added to the incubation bottles and AOM was measured by the accumulation of radioactive water over time. We found that AOM is ubiquitous throughout the entire peat profile. Higher rates are occurring at the surface, indicating that humic substances may act as the terminal electron acceptor for this process in peatlands. These results prove that this process requires further attention to enhance our understanding of the anaerobic carbon cycle.

**SAMANTHA BRYAN**

**HUMAN PHYSIOLOGY**

**POSTER 20 Title: Native Revegetation and Restoration of Riparian Ecosystem at Goose Creek**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Chris Minson**

**Funding: American Heart Association Pre-Doctoral Fellowship; Eugene & Clarissa Evonuk Memorial Fellowship**

**Abstract:**

Women with polycystic ovary syndrome (PCOS) have higher blood pressure and are at a higher risk for cardiovascular disease when compared to age-matched women without PCOS. Chronic passive heat exposure (CPHE) has been

shown to improve cardiovascular health and decrease blood pressure in healthy, sedentary populations. The purpose of this study was to compare the efficacy of CPHE between sedentary women with and without PCOS. We studied four obese women with PCOS and six lean women without PCOS. Each subject completed 30-35 hot tub session that lasted 60-90 minutes at 40.5° C 3-5 times per week over 8 weeks. Blood pressure and brachial-ankle pulse wave velocity (BA-PWV), a measure of arterial stiffness, were assessed at 0, 4 and 8 weeks. At 0 weeks, women with PCOS had higher mean arterial pressure (MAP) than controls. MAP significantly decreased through 8 weeks of CPHE in both groups, with the PCOS group experiencing a larger decrease in MAP compared to controls. BA-PWV was not significantly different between women with PCOS and controls at 0 weeks or 8 weeks. These data indicate that CPHE reduces blood pressure in women with and without PCOS, but does not currently show a significant improvement in arterial stiffness. In addition, women with PCOS may benefit from CPHE more than healthy populations. This suggests CPHE may be an effective treatment to improve measures of cardiovascular health in women with PCOS.

**WESLEY BRYANT**

**SOCIOLOGY**

**ORAL SESSION 1C Title: Emotional Labor of our Gendered First Responders**

**Research Area: Social Science**

**Faculty Mentors: Jill Harrison, Eileen Otis**

**Abstract:**

Emotional Labor is the active management of emotion derived from a specific social expectation. Paramedics, Firefighters, and emergency room Registered Nurses are a few examples of our high-stress medical service workers who are required, as part of their job function, to actively manage their emotions while on the job. Firefighters and Paramedics are the nations primary first responders who respond to various fire and emergency medical aid requests within unstable environments. Registered Nurses work within stable environments working with the sick and injured in a non-emergency setting for long-term care with exception to an emergency nurse. Emergency nurses work within emergency departments providing immediate, life sustaining care to the sick and injured brought to them from the field by firefighters and paramedics. I have selected three medical service professionals (paramedic, firefighter, and emergency nurse) who work within the same field of emergency medicine. I will continue my research in this field by examining the duties and tasks of these professionals to determine if and how the job requirements are gendered.

**DYLAN CARLINI**

**EARTH SCIENCES**

**POSTER 21 Title: Effects of Measurement Methodology on Variation in Tooth Size**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Samantha Hopkins**

**Funding: Youngquist SS Fund for Geology**

**Abstract:**

In paleontology, measurement of teeth and bones forms the basis for many types of studies from systematics to paleoecology and macroevolution. Taking accurate measurements is critical for obtaining consistent data across collections and between researchers. Data are commonly combined in spite of differing measurement methods, but it is unclear whether the underlying patterns of error and variation are the same between measurement protocols. This study compares the accuracy of two of the most common methods of specimen measurement: digital caliper measurements and measurements taken from specimen photographs using the computer software program ImageJ. We measured the tooth length and width of five mammal specimens from five different species: *Lynx rufus* (Bobcat), *Canis latrans* (Coyote), *Mephitis mephitis* (Striped Skunk), *Ondratra zibethicus* (Muskrat), and *Equus caballus* (Horse). We selected a wide variety of mammals to ensure that many sizes and shape of teeth were included. We took ten sets of measurements for each tooth using both methods of measurements. We then compared the variance in the measurements between the two protocols to see whether there were significant differences in variance, and, if so, which method produces the least error. The results indicate that ImageJ is more precise with simple-shaped teeth (conical to rectangular), and closely-spaced teeth, while electronic calipers are better suited for complex-shaped teeth and widely-spaced teeth. These results demonstrate that methodology and attention to detail are essential when measuring teeth for taxonomic, ecological, and other scientific studies.

**GINO CARRILLO**  
**PHYSICS**

**POSTER 22 Title: Electron Interferometry: Transforming the Transmission Electron Microscope into an Electron Interferometer**

**Co-Presenters: Joey Carlson**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Benjamin McMorran**

**Abstract:**

In 1923 during the birth of quantum mechanics Louis de Broglie proposed that particles, like the electron, might also exhibit wave-like characteristics. Seven years later, scientists had experimental evidence for de Broglie's bold claim. Today, we exploit this property of the electron in our modern day Transmission Electron Microscope (TEM). Since the electron has a much smaller wavelength than visible light, TEM's are able to resolve objects on the atomic scale. We would like to extend the capabilities of the TEM by proposing that the TEM be transformed into an electron interferometer. Again, we exploit the wave-like properties of the electron and use a nanofabricated grating in order to diffract the electron beam in a controlled manner, such that each electron follows two separate paths simultaneously. The electromagnetic lenses within the TEM allow for further control of the electron and make the separate paths overlap and interfere, creating what is known as a Mach-Zehnder interferometer. This has, in fact, already been done, but only with TEM's of high caliber. Having this capability will give the scientific community another avenue to explore different characteristics of any given material. If we can extend this capability to older, less advanced TEM's, then the electron interferometer can be added to a wide variety of TEM's that are all over the world.

**TORI CARROLL**  
**GENERAL SCIENCE**

**POSTER 23 Title: Investigating the Effect of RAD51C Mutations on Zebrafish and the Fanconi Anemia Pathway**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: John Postlethwait**

**Abstract:**

DNA is exposed to various forms of damage from both natural and unnatural causes. In normal cells, this damage is repaired so that the cell can remain viable. However, organisms with mutations in DNA repair genes are unable to repair the damage which leads to cancers and/or cell death. My research examines RAD51C, a gene involved in homologous recombination. Homologous recombination is a mechanism used in the repair of a form of DNA damage known as double strand breaks in which both strands of DNA are severed. Mutations in the RAD51C gene have been shown to lead to breast and ovarian cancer and, as of 2010, have been thought to be related to Fanconi Anemia (FA). FA is a rare autosomal disorder characterized by chromosome instability, progressive bone marrow failure, developmental disorders, and a predisposition to cancer. By analyzing the effects of the RAD51C mutation in zebrafish, my research will provide evidence of the relationship between RAD51C and FA. To do so, I am analyzing how the gene mutation affects sex determination, fertility, and the ability of cells to respond to DNA damage. Results show that zebrafish with the RAD51C mutation develop only as males, have severely reduced fertility, and have increased cell death in response to DNA damage. These are characteristic of the FA phenotype in zebrafish, suggesting that the mutation is in fact related to Fanconi Anemia. This research will lead to earlier detection, improved prevention, and ultimately help develop therapies for cancer and Fanconi Anemia.

**TELA CAUL**  
**HUMAN PHYSIOLOGY**

**POSTER 24 Title: Lifespan Variance of Mutant *C. elegans* Strains Exposed to Resveratrol and its Correlation to Precision Medicine**

**Research Area: Natural/Physical Sciences**

**Faculty Mentors: Patrick Phillips, Sierra Dawson**

**Abstract:**

Precision medicine is a type of medical care utilizing patient genetics and family history to create specific, individualized treatments for a variety of diseases. We can examine the variation in responses to drugs among genetic variants of the same species to demonstrate the importance of such techniques to maximize human treatment effectiveness in modern medicine. In this experiment, we analyzed the lifespans of 4 genetically varied strains of the

roundworm *Caenorhabditis elegans* (*C. elegans*) when exposed to the antioxidant compound, resveratrol, compared to a control with no compound. We simultaneously examined mutant lines of these 4 strains, each a daf-16 gene knock-out, undergoing the same procedures as their corresponding wildtype strains. Lifespans were measured using an automated lifespan machine (ALM), capturing images of the worms each day and collecting time of death based on a lack of movement. By evaluating the magnitude of lifespan difference between the drug and control exposure in both the wildtype and corresponding mutant strains, it can be determined if compound administration effects are varied depending on genetic differences. The preliminary data analysis shows consistent increases in *C. elegans* lifespan with resveratrol exposure, but magnitude of difference between the wildtype and the mutant lines has yet to be determined. Due to many genetic homologies between *C. elegans* and humans, trends observed through this experimentation may translate to human applications. The results may impact the perspective of current medical care and may indicate the importance of individualized treatment for each genetically unique patient.

**JOSHUA CAVOTO**

**ECONOMICS**

**POSTER 25 Title: The Effect of Peer Participation on Risk Attitudes in Fantasy Sports**

**Research Area: Social Science**

**Faculty Mentor: Michael Kuhn**

**Abstract:**

The fantasy sports industry plays an important role in the popularity of today's sports. In 2015, around 20% of the U.S. population played some type of online fantasy sport. A smaller part of that total market, Daily Fantasy Sports (DFS), has been exponentially increasing in popularity over the past five years. In 2015, industry experts estimated \$2.6 billion in entry fees, with projected growth of 41% annually through 2020. DraftKings and FanDuel, which control nearly 95% of the market, were both valued at greater than \$1 billion in September 2015. We are the first to study the user decision-making aspects of DFS. What makes DFS different than many other situations of risk and uncertainty that the platforms seek to inculcate a community environment and encourage peer participation through aggressive marketing. We ask: does peer-participation distort the risk preferences of potential DFS participants? Does targeted advertising/social media exacerbate this response? If DFS platforms are leveraging peer pressure, this may be something that policy makers should consider when regulating the industry. We performed an experiment allowing participants to customize several of their own hypothetical DFS contests. Then, we determined if peer influence is driven by distorted probability assessments or the utility of winning. Our results will allow us to learn more about the power of social influences on DFS participants, which can help inform legislators looking to regulate this new market.

**ABEL CERROS**

**ETHNIC STUDIES**

**POSTER 6 Title: Indigenous Danza in Mexico and the United States**

**Co-Presenters: Perla Alvarez, Romario Garcia-Bautista**

**Research Area: Social Science**

**Faculty Mentor: Michael Kuhn**

**Funding: UROP Grant**

**Abstract:**

Ceremonial danza documents stories describing historical events through the eyes of indigenous people. Danza is a counter-narrative to Eurocentric ways of storytelling and a way to build community. Indigenous peoples in Mexico and in the U.S. maintain danza practices despite historical social exclusions (Huerta 2009). In a similar way, the codices, which are an ancient form of recorded history in the form of glyphs, provide a different counter narrative to the Eurocentric views of history (Luna 2011). Our research focuses on danza ceremonies as storytelling and as acts of resistance to colonization in indigenous communities in Mexico and the U.S. "Danza is a term used throughout Mexico to identify dances whose choreography draws heavily from indigenous dance traditions and have spiritual or religious foundations" (Huerta 2009). Each Co-Investigator within the study will focus on an explicit aspect of danza. Collectively, we are applying critical ethnographic methods (Gray 2003). Our methods also included interviews, participant-observation, film & audio recording, close readings. I will be looking at 1) the codices as a source of traditional knowledge and 2) how they act as living documents for indigenous communities today.

**ALEX J. CHANG**

**HUMAN PHYSIOLOGY**

**POSTER 26 Title: The Effect of a Patent Foramen Ovale on Ventilatory Responses to Hypoxia**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Andrew T. Lovering**

**Abstract:**

Approximately 30% of the general healthy population has a patent foramen ovale (PFO) (Woods et al., 2010; Marriott et al., 2013; Elliott et al., 2013). Previous work by our lab has shown that after 16 days of exposure to 5260 m, subjects with a PFO had blunted ventilatory acclimatization to a high altitude compared to subjects without a PFO (Elliott et al, 2015). However, 7/11 PFO+ subjects were female whereas only 2/10 PFO- subjects were female, and thus potential sex differences were not accounted for and it is known that sex hormones can affect ventilatory responses to O<sub>2</sub> and CO<sub>2</sub> (Schoene et al., 1986; Slatkowska et al., 2006). It remains unknown if PFO+ subjects exhibit blunted ventilatory responses to hypoxia, independent of sex. The purpose of this study was to determine if the presence of a PFO affects ventilatory responses during exposure to either poikilocapnic or isocapnic hypoxia. Thirty-one healthy, non-smoking subjects matched for height, weight, sex and age completed the entire study. There was no effect of PFO on HVR during exposure to either isocapnic hypoxia or poikilocapnic hypoxia ( $p > .05$ ). These data suggest that HVR is not blunted in PFO+ subjects compared to PFO- subjects. Based on these findings, it is plausible that the blunted ventilatory acclimatization previously found by our group may be due in part to differences in responses to hypercapnia suggesting involvement of a central chemoreceptor rather than just a peripheral component.

**ADRIENNE CHAINEY**

**EARTH SCIENCES**

**POSTER 27 Title: A New Occurrence of Gazella sp. from the Chu Formation (late Miocene, early Pliocene) in the Kochkor Basin, Kyrgyzstan**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Samantha Hopkins, Edward Davis**

**Abstract:**

Despite a lack of previously published material out of Kyrgyzstan, current fieldwork in the Kochkor Basin has produced prolific vertebrate material. This study concentrates on mid-sized bovid material, assigned to genus *Gazella*, and dated in the Chu Fm. at ~7Ma. The majority of Chu Fm. materials are ungulates, and in order of decreasing abundance: rhinos, horses, deer, and gazelles. Gazelles have a high dispersal potential, are representative of a specific palaeoenvironment, and are highly understudied in the region. Mammalian fossils can provide good proxies for climate and therefore illuminate past climate changes in Kyrgyzstan. The evidence provided by studying the gazelles of the Chu Fm. is important in the context of understanding the high uplift rates in Kyrgyzstan's Tien Shan Mountains as well as the unique environments of the greater Tibetan Plateau. In this study I diagnose and describe 18 horncore specimens of *Gazella* species. All are consistent in size and morphology, suggesting the presence of a single species. Through taxonomically informative measurements I compared my findings to material of known species in the region and time. Horncores from previously collected specimens in the area, mostly assigned to *Gazella dorcoides*, varies from the specimens in this study; these horncores are considerably smaller and less posteriorly curved. I therefore hypothesize that the *Gazella* species in the Kochkor Basin is a new species that represents an earlier lineage of smaller-bodied, high elevation, and cold adapted gazelles.

**ED CHANG**

**LGBTQIA+ SCHOLARS ACADEMIC RESIDENTIAL COMMUNITY**

**ARC SESSION 5C Title: Project Pronoun: The LGBTQIA Scholars ARC Year-Long Colloquium Project**

**Co-Presenters: Josie Fields, Danny Jenkins, Charlie Keene, Haleigh Patten-Trujillo, Rachel Peri, Mathieu Wilson**

**Research Area: Social Science**

**Faculty Mentor: Ed Chang**

**Funding: Academic Affairs**

**Abstract:**

Over the course of the 2016-17 academic year, the students of the LGBTQIA Scholars ARC collaborated on exploring, researching, developing, creating, and presenting a colloquium project. The goal of the project asked



students to imagine and put into action the intersection of academics, community, and activism. The year's colloquium project was to imagine that the class was an LGBTQIA think tank tasked with researching, developing, creating, and marketing the following:

- Develop a wearable to communicate the wearer's gender pronoun preferences
- Wearable needs to be visible, compact, easy to understand, easy to use, attractive yet professional, with the same ease and legibility, for example, as the red ribbon is for AIDS research
- Produce and present wearable including marketing and training materials

Autumn quarter was spent on brainstorming, researching, and generating the project. Winter quarter was all about prototyping and implementing the project. Finally, in spring, the project will be finalized, written up, and promoted. This presentation of "Project Pronoun" is the culmination of the year-long process, experience, and collaboration.

## **TANAINAN CHUANCHAIYAKUL**

### **PSYCHOLOGY**

**POSTER 28 Title: Preference Reversals in Donation**

**Research Area: Social Science**

**Faculty Mentor: Paul Slovic; Marcus Mayorga**

**Funding: Decision Research**

#### **Abstract:**

Generally, people make decisions based on available information. We tend to think that our decisions are originally from our own deliberation. However, these decisions can be influenced by presented choices. A previous study by Hsee (1998) suggests that these evaluations can be inconsistent when people are presented either with one choice or with many choices at once. We test whether this hypothesis applies in a donation scenario. Using an online survey, participants will see either one donation box (with low or high existing amounts of money) or two donation boxes (with low and high amounts of money in each). In the Single condition, they will choose an amount of money to donate to the box. In the Joint condition, they will choose both the box and the amount. We hypothesize that in the Single condition, people tend to donate more in the low money box. In contrast, for the Joint condition, more people will choose the high money box. Yet, when comparing two conditions, people will donate more in the Single condition. This is because they have reversed their preferences in the presence of an alternative. The findings will provide us with a better understanding about preference reversals that involve money and altruistic behavior. Ultimately, we might be able to apply this result to increase donation in the real-world practices.

## **TANAINAN CHUANCHAIYAKUL**

### **PSYCHOLOGY**

**POSTER 29 Title: The Similarity Effect and Altruism**

**Research Area: Social Science**

**Faculty Mentor: Paul Slovic; Marcus Mayorga**

**Funding: Decision Research**

#### **Abstract:**

Many models try to explain people's decisions in multi-alternative scenarios but these models have not yet tested for the effect of interpersonal relationship that might affect people's choices. For example, Tversky (1972) introduced the Similarity Hypothesis: people tend to choose a dissimilar item over two similar items in the same set. To expand this finding and have a better understanding of what impact of interpersonal relationships might have, we use an online survey of the Giving and the Taking conditions with a set of two similar items and one dissimilar item. In the Giving condition, subjects will choose to give away one M&Ms® jar from the set, with the only distinction being the colors of the M&Ms®. Further, recipient types are various (i.e. lover, acquaintance, unknown, child in need) to test for effects of interpersonal relationship with altruism regarding to the recipient types. The hypothesis for this Giving condition is that regardless of the recipient types, people still choose to give away the similar item to the recipient and keep the dissimilar item to the self. In the Taking condition, subjects will choose to keep a toothpaste; however, the only available clue is the quantity of each choice. We hypothesize in this Taking condition that people will use this clue and choose the dissimilar one. The findings will expand the knowledge of this effect by examining the interaction between similarity and altruism, and the interaction between similarity and categorical information (that is, color and quantity).

**SALLY CLARIDGE**

**BIOLOGY**

**ORAL SESSION 1A Title: Genomic Analysis of Chronic Heat Stress Resistance in the Nematode**

***Caenorhabditis remanei***

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Patrick Phillips**

**Funding: UROP Mini-Grant; VPRI Undergraduate Fellowship; Doctoral Dissertation Improvement Grant – NSF; Systems Genetics of Natural Variation Response Pathways Grant – National Institute of General Medical Sciences**

**Abstract:**

Organisms are subjected to a wide range of stressful conditions throughout their lifetime. Environmental stress can drive a population to adapt to novel conditions by yielding selective advantages to subsets of the population. Understanding the genetic architecture of stress responses is important because it helps researchers evaluate how characteristics of interest may respond to selection. Selection can drive sub-populations to diverge from each other, but gene flow can homogenize them. Migration-selection dynamics are one of the fundamental aspects of population divergence and speciation, but they have not been rigorously investigated in an experimental context. The goal of this research is to dissect the genetic basis of chronic heat stress, a model complex trait, in the nematode *Caenorhabditis remanei* and to understand how gene flow affects rates of adaptation to a novel environment. Populations of *C. remanei* were evolved in pairs to novel (31°C) and ancestral (20°C) environments. We tested the effect of gene flow between the sub-populations with 0 and 5 percent migration rates. Female fecundity information was collected to estimate the extent of adaptation in the heat-stress-evolved population. The migration treatment stunted the rate of adaptation to the novel environment, though population divergence still occurred. We expect genomic changes in the descendant lines that lead to adaptation. Whole genome sequencing data from both the ancestral and descendant populations will be compared on a locus-by-locus basis. The migration treatment is expected to reduce signatures of differentiation from weakly selected loci and to enhance signatures associated with loci of large effect.

**ERIN COATES**

**JOURNALISM**

**POSTER 30 Title: Issue Salience and Data Visualization**

**Research Area: Humanities**

**Faculty Mentor: Kim Sheehan**

**Abstract:**

Interactive data visualizations have created new ways for journalists to tell stories digitally. With the overwhelming amount of data available, these visualizations make it easier to compare similar data. The data available on different controversial topics from vaccination rates to mass shootings in the United States could actually make a real impact on comprehension of complex topics. This is where interactive data visualizations come into play. Instead of using still images such as infographics, journalists, designers, and computer programmers team up and create ways to tell stories based on data so the audience can learn from a visual representation and draw their own conclusions. This topic is important to investigate because with more newspapers and magazines moving to online platforms, there is a growing need for different story-telling techniques to grasp the attention of readers. The goal of this project is to see if the salience, or importance, of controversial topics to an individual is affected upon seeing a data visualization, a traditional story or a mix of both. Whether interactive data visualizations are making a real difference has not been investigated. The specific research question of this project is: Does the use of data visualization in online media affect the salience of the story from the audience's perspective? Journalists and data collectors alike can draw from this research to determine whether or not audiences will pay more attention to story forms where they are able to draw their own conclusions based on what they see in front of them.

**TAYLOR CONTRERAS**

**PHYSICS**

**POSTER 31 Title: Performance Study of Clustering Algorithms for the Large Hadron Collider Upgrade**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Stephanie Majewski**

**Abstract:**

Upgrades are being planned for the Large Hadron Collider (LHC) at CERN, a massive particle accelerator, to be enacted by 2026. These upgrades will increase the rate of proton-proton interactions in the detectors like ATLAS. The ATLAS detector has many different layers, including the calorimeter, which detects the energy of particles and can be represented by a grid of cells. A higher rate of interactions means that the ATLAS detector needs a faster way to decide whether to keep and sort data, which is done by the Trigger System. One part of the Trigger System is the clustering algorithms that cluster detector cells that can then be analyzed as an event to be kept or thrown out. The clustering algorithms are hardware and software based. The rate of collisions allows a microsecond for the clustering algorithms to decide whether to keep an event. The focus of this study is on the physics performance of different clustering algorithms being considered for the upgrade. Our methods include a python implementation of the clustering algorithms and comparing between them.

**ALDER CRAMMOND**

**CHEMISTRY, BIOCHEMISTRY**

**POSTER 32 Title: Rational Design of Triggerable Hydrogen Sulfide Prodrugs and Their Feasibility in Living Organisms**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Mike Pluth**

**Abstract:**

Hydrogen sulfide is an important, biologically-produced molecule. It participates in signaling processes throughout the body and its misregulation can lead to a number of diseases. As a result, it has potential as a therapeutic agent. We have developed a scaffold that can donate sulfide and has advantages over currently employed systems such as diminished toxicity and potential for additional functionalization.

**JOHNATHAN CRANDALL**

**BIOLOGY**

**POSTER 33 Title: Recombination Rate Heterogeneity Compartmentalizes Genomic Variation And Facilitates Adaptive Evolution In The Threespine Stickleback**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: William A. Cresko**

**Funding: UORP VPRI Fellowship: SPUR OURS Program—NIH: UnderGrEBES Award**

**Abstract:**

Adaptation to new environments is a driver of biodiversity, and involves the coordinated action of many genomic loci. Although this process has been extensively studied, significant questions remain, for example: Does the rate or extent of adaptation depend not only upon what genes are involved but on their distinct and non-random organization in the genome? To address such questions, we use the threespine stickleback (*Gasterosteus aculeatus*) as an evolutionary model system. This small fish inhabits circumglobal coastal habitats in the northern hemisphere, and oceanic stickleback have repeatedly colonized new freshwater environments, resulting in rapid bouts of adaptive evolution involving parallel changes at the phenotypic and genomic levels. By investigating the structure and behavior of the stickleback genome, we aim to determine factors that allow this quick and sustained adaptation to novel environments.

Gene flow between divergent populations breaks up associations between loci involved in adaptation due to the homogenizing action of meiotic recombination. Therefore, genomic architecture that isolates adaptive genomic regions may evolve. We characterized the recombination landscape of three distinct stickleback lineages by creating genome-wide genetic maps of divergently evolved and hybrid stickleback. We coupled this analysis with the calculation of molecular and population genetic statistics, to characterize genomic patterns of divergence. We find that a hybrid stickleback displays strikingly unique patterns of recombination and that genomic islands of divergence are inherited as compact genetic units, indicating that adaptive loci maintain their associations. Our results give insight into how non-random genomic organization can encourage rapid adaptation to novel environments.

**NATALIE CRAWFORD**

**PSYCHOLOGY**

**POSTER 34 Title: Influence of ACT Based Birthing Classes on Parenting Stress**

**Research Area: Social Science**

**Faculty Mentor: Jennifer Ablow**

**Abstract:**

The present study will examine the relationship between participation in Birth Your Way and later parenting stress. Birth Your Way is a prenatal Acceptance and Commitment Therapy (ACT) based birthing classes. Additionally, this study will investigate decreased experiential avoidance—avoidance of difficult thoughts, feelings, and physical sensations—as an intervening mechanism in the relationship between participation in Birth Your Way classes and parenting stress at 1 month postpartum. Participants (forty-four low income mothers) were randomly assigned to either the treatment (those who received the Birth Your Way class) or control (those who did not receive the Birth Your Way class) conditions. Maternal reports of experiential avoidance were collected both prenatally and 1-month postpartum. Additionally, maternal reports of parenting stress were collected 1-month postpartum. A comparison analysis will be completed between the mean score of parenting stress measured for the treatment and control conditions. A mediation analysis will be completed to investigate whether experiential avoidance mediates the relationship (if one is found) between participation in Birth Your Way and reduced symptoms of parenting stress at 1-month postpartum. The present study will have important implications for future prenatal interventions and the role that ACT can play in improving maternal and child health.

**WILLIAM CROWLEY**

**CHEMISTRY**

**POSTER 35 Title: Electrochemical Etching of Silver Scanning Tunneling Microscope Tips in Dilute Acetic Acid**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: George Nazin**

**Abstract:**

Scanning Tunneling Microscopy (STM) is used to image, manipulate, and spectroscopically characterize individual atoms and molecules to further develop an understanding of materials that have application in the semiconductor field. The fabrication of sharp and smooth metallic tips plays an essential role in STM as the radius of curvature of tips used in STM directly influences resolution. The smaller the radius of curvature, the finer the resolution. We report a reproducible fabrication procedure of silver STM tips. Silver wire is electrochemically etched using an environmentally benign electrolyte solution of volume ratio 1:8 glacial acetic acid:deionized water to form a blunt cone. The roughly shaped tip is then manually electropolished to yield a sharp and smooth cone shape. The tip is then heated at 300°C to remove contaminants such as silver oxide. Silver is used for its plasmonic enhancing properties. The elemental purity and small radius of curvature (~100nm) of silver tips permits atomically resolved STM imaging, as well as photon emission and ultrafast electron emission measurements. These measurements, which would not be possible with previous materials used as STM tips, such as tungsten, will allow for a better understanding of potential semiconductor materials.

**JUSTIN CULMAN**

**ENVIRONMENTAL SCIENCE, GEOGRAPHY**

**POSTER 36 Title: Investigating Coral Reef Morphology at Varying Depths with Photosmosaic Large-Scale Imagery and Percent**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Kelly Sutherland**

**Funding: Council of International Educational Exchange**

**Abstract:**

Coral reefs serve as an important component to the marine ecosystems' functionality and composition. However, coral cover in the Caribbean reefs continues to decline due to climate changes. Corals are adapted to thrive in limited ranges of environmental conditions, where small changes in the ocean's structure can lead to wide-scale loss of organisms. This research investigates five categories of coral reef morphology—massive, meandroid or brain, flowering, plating, and branching—to assess how variations in depth change the coral's coverage and abundance. A section of the coral reef was surveyed off the coast of Bonaire, Netherland Antilles, in the Southern Caribbean.

The study collected large-scale imagery, called photomosaics, which create a robust, archived dataset with detailed representations of the benthic organisms. The site contains two 50-meter squared subplots, one shallow and one deep, to represent two separate conditions based on variables such as light intensity and nutrient availability. Each subplot was traced in Photoshop based on each morphological type. The GPS coordinates of each subplot boundary allow images to be placed into a geographic information system to get precise percent coverage data from each type of morphology. The results demonstrate how plating and massive corals, having a higher surface area for sun exposure, are more adapted to deeper depths. Other types of corals are more abundant at shallower depths. This thesis research can show that with variations in morphology and changing environmental conditions, certain species of coral may dwindle in numbers, leading to declines of biodiversity of a vital ecosystem.

**ELIZABETH CURTISS  
EARTH SCIENCE**

**POSTER 37 Title: Paleoseismic Record of the Sagaing and Sinistral-Slip Faults on the Shan Plateau**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Ray Weldon**

**Funding: PURS Stipend from Geraldine Richmond, UO; Staples Scholarship, Department of Earth Science, UO**

**Abstract:**

The Sagaing fault is a transform plate boundary between the India and Eurasian plates. The dextral motion of the Sagaing and the Red River faults creates a plateau between them called the Shan Plateau, which spans Myanmar, China, Thailand, and Laos. The Shan Plateau contains 14 active E-W sinistral-slip faults, including the Mae Chan fault (MCF). The ultimate goal of this study is to understand the seismic hazards of the Shan Plateau, by collecting a complete paleoearthquake record of the region. We do this using a combination of field and computational methods to determine the earthquake cycle, slip rates, and slip per event. Using the slip per event measurements, we then calculate the magnitudes that correlate with each event. After returning from the field in March 2017, we now have evidence of at least two events along the MCF. One of these events we have dated to be 500 AD. Once we finish determining dates on all the events, we can average them into an earthquake cycle. For the MCF, we have determined a cycle of 2,000-4,000 years and for the Sagaing fault is 200-500 years, which both are consistent with the slip rates of 1.4 mm/yr and 1-2cm/yr, respectively, determined from displacement features. Using this evidence, we can extrapolate the characteristics to the other 13 sinistral-slip faults along the plateau. This earthquake record will give us an understanding of the seismic hazards at play on this fault system, and thus will help mitigate damage to the surrounding communities.

**ALEX DENTON  
HUMAN PHYSIOLOGY**

**POSTER 2 Title: Development of Neuromuscular Computer Game Controller**

**Co-Presenter: Sydney Bright**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Mike Hahn**

**Funding: Small Grant Program from the Oregon Watershed Enhancement Board**

**Abstract:**

Motor control of the forearm flexors and extensors can be impaired due to neural injury, such as a stroke, which can hinder the ability to perform daily tasks. In this study, we plan to examine the effects of Artificial Intelligence on the rehabilitation of motor control with electromyography. We have written a unique code that interfaces with an Arduino, which allows the subjects to control a simple computer game that allows for position control of objects with muscle contraction and relaxation. We have performed initial quality assurance testing, by collecting contraction thresholds and game scores in order to identify the most optimal range for a given subject. Additionally, we are utilizing a forearm cuff electrode system as an alternative method to read electromyograms and control the computer game. We are continuing to develop the computer logic behind the machine learning principles that will best allow subjects to optimize their skill and ability. These adapted principles of motor learning can be applied to neural-interfacing with prosthetics as well as athletic performance.

**ANU DEODHAR**  
**COMPUTER & INFORMATION SCIENCE**  
**POSTER 38 Title: Urban Noise Mapping at University of Oregon**  
**Research Area: Natural/Physical Sciences**  
**Faculty Mentor: Boyana Norris**  
**Funding: UROP Mini-Grant**

**Abstract:**

Data collected through Internet of Things (IoT) technology has begun to revolutionize the utilization of buildings. Having a wealth of information about noise, lighting, temperature and more collected through accessible, low-cost means allows buildings to be readily customized to increase efficiency and reduce energy costs. The purpose of this project is to prove the feasibility of creating a predictive noise model using low-cost, low-power sensor hardware. Previous research has not adequately addressed how IoT methodologies can be implemented to create noise models, but rather focused on other tools and methods. Furthermore, related research largely takes place outside of the United States suggesting a void in both collected data and research surrounding noise and its applications in America. Noise data was collected in Knight Library using microphone sensors and the Intel Edison, an IoT device. Results were visualized through a browser application, which indicated relationships between location, time, and noise levels. The resulting models showed wide variability amongst these factors, and the ability to predict trends over time to an extent. Within a university scope, students can use the resulting models to locate quiet study locations. Outside of a student-oriented scope, having access to noise models in a visual and easily-digestible way provides valuable feedback to inform future building design, improve campus efficiency, and spark discussion about hosting smart buildings on campus.

**PEDRAM DIBA**  
**MUSIC COMPOSITION**  
**CREATIVE WORKS SESSION 4D Title: Blending of Two Cultures through Music**  
**Research Area: Performance Arts**  
**Faculty Mentor: Robert Kyr**

**Abstract:**

One of the many purposes of music is to bring people around the world from different backgrounds and cultures together. This is especially important today where we witness a lot of ignorance and racial discrimination. Two or more cultures may be blended in a piece of music by combining the musical practices of these cultures, which will only be effective if the composer understands both musical cultures well. In my orchestra piece "Chehargah," I have combined Western musical practices with Persian musical practices. In Western music, composers usually use a scale or mode as their basic material. In Persian music practice, composers use tuning systems called Dastgah. The seven Dastgahs that are found in Persian music are Shoor, Māhoor, Homāyoon, Segāh, Chāhārgāh, Rāstpanjgāh, and Navā. Each of these Dastgahs have a unique and distinct sound world. I have used the Dastgah of Chehargah as the main structural building block for my orchestra piece. This musical mode has a distinct character due to how the intervals work within the mode. I have also borrowed a musical motive from Parviz Meshkatiān. I borrowed this motive from him not only because I like his music and specifically this motive, but also because he was one of the most prolific composers in Iran and an ambassador of Persian music. I have used these particular elements, as well as some others from Western musical culture, such as modulation, harmonic motion, and orchestration in order to create a new music combining Persian and Western musical practices.

**RENEE DOBRE**  
**ARCHITECTURE**  
**POSTER 39 Title: Window Water Shield**  
**Co-Presenters: Simone O'Halloran, Robbyn Wallis**  
**Research Area: Natural/Physical Sciences**  
**Faculty Mentor: Alison Kwok**

**Abstract:**

The window water shield is intended to reduce heat waste and reduce waiting time that comes with defrosting windows in a vehicle. The main purpose of this is to create a sustainable, hassle-free way to reduce the amount of condensation that forms inside a vehicle. Many vehicles and buildings with misplaced vapor barriers have condensation build-ups on the interior. This device is intended to be a simple solution and attach to windows like a

sunshade would. This project will analyze the varying temperatures and moisture contents of the inside of a 2003 Jeep Grand Cherokee from 8pm - 6am. This will be done using a HOBO device that will be left from 8pm - 6am in order to account for the largest difference in inside and outside temperatures and how it will affect the condensation. Two different types of vapor barriers will be used to maximize efficiency. The car will be parked outside to assure that condensation will form. The first night the car will not have a vapor barrier. The second night it will have one barrier on the front window. The third night it will then have a barrier on the back and front windows. This process will be repeated with two different types of barriers and the same HOBO device. We anticipate seeing a reduction in the moisture content inside the vehicle as the nights progress. We discovered that the project was successful and condensation was eliminated on the windows using the vapor barriers.

**ALLISON DONA**

**GENERAL SCIENCE, SPANISH**

**POSTER 40 Title: Building the Methodological Toolkit in Global Health: Dried Blood Spot Methods Development**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Josh Snodgrass**

**Funding: National Science Foundation Grant**

**Abstract:**

Biomarkers can measure health objectively, expedite identification of physiological mechanisms through which humans adapt to environmental stressors, and explain which social factors shape human development, behavior, and health. This research aims to increase the number of tools available to biological anthropologists by validating six new dried blood spot (DBS) biomarkers. Two challenges that have limited the usefulness of DBS up to this point are, first, that there is no overarching plan for DBS assay development in the field, and, second, that the cost of assay validation is higher and cross-laboratory harmonization is more difficult than first anticipated. This research will develop five in-house immunoassays—biochemical tests that measure the concentration of a small molecule or macromolecule through antibodies—and validate one commercially available kit to address four major topics of interest in the field of biological anthropology: autoimmune disease (specifically inflammatory bowel disease and autoimmune thyroid disorders), inflammatory regulation, bone turnover as it relates to osteoporosis, and stress related aging. For these markers, sandwich and indirect ELISAs are used in validation. The DBS protocols created can be repeated with use of standard, inexpensive equipment globally and can be applied to theoretical issues, including the Hygiene/Old Friends hypothesis and stress as it relates to aging.

**SANDRA DORNING**

**MARINE BIOLOGY**

**ORAL SESSION 3D Title: The Invasion Ecology and Demography of *Botrylloides violaceus* in the Coos Estuary**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Craig Young**

**Funding: UROP – VPRI Fellowship**

**Abstract:**

Communities of marine invertebrates on docks and other man-made structures are susceptible to invasions of non-native sea squirts (ascidians). *Botrylloides violaceus*, a colonial ascidian, has invaded such communities in harbors globally, including Oregon's Coos Estuary. Using quadrat photography, this study documents the spatial and seasonal distribution of *B. violaceus* in the Coos Estuary, evaluates factors that explain this distribution, and describes the demography of this *B. violaceus* population. *Botrylloides violaceus* was absent from upper bay site Isthmus Slough, and three types of factors could influence this distribution: 1) abiotic conditions (temperature, salinity, and current flow), 2) biotic conditions (inter-specific interactions), and 3) limited dispersal between sites. Laboratory experiments and transplantation of colonies demonstrated the tolerance of *B. violaceus* to abiotic conditions at all study sites. Current flow variation may cause discrepancies in *B. violaceus* abundance between similar sites in the lower bay, but does not appear to limit settlement at Isthmus Slough. *Botrylloides violaceus* outcompeted several bryozoans, *Balanus* spp., spirorbid polychaetes, and other juvenile ascidian settlers, showed a mix of positive and negative interactions with *Botryllus schlosseri* and hydroid species, and was solely outcompeted by *Halichondria bowerbanki*. The unique species at Isthmus Slough may biotically exclude *B. violaceus* from this site. *Botrylloides violaceus*

sexually reproduced throughout settlement plate deployment from August to May and exhibited increased asexual growth rates during the spring. Understanding the invasion propensity of this species and its interactions with native species is critical for conserving native biodiversity and improving invasive species management in the Coos Estuary.

**ANDREW DUNN**

**POLITICAL SCIENCE, PHILOSOPHY**

**POSTER 41 Title: The Intersection of Marx and Dewey: Criticizing the Reification of Separate Public and Private Spheres**

**Research Area: Humanities**

**Faculty Mentor: Steven Brence, Colin Koopman**

**Funding: Wayne Morse Center for Law and Politics Scholar**

**Abstract:**

Traditional liberals establish a binary between public and private. This binary is evident in political problems around wealth inequality and racial discrimination. Separating private affairs—property, conscience, etc.—from the government or public is the cultural norm of traditional liberal states. This separation is justified by necessitating a negative form of liberty: society is antithetical to individual freedom. In the Bill of Rights, negative liberty and the separation are evident; for example, the First Amendment precludes government intervention in religion. Both Karl Marx and John Dewey present critiques of the assumed binary of public and private. Investigating the criticism surrounding the separation of public and private demonstrates that there is deep common ground between the seemingly opposing philosophies of the founder of Marxism and the American pragmatist. Marx diagnoses the structure of liberal democracies as preventing true human liberty and preempting human sociality. Dewey argues that intelligent human action is obstructed by adherence to antiquated ideology, such as a reified public and private distinction, in a context of changing material conditions. Marx advocates revolution and seeks to dissolve the state, while Dewey seeks to reconstruct liberalism around education and equitable social action. Despite their differences, these critiques are not incommensurable because both assert the development of mind and language as social practices, and the failures of traditional liberalism. Bringing Marx and Dewey into conversation illustrates how the separation of public and private directs issues from its inadequate account of freedom in economics and privacy, for example the culture of poverty.

**ELIZABETH DYEA**

**NATIVE AMERICAN STUDIES, ETHNIC STUDIES**

**ORAL SESSION 1F Title: Finding Home: Creating Our Own Boundaries Public and Private Spheres**

**Research Area: Humanities**

**Faculty Mentor: Brian Klopotek**

**Abstract:**

As the capstone of my Ethnic Studies degree I am studying the indigenous values of place and community and the exercise of tribal and intellectual sovereignty in effort of understanding the idea of remaining rooted while routed from a Pueblo woman's perspective. Robert Warrior offers a definition of tribal sovereignty as cultural continuance. And Amanda Cobb defines Intellectual sovereignty as the power to chart "our own course while not looking for outside approval." These forces are complicated because colonization has compromised clear understandings of place and community to the extent that compromising is now seen as an expectation. Laguna author Leslie Marmon Silko asserts that a person does not have to compromise and in fact can exercise tribal sovereignty when a person is exercising intellectual sovereignty away from their Native homeland. In the essay, *The People and the Land ARE inseparable*, she explains that when one can relate their reverence of community, they will find the comfort and strength of place their ancestors intended. Paula Gunn Allen is also a Laguna author who writes about the value of place as it encompasses the wisdom of women. She urges our need for recovery of our stories in her book *The Sacred Hoop*. My inquiry is not intended to produce more damaged based research that honors compromise, but rather this is an endeavor to reclaim my stories via an auto-ethnography that examines authentic empathic relationships of place and community that ultimately lead to decolonization.



**SAM EAT**  
**ASIAN STUDIES**  
**POSTER 42 Title: Sources of early Blue and White Porcelain, Pattani, Thailand**  
**Co-Presenter: Angelica Kneisly**  
**Research Area: Natural/Physical Sciences**  
**Faculty Mentor: William Ayers**

**Abstract:**

Early pottery found in archaeological sites in southern Thailand, Ban Kruse (Pattani, an early trading port) provides evidence for the scope and scale of trade networks affecting the region from the 14th-19th centuries CE. The source of imported blue and white porcelain in the region from the Ming and Qing dynasty ages has been a long-standing question. This research addresses the hypothesis that the major source of imported porcelain, part of a globalized pottery production system, especially after the 15th century, CE, was from Jingdezhen, Jiangxi, China. An additional question addressed in this research is the relationship of local pottery production and imported wares. A small sample of sherds was examined to provide data useful for "fingerprinting" the pottery vessels in order to determine differing sources of manufacture. The instrumentally-derived XRF data on resources used in pottery production was acquired using a Niton EDXRF Spectrometer to take readings directly from the sherd surfaces (n = 60). Analysis consisted of plotting data (as ppm and ratios) for key elements to test recognizable variations and to compare these to stylistic and other vessel attributes. Through plotting Zirconium (Zr), Strontium (Sr), and Rubidium (Rb) values, as well as other comparisons, we conclude that approximately 85% of the imported porcelain sherds can be associated with the Jingdezhen kiln production area, thus confirming its importance in Southeast Asia. A small subset of glazed stoneware is from other centers, perhaps Zhangzhou ("Swatow") China and Thai centers. The elemental data for earthenware sherds indicates local production in Thailand.

**TUCKER ENGLE**  
**ENGLISH**  
**ORAL SESSION 3F Title: Hans-Georg Gadamer's Insights on Historical Consciousness Applied to Interpreting the First Person Narrator**  
**Research Area: Humanities**  
**Faculty Mentor: Paul Peppis**  
**Funding: Humanities Undergraduate Research Fellowship**

**Abstract:**

A critical component in the dialogue between a text and the reader is the lens through which the text is relayed. This lens is referred to as the text's narrator: the person or entity tasked with transcribing a narrative. The reader of a text meets an unforeseen challenge when engaging with a novel narrated in the first person. The challenge of a novel featuring a first person narrator is that the narrative has passed through a layer of subjective consciousness before reaching the reader. My research concludes that there is first an experience of interpretation from narrative to narrator, then from narrator to reader. These two layers provide a bigger gap between the reader and the objective narrative, a gap filled with subjectivity that can be compared to Gadamer's notion of "historical consciousness." Gadamer claims that when interpreting history, one cannot escape their individual weltanschauung (world view). My argument is that the inescapability of weltanschauung applies to interpreting texts not only on the reader/textual plain, but also on the narrator/textual plain first. Gadamer's research on hermeneutics applied to the three first person narrators in Mary Shelley's Frankenstein demonstrates the results of the collision between the subjectivity of narrator and reader.

**ALEIYA EVISON**  
**ETHNIC STUDIES**  
**ORAL SESSION 1D Title: Design Thinking and Social Change: Creativity as Strategy in Anti-racist Community Organizing**  
**Research Area: Social Science**  
**Faculty Mentor: Ernesto Martinez**  
**Funding: UROP Mini-Grant and I am a Wayne Morse Scholar**

**Abstract:**

My senior research paper explores the intersection of design thinking and social change in the context of anti-racist community organizing. Creativity has historically been employed as strategy in social justice movements that challenge white supremacy and systematic oppression. Creativity has also been central to the design thinking

process, which strives to address social issues through design principles. My research will explore the crossover, contradictions, and reciprocal benefits found in anti-racist community organizing and design thinking. Through textual analysis, participation in multiple anti-racist training workshops, and the implementation of my own anti-racist workshop on campus, I will strive to look at the following question: “How do anti-racist community organizers use creativity as a strategy to address social change, and how might their work inform the design thinking process? Conversely, how might the design thinking process be used as a tool within anti-racist community organizing?”

**EMILY FAGAN**

**PLANNING, PUBLIC POLICY AND MANAGEMENT**

**POSTER 43 Title: Changing Perspectives in Today’s America**

**Research Area: Social Science**

**Faculty Mentor: Jessica Swanson**

**Abstract:**

Throughout my lifetime, I have felt a great internal struggle between the built world and the natural environment. There are aspects of both that I hold closely to my identity and thus cannot favor one over another. Through my research of the history of the National Park Service and its current political direction, I aim to explore how these two environments can coexist in a way that remains free and full of wonder. I am examining government documents, regulations and petitions as well as scientific reports involving the changing political and environmental climate and its impact on protected natural areas. President Trump denies the existence of climate change and does not make the protection of National Park land a priority for the administration. This paradigm shift endangers the pristine areas of our nation that many people and cultures are spiritually and emotionally attached to. The significance of one day not being able to dip our toes in clear blue waters among tall Douglas Fir trees is one that cannot be ignored. The importance of National Park Land extends beyond immediate communities but is a greater national discourse that the current administration does not make a priority. I argue that local actions may ignite a change in perspective globally while maintaining a coexistence of the built world and natural environment.

**NATALIE FISHER**

**POLITICAL SCIENCE, SOCIOLOGY**

**POSTER 45 Title: The Women of the United States Senate: The Effect of Gender on Representation and Committee Assignment**

**Research Area: Social Science**

**Faculty Mentors: Allison Gash, Priscilla Yamin**

**Funding: Wayne Morse Center for Law and Politics Scholar**

**Abstract:**

Women have historically been denied access to the American political process. Between 1922 and 2015, only 46 women had served in the United States Senate. In the 114th Congress, 20 senators were women, comprising almost half the number of women that had ever been elected or appointed to serve in the position. This paper will ask the question: are women senators afforded equal access in the United States Senate to committees as their male counterparts and do they have the same opportunity to rise to committee leadership positions? After 96 years of access to the political process for women, 48 senatorial voting cycles and a US population comprised of a majority of women, an intrinsic exists bias toward women in both society and governing bodies that limit opportunities to inhabit positions that control the agenda. To research the question of the underrepresentation of women in the United States Senate in terms of committee assignments and committee leadership positions, this paper will track the 20 women senators of the 114th Congress from their assignments in the year they assumed office to their assignments given in 2015. To draw comparisons to this data, a male counterpart has been assigned to each of the 20 women; matched through seniority, ideology and state demographics if possible. To compare these 40 senators and each of their committee assignments from the time they assumed office, this paper uses the Grosewart method (1999) of committee rankings to determine whether senators gain access to similarly ranked committees.

**FRANCESCA FONTANA**  
**JOURNALISM**  
**ORAL SESSION 2F Title: Seeking Truth Through Investigative Memoir**  
**Research Area: Humanities**  
**Faculty Mentor: Brent Walth**  
**Funding: Humanities Undergraduate Research Fellowship**

**Abstract:**

My project seeks to define the emerging genre of the investigative memoir—memoirs, like David Carr's *The Night of The Gun*, that use journalistic methods to report out one's life and tell one's story. In order to do so, I compare and contrast genres of memoir and autobiography with literary and narrative journalism, then analyze instances in which the genres have been blended in journalists writing memoir. I also analyze how each genre defines truth and how their respective authors set out to discover the truth in different ways. After conducting my research, I will use what I have learned to write a book proposal for my own investigative memoir about my father's secret criminal past in Chicago, using public records, archives and interviews to report out formative events of my childhood. The purpose of this research is to examine and analyze the intersection of memoir and narrative journalism and each genre's search for "truth." This combination of genres has been scarcely discussed by scholars in my preliminary research thus far. Few attempts have been made to reconcile the two genre's different definitions of truth – whether one person's perception of an event is truer than another's, and how authors can use public records and interviews to add credibility to their "unreliable narration" and get closer to unbiased fact.

**THOMAS FORMAN**  
**BIOLOGY**  
**POSTER 46 Title: A Novel Gene Controls Heart Valve Development and Disease**  
**Co-Presenters: Michelle Alameda, Amber Johnson, Rachael Cleveland, Eleki Romans, Zhou Lou, Andi Ebright, Carson Pike, Mary Gerhart, April McCalmont**  
**Research Area: Natural/Physical Sciences**  
**Faculty Mentors: Kryn Stankunas, Fernanda Bosada**  
**Funding: Undergraduate Research Fellowship, Center on Teaching and Learning; OURS; Women in Graduate Studies Summer Research Award, UO**

**Abstract:**

Congenital valve disease affects at least two percent of the world's population, a remarkable frequency which underlies the need to understand the etiology of these common birth defects. Valve development requires the coordinated initiation and termination of distinct processes to form elaborately patterned structures from simple early embryonic tissue called endocardial cushions. Cellular migration into these cushions play a critical role in forming the population of cells that subsequently proliferates, arranges, and differentiates to form valve tissue of the appropriate size, shape, and organization. Both incomplete and excessive cell migration can produce abnormal valves, resulting in common congenital defects. While many studies advanced the understanding of gene expression and regulatory pathways that direct cell migration, little is known regarding the specific signals that abrogate the effect. This led us to explore potential roles for migratory inhibitors. We found that a novel gene, *Lrig1*, is specifically induced in periphery of the endocardial cushions at the onset of cell migration. Fate mapping shows that *Lrig1*-expressing cushion endocardial cells are restricted to the endocardium throughout early valve development. *Lrig1*-null mouse embryos develop hypercellular cushions due to prolonged migration rather than excessive proliferation. These results support our hypothesis that this gene acts as a cell migration terminator in the developing heart valves. These mechanisms of modulation are likely nodes to be disrupted in valve disease and apply to other developmental and disease contexts.

**ELEANOR FRANKS**  
**INTERNATIONAL STUDIES AND FRENCH**  
**ORAL SESSION 2A Title: Syrian Refugee Health in Jordan and Turkey**  
**Research Area: Social Science**  
**Faculty Mentor: Kristin Yarris**

**Abstract:**

This presentation looks at Turkey and Jordan's health systems and their ability to manage and provide adequate support for the thousands of Syrian refugees being received by each host countries. This project succinctly explains the origin of the Syrian conflict and refugee crisis, beginning in March 2011, and addresses the current refugee and

health system policies in both Turkey and Jordan. Upon examination of the prevalent health issues in the refugee camps, it is clear that refugee aid organizations are struggling to provide basic needs and sanitation, contain disease outbreaks, and provide maternal healthcare. A brief review of the social services offered in these camps by NGOs and governments shows that Turkey provides more social integration support, such as work programs and education, while Jordan is focusing more on selective health issues such as vaccinations, sanitation, and primary health care. This presentation provides a review of the health issues refugees face, revealing the need for neighboring countries such as Turkey and Jordan to stabilize their healthcare systems in response to the continuing conflict in Syria.

**VINITHA GADIRAJU**

**COMPUTER and INFORMATION SCIENCE**

**ORAL SESSION 2B Title: Happy, Upbeat Musical Moments in Infants' Everyday Live**

**Research Area: Natural/Physical Sciences**

**Faculty Mentors: Caitlin M. Fausey, Jennifer K. Mendoza**

**Abstract:**

Music is a ubiquitous component of infants' everyday experience; most caregivers (60%) sing or play music to their infants daily (Custodero et al., 2003). Music captures infants' attention (Nakata & Trehub, 2004), regulates their emotions (Shenfield et al., 2003), and promotes their auditory processing skills (Kraus & Chandrasekaran, 2010). Happy, upbeat music may especially engage these processes, given that infants attend longer to happier sounds (Corbeil et al., 2013). How often is happy, upbeat music actually part of infants' everyday lives? In our research, infants (ages 6-12 months) wore a lightweight recording device (i.e., LENA system; Ford et al., 2008) to capture their everyday auditory environments. We collected 1 full-day recording from each of 35 infants. Trained human coders listened continuously to recordings, identifying "music bouts": live and/or recorded singing, instrument playing, and vocally produced pitched, rhythmic patterns (e.g., humming). For each music bout, coders decided if it was happy, upbeat music or not based on musical mode and tempo. From preliminary findings based on 2 randomly selected files, in 6.8 hours of coded data, coders identified a total of 137 music bouts. Almost half of these bouts (.44) consisted of happy, upbeat music. We are interested to see if this pattern will persist as we continue to code additional files. In subsequent steps of this work, we will examine the words, rhythms, and pitches of these happy, upbeat bouts. Our research will yield new insight into happy, upbeat music and its potential impact on infants' developing systems.

**SCOUT GALASH**

**HUMAN PHYSIOLOGY**

**ORAL SESSION 2A Title: Water: A Social Determinant of Global Health**

**Research Area: Social Science**

**Faculty Mentors: Kristin Yarris**

**Abstract:**

Access to water and sanitation have long been considered a fundamental human right; regardless, in the present landscape of global politics and conflict, proper water and sanitation is being denied to over one billion human beings. In 2012 alone, there were over 842,000 preventable deaths in developing countries due to inadequate water. This crisis has manifested in the context of war and political violence in Syria, where residents of Aleppo face drastic water shortages and insecurity. However, lack of adequate water and sanitation does not just affect people in developing countries. April 2014 marked the beginning of the Flint water crisis in Michigan, USA. Largely due to budget cuts and administrative largesse, the results were the lead poisoning of children, the death of twelve Flint residents, and ongoing political controversy. In this presentation, we aim to demonstrate the relationship between the Flint water crisis and the water crisis in Aleppo, Syria. Ultimately, we hope to show that Global Health issues are not only relevant in developing countries, but also in the United States. To reach global health goals, we need to unite and recognize the right to water and sanitation, and the right to health more broadly, as human rights and global responsibilities.

**EMILY GALLETTA**

**BIOLOGY**

**POSTER 48 Title: Specific Visual Features Guide Approach Behavior in Mice**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Cris Niell**

**Abstract:**

The mouse is an important model of vision as it allows us to discover the neural mechanisms underlying visual behavior in a way that is not possible in other models. Previous work has shown that laboratory mice use vision to capture live insect prey. This finding revealed that mice can provide us with an understanding of how specific visual information can naturally signal rewards and drive approach behavior. However, to accomplish this goal we must first identify the specific visual features that drive prey capture behavior. Here, we systematically determined the parameters of visual stimuli which best evoke orienting and approach behaviors in mice. We presented prey-like virtual stimuli on a computer monitor that mice could approach at will, and, we precisely manipulated the size and contrast of those stimuli. It was found that mice responded to stimuli that most resembled a live cricket, a 2cm long, full contrast ellipse. These results demonstrate that mice are tuned to objects of specific sizes and contrasts that are consistent with live insect prey. We now know that the neurons that encode this information, as well as other relevant features, will be necessary to produce this interesting approach behavior. In turn, this knowledge will allow us to pinpoint the neural circuits in the brain that translate such information in order to produce appropriate orienting and approach behavior towards rewarding stimuli. Furthermore, understanding this information has implications for our ability to address diseases of orienting and approach behavior such as anxiety, ADHD and addiction.

**Romario Garcia Bautista**

**JOURNALISM**

**POSTER 6 Title: Specific Visual Features Guide Approach Behavior in Mice**

**Co-Presenters: Abel Cerros, Perla Alvarez Lucio**

**Research Area: Social Science**

**Faculty Mentor: Ana-Maurine Lara**

**Funding: UROP – Mini-Grant**

**Abstract:**

Ceremonial danza documents stories, describing historical events through the eyes of indigenous people. Danza is a counter-narrative to Eurocentric ways of storytelling and a way to build community. Indigenous peoples in Mexico and in the U.S. maintain danza practices despite historical social exclusions (Huerta 2009). In a similar way, the codices, which are an ancient form of recorded history in the form of glyphs, provide a different counter narrative to the Eurocentric views of history (Luna 2011). Our research focuses on danza ceremonies as storytelling and as acts of resistance to colonization in indigenous communities in Mexico and the U.S. "Danza is a term used throughout Mexico to identify dances whose choreography draws heavily from indigenous dance traditions and have spiritual or religious foundations" (Huerta 2009). Each Co-Investigator within the study will focus on an explicit aspect of danza. Collectively, we are applying critical ethnographic methods (Gray 2003). Our methods also included interviews, participant-observation, film & audio recording, close readings.

**ANNIE GILBERT**

**CHEMISTRY**

**POSTER 49 Title: Anion Sensing: Receptor Characterization and the Development of a Quick Screen**

**Anion Sensing Assay**

**Research Area: Natural/Physical Sciences**

**Faculty Mentors: Darren Johnson and Michael Haley**

**Funding: Presidential Undergraduate Research Scholar (PURS)**

**Abstract:**

Anions are small negatively charged particles that have crucial roles in our everyday lives. Nitrate, an anion important for providing nutrients to crops, can also cause devastating environmental impacts in excess. This makes anion sensing an essential field of research in order to regulate and detect high concentrations of anions that are harmful to the environment. A dominant field of anion sensing research is through the development of supramolecular receptors. These small molecule receptors rely on reversible binding interactions taking place around a specially

designed binding “pocket” to latch onto any present anions. Typically, a single receptor is designed to exhibit selectivity, affinity, and a response towards one particular anion. This approach, referred to as the Lock-and-Key model, has limitations due to the difficulty finding all three of these components in one receptor. In order to overcome these limitations, a series of previously synthesized cross-reactive receptors from the Darren W. Johnson and Michael M. Haley lab are being incorporated into a sensing assay. This emerging field of supramolecular anion sensing utilizes the composite response of various receptors for detection of several different anions in a quick screening. The research will involve characterization of various receptors by a plate reader to determine response patterns of various probes. In the process, unique responses of receptors can be discovered through this quick screening approach that can be further investigated for the lock-and-key model. This research looks to contribute a unique set of receptors capable of detecting environmentally hazardous anions.

## **ENRIQUE GOMEZ**

### **BIOLOGY**

**POSTER 54 Title: Comparing Post-Mortem And Osteological Measures of Primate 2D:4D Digit Ratios**

**Co-Presenter: Josie Beavers**

**Research Area: Natural/Physical Sciences**

**Faculty Mentors: Frances J. White, Stephen R. Frost**

#### **Abstract:**

The ratio of the length of the second to the fourth digit is related to prenatal hormone exposure, specifically testosterone. Prenatal gonadal hormone levels determine the second to fourth digit ratio (2D:4D). A lower 2D:4D ratio indicates higher levels of prenatal androgen exposure, and a higher ratio indicates lower levels. Digit length is typically measured from the proximal crease to the most distal end of the digit in living and post-mortem individuals. However, post-mortem processes such as desiccation or decomposition can affect both landmark identification and accuracy of the measure. Digit length can also be measured on osteological specimens, but there is little information on how these measures compare to post-mortem measures. This study compares different post-mortem measurements with osteological measurements taken on the same specimens. Post-mortem measures were made on fully fleshed and skinned primate hands and compared to measures based on disarticulated and articulated phalangeal bones on a total of 10 hands of eight primate species. We determined whether digit flexion (i.e. flattened palm or curled digits) yielded significantly different 2D:4D ratios. Our findings indicate that the 2D:4D measurements obtained in all flattened measurements closely correlated ( $r= 0.997 - 0.999$ ), but the measurements obtained from the curled and mummified hands were not as closely correlated ( $r= 0.962 - 0.982$ ). These results suggest that 2D:4D measurements on articulated bones are the most closely correlated to the fully fleshed 2D:4D measurement. This study demonstrates that the disarticulated measurement is the most accurate osteological method of estimating post-mortem 2D:4D.

## **MAXWELL GOOD**

### **PSYCHOLOGY**

**POSTER 50 Title: Effect of Identity Manipulation on Aggressive Behavior**

**Research Area: Social Science**

**Faculty Mentor: Elliot Berkman**

#### **Abstract:**

The identity-value model (IVM) of self-regulation proposes that self-regulation is the result of a value-based calculation between a variety of goal inputs, and that identity relevant choices are more likely to be enacted given their high subjective value (Berkman et al., 2015). The current project tests this model by investigating the link between identity and aggression, a behavior that has been demonstrated to result from self-control failure (DeWall et al., 2005). Participants (N=128) were randomly assigned to recall either a small (easy recall) or large (difficult recall) number of autobiographical instances of aggressive behaviors, leading participants to believe they either did or did not have an aggressive disposition (Schwarz et al., 1991), and measured aggressive inclinations on a subsequent aggression task. We predicted that participants who had to report more instances of aggressive behavior would experience greater difficulty in recalling these examples, implying they could not be typical or frequent. Thus, subjects in the difficult recall condition will conclude they are less aggressive compared to participants in the easy recall condition. Preliminary results indicate that ease of recall had no effect on aggressive behavior, as scores on the aggression task were not dependent on whether participants recalled a small or large number of aggressive behaviors. These results run contrary to the IVM's main prediction, suggesting that the relationship between identity and successful self-control may not be robust, though further testing using different methodology will be needed to confirm this.

**COLLETTE GOODE**  
**BIOLOGY**

**POSTER 51 Title: Synaptic Protein Distribution in the Developing Brain of *Danio rerio***  
**Research Area: Natural/Physical Sciences**  
**Faculty Mentors: Philip Washbourne, Alexandra Tallafuss**  
**Funding: NICHD Summer Research Program at the University of Oregon**

**Abstract:**

The human nervous system is comprised of billions of neuronal cells. These cells transmit and receive signals from their neighbors via synapses. During synapse formation, hundreds of proteins localize to form connections between pre- and post-synaptic neuron terminals. Everyday behavioral and cognitive functions depend upon the proper formation and organization of synapses between neurons. Disruptions in synapse formation are known to correlate with neurological diseases, including Autism Spectrum Disorder, Down's syndrome, and Tourette's syndrome. The Washbourne Lab studies synapse formation and the functions of identified synaptic proteins to understand the underlying cellular mechanisms of common neurological disorders. *Danio rerio* (zebrafish) have become an effective model organism in studying synapse formation, as 70% of human protein coding genes are homologous to zebrafish genes. We can obtain large clutches of zebrafish to study and their translucent tissues enable us to visualize brain development. This study uses immunohistochemistry and confocal microscopy techniques to characterize the distributions of various pre- and post- synaptic proteins in the developing zebrafish brain, including Synaptotagmin 2b, Gephyrin, Glutamate Receptor, and Synapsin. We particularly focus on the telencephalon, the brain region believed to correlate with complex behavior in zebrafish. We found Synaptotagmin 2b expression to gradually increase throughout development in the telencephalon. Further, we investigated the correlation between increase Synaptotagmin 2b expression and the onset of social behavior in zebrafish, both to develop circa 12 to 14 days-post-fertilization. This analysis will illuminate the possible association between this synaptic protein and the development of complex zebrafish behavior.

**JUSTIN GRAFF**  
**MUSIC COMPOSITION**

**CREATIVE WORKS SESSION 4D Title: Effect of Identity Manipulation on Aggressive Behavior**  
**Research Area: Fine/Performance Arts**  
**Faculty Mentor: Robert Kyr**

**Abstract:**

Classical music can be utterly mystifying and alienating to the uninitiated listener, but under its intricate and complex surface lays a divine simplicity. Economy of materials is a central principle in the European Classical tradition of musical composition and each piece of classical music arises out of only one or two short, iconic phrases which inform its whole being. Most people are familiar with the four-note 'fate' motive which begins the first movement of Beethoven's Fifth Symphony. This simple but potent kernel is a point of genesis, a seed containing the whole of that which follows. My goal is to demonstrate how the Classical process of motivic genesis occurs using clear and accessible language, with a piece that I have composed, Divertimento no. 1, for two flutes, trumpet, and piano.

**WILLEM GRIFFITHS**  
**BIOLOGY**

**POSTER 52 Title: Investigating the Feasibility of Exon Skipping as a Potential Gene Therapy Treatment for USH1F**  
**Research Area: Natural/Physical Sciences**  
**Faculty Mentor: Jennifer Phillips**  
**Funding: National Institutes of Health**

**Abstract:**

Usher syndrome (USH) is the most frequent cause of hereditary deaf-blindness. USH type 1F, one of the most severe forms of USH, is the most prevalent type of USH in the Ashkenazi Jewish population. USH1F patients have profound congenital deafness and early-onset progressive vision loss due to photoreceptor degeneration. USH1F is caused by mutations in the PCDH15 gene, which encodes a large, multidomain cell adhesion protein. The prevalent mutation in patients of Ashkenazi Jewish descent, designated as PCDH15 R245X, is a point mutation in exon 8 that converts an Arginine codon to a stop codon, resulting in a severely truncated protein. The truncated PCDH15 protein disrupts the organization of stereocilia in the inner ear and leads to dysfunction and eventual death in photoreceptor cells

in the retina. Due to the size and complex alternative splicing of PCDH15, the straightforward gene-replacement therapies being pursued for other forms of USH are not feasible for this gene. We used targeted mutagenesis to develop zebrafish models of the R245X mutation. These zebrafish exhibit nonsense mutations in their orthologous *pcdh15* gene and display morphological and behavioral phenotypes similar to USH1F patients. In humans and zebrafish, the pathogenic exon 8 in PCDH15 is in-frame; therefore, skipping this exon would not cause a detrimental frameshift mutation. We are attempting to use antisense oligonucleotides to skip exon 8 in our zebrafish USH1F models. Investigating the effectiveness of exon skipping on rescuing the USH1F zebrafish phenotype will allow us to determine whether exon skipping is a feasible treatment for USH1F R245X patients.

**ADRIAN GUTIERREZ**

**PHYSICIS, MATH**

**POSTER 53 Title: Implementing Edge Detection Methodologies to Search for Particle Signatures in a Proton to Proton Collision at the Large Hadron Collider**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Stephanie Majewski**

**Abstract:**

ATLAS is one of four particle detector experiments constructed in the Large Hadron Collider(LHC) at CERN in Geneva, Switzerland. The experiment is designed to take advantage of the high-energy proton to proton collisions available in the LHC. Each collision produces different types of particles that will carry a specific amount of energy. The energy carried by particle is then detected and stored as data to later be analyzed. Nevertheless, most of these so-called collisions available in the LHC are not energetic enough to produce interesting physics. Furthermore, many non-interesting events (pileups) are produced during this type of experiments thus making the interesting physics harder to detect. In order to detect a particular event through the large amount of data collected, some filtering method is needed. The main goal of this study is the application of edge filtering techniques which will be implemented to look for areas of topological interest in our detector in hope that it will shed light on new particle physics beyond the Standard Model.

**SABINA HAGEN-BOTBOL**

**ENVIRONMENTAL SCIENCE**

**ORAL SESSION 2D Title: Moss diversity and water retention with altitude in Neotropical Cloud Forest**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Peg Boulay**

**Funding: Pathway Oregon**

**Abstract:**

Tropical Cloud Forests receive less mist with global warming, creating biological changes there. Moss communities were studied in Costa Rican Pacific slope cloud forest between 1525 and 1805 meters. Moss diversity on individual trees increased with altitude at a significant rate of 0.0037. To determine abundance on each tree sampled, a clear grid was placed over a section of tree trunk at chest height and the number of squares that were half full or more of each moss species present were counted. Water retention, loss, and absorption were measured in relation to diversity by drying and soaking constructed moss communities of different levels of diversity and measuring their rate of drying, weight at saturation, and rate of rehydration. Results varied for different moss species but variance in community response was mediated by moss diversity. Diversity improved rehydration rate as diverse communities had statistically higher rates than single species samples ( $p=1.709E-09$ ). These findings demonstrate that more diverse moss communities are more resilient to climate change and water shortages. Additionally, beyond simply balancing out varying strengths and weaknesses, diverse moss communities strengthened single species function and allowed for overall higher success of the community in terms of rehydration. Hence, more diverse moss communities buffer and strengthen water relations in changing Tropical Cloud Forest.



**ELIZA HALLETT**

**BIOLOGY AND SPANISH**

**POSTER 55 Title: Relationships between Kidney Function, Inflammation and Age in the Indigenous Shuar of Ecuador: The Shuar Health and Life History Project**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Josh Snodgrass**

**Funding: Bray Fellowship and Williams Fellowship; National Science Foundation; Ryoichi Sasakawa Young Leaders Fellowship Fund; Wenner-Gren Foundation Dissertation Fieldwork Grants**

**Abstract:**

This research investigates relationships between kidney function as measured by Cystatin C (cysC) levels, inflammation as measured by levels of C-reactive protein (CRP), and age in the indigenous Shuar of Ecuador. Previously collected dried blood spots (DBS) from 128 Shuar participants were analyzed. Enzyme-linked immunosorbent assays (ELISAs) were used to measure concentrations of cysC and CRP. Lower levels of cysC mean the kidney is efficient in filtering waste and signify good kidney health, and elevated levels of CRP mean high rates of inflammation. The ELISA for cysC was based on a recently validated protocol that makes kidney function analysis through DBS possible for community-based studies in non-clinical settings. A series of regression analyses tested for biological relationships between cysC, CRP, age and two ecological factors (latrine type and water source). CRP and cysC levels were significantly and positively correlated ( $p=0.009$ ) although the correlation was attenuated when controlling for age ( $p=0.078$ ). Age moderated the significant relationship between cysC and CRP ( $p=0.039$ ), a relationship largely driven by adult (36+) participants. Water source had a significant effect on CysC levels across age groups ( $p=0.002$ ) and higher cysC levels were associated with a well/outdoor pipe water source, meaning that poorer kidney health was associated with use of this source. Further investigation of the association between water source and kidney health would be interesting and could have large implications for targeted public health interventions in many developing nations. This study is the first to utilize a Cystatin C DBS ELISA assay for population-based anthropological research.

**ERIC HAMMERSCHMITH**

**BIOLOGY**

**POSTER 56 Title: Caenorhabditis species 34 Dauer Larva Characterization and the Evolution of Host-Seeking Behaviors in Caenorhabditis**

**Research Area: Natural/Physical Sciences**

**Faculty Mentors: Gavin Woodruff, Patrick Phillips**

**Abstract:**

Understanding host-seeking behavior is crucial to conceptualizing the evolutionary rise of parasitism and formulating future treatments. Parasitic and non-parasitic nematodes have significantly different pathways for developing the stress-resistant (dauer) stages of their lifecycles<sup>1</sup>. Parasitic nematodes are generally highly specific with respect to their dispersal carriers, whereas the model organism *Caenorhabditis elegans* is promiscuous in its choice of carrier. Thus, *C. elegans* alone is a poor model for dauer larvae to infective larvae evolution. *Caenorhabditis* species 34, a close relative of *C. elegans*, may represent a divergent group as it has only one animal dispersal vector. If *C. sp. 34* dauers have divergent characteristics in morphology and behavior it can then be used as a model for understanding the rise of parasitism in nematodes. Using SDS treatment of starved cultures, *C. elegans* and *C. briggsae* were found to have higher rates of dauer formation than *C. sp. 34*. SDS treatment performed on 28 wild isolates of *C. sp. 34* showed dauer frequency was again found to be lower than the other species. However, this also revealed within-species variation in dauer formation frequency. Correspondingly, conventional RNAi using feeding was attempted to generate dauers for further experimentation. Targeted genes (*daf-2*, *daf-7*, *akt-A*, and *akt-B*) have not shown any significant increase in dauer formation rate yet. Other methods like novel culturing techniques will hopefully elicit increases in dauer formation to advance further research. Divergent phenotypes observed in *C. sp. 34* dauers using DIC microscopy can inform future hypotheses about how host-specificity in nematodes evolves.

**ERIN HAMPTON**

**JOURNALISM**

**POSTER 57 Title: Journalism and the Nonprofit Sector: Turning Hesitancy to Hope**

**Research Area: Humanities**

**Faculty Mentor: Nicole Dahmen Smith**

**Abstract:**

Journalism allows people to remain informed, aware and active in the community around them. However, much of the journalism we see today focuses on problems, indiscretions and fraud. Though traditional watchdog and investigative journalism are vital in maintaining a democratic society, they often do not tell the whole story of a community. A newly termed form of journalism called solutions journalism suggests that journalists should focus on people and structures trying to solve community issues, not only on the issues themselves. This thesis first looks at academic literature to examine the state of journalism in the 20th and 21st centuries, and then places these findings in the context of media coverage of the nonprofit sector. Finally, this research gathers first-hand accounts from journalists and nonprofit communications staff members about their personal experiences interacting with one another as well as the impact solutions journalism could have on both journalism and the nonprofit sector.

**GRACE HANICH**

**ENGLISH, FOLKLORE**

**ORAL SESSION 2E Title: Recycling American Pop Culture: Memes as Transmission and Expression in Online Communities**

**Research Area: Social Science**

**Faculty Mentor: John Baumann**

**Abstract:**

Memes pop up everywhere: in class, online, in dorm rooms, etc. In a variety of forms, they can pop up as a still image from a TV show or even a picture of an animal. In the 1970s Richard Dawkins, a biologist, first used the term "meme" to describe a unit of information that replicates as it's passed on within a culture very similar to how genes duplicate. Memes, as they are known today, have become a digitized and anonymous form of expression which spreads rapidly because of online users. Memes were perceived as an insignificant temporary trend in 2011, and have now become a reflection of present day youth culture within online and local communities. Five students from the University of Oregon related their own experiences with making and sharing memes on websites like Tumblr and Facebook. The interviewees discussed the function of memes, their accessibility, and their general purpose. Memes recycle pop culture and interlace a visual with context specific language as an alternative form of conversation as well as expression. Despite their short lifespan, new memes continually materialize whether they're widespread or sent to one other person. This presentation is an overview of a folkloric study on the importance of memes in American culture.

**TONYA HANSBERRY**

**PSYCHOLOGY**

**POSTER 58 Title: The Sequela of Maternal Trauma: Attachment Relationships and The Development of Empathy in The Next**

**Research Area: Social Science**

**Faculty Mentors: Jennifer Ablow, Jeffrey Measelle**

**Funding: McNair Scholars Program**

**Abstract:**

Surprisingly few studies have examined how child empathy develops within the context of the primary attachment relationship, or how maternal trauma and contextual factors contribute to individual differences in infant's empathy. This study originated with two central aims: (1) determine whether infant displays of empathy differ according to their quality of attachment; and (2) explore the extent to which maternal trauma and contextual factors contribute to these differences. Thus, this study sought to advance our understanding of how maternal characteristics are related to 17-month-old's empathy within the attachment context, and to identify mechanism(s) by which the capacity for empathy is transmitted across generations. As predicted, considering child characteristics such as temperament and contextual factors such as family socioeconomic status (SES), restricted maternal empathic responsiveness resulting from a history of trauma further was associated with empathic dysregulation in infants. Infants who were securely attached were significantly more empathically reactive to their mother's distress in comparison to insecure infants,

in particular, infants classified as disorganized. Further, a regression model predicting empathy revealed a significant effect of effortful control (EC) on infant's global empathy score such that infants with higher EC expressed significantly higher levels of empathy. Family SES was non-significantly related to empathy and none of the interactions with attachment were significant. These results suggest that multiple conditions of risk negatively impact infant empathy development; however, characteristics of the baby such as their ability to regulate attention and emotion—EC—may protect them against the negative effects of familial processes.

**ALYSSA M. HARDIN**

**HUMAN PHYSIOLOGY**

**POSTER 59 Title: The Effect of a Patent Foramen Ovale on the Hypercapnic Ventilatory Response**

**Research Area: Social Science**

**Faculty Mentor: Andrew T. Lovering**

**Abstract:**

A patent foramen ovale (PFO) is a right-to-left intracardiac shunt pathway present in ~25-40% of the general, healthy adult population. Individuals with a PFO (PFO+) exhibit higher alveolar-arterial oxygen difference (AaDO<sub>2</sub>) values at rest than subjects without a PFO (PFO-), indicating that PFO+ subjects have a source of right-to-left shunt significant enough to decrease gas exchange efficiency. Additionally, PFO+ subjects have blunted ventilatory acclimatization to hypoxia compared to PFO- subjects. The purpose of this study was to determine if the presence of a PFO affects the hypercapnic ventilatory response (HCVR). Twenty-nine subjects (15 female) matched for anthropometric measures participated in this study. Subjects completed two hypercapnic breathing trials in a randomized and balanced order, in which PETO<sub>2</sub> and PETCO<sub>2</sub> were controlled utilizing a dynamic end-tidal forcing system (Air Force). During the hyperoxic hypercapnia (HH) trial, PETO<sub>2</sub> was clamped at 250 mmHg and PETCO<sub>2</sub> was increased in a stepwise fashion to target values of +3, +6 and +9 mmHg of each subject's baseline PETCO<sub>2</sub>. The normoxic hypercapnia (NH) trial procedure was identical except that PETO<sub>2</sub> was clamped at the resting baseline value for each subject. Hypercapnic ventilatory response (HCVR) was calculated as the change in minute ventilation (VE) divided by the change in PETCO<sub>2</sub> (L/min/Torr CO<sub>2</sub>). PFO+ subjects demonstrated a significantly lower HCVR than PFO- subjects in the HH and NH trials. These results suggest that PFO+ subjects have a blunted ventilatory response to acute exposure to hypercapnia, and may be more susceptible to conditions such as sleep apnea.

**CHANEY HART**

**BIOLOGY**

**ORAL SESSION 3E Title: Resource Management in Medieval France**

**Research Area: Humanities**

**Faculty Mentor: Michael Peixoto**

**Abstract:**

By the 13th century, French villages were nearing the point of exhausting their forests and depleting their supply of an integral natural resource, timber. A similar issue has emerged in our contemporary society as we are learning more about how humans affect the environment and how we can manage our dwindling forest resources sustainably. While many in this field have looked to the future by making predictions and extrapolations to model what could happen, a great deal can be learned from examining more closely how civilizations in the past have navigated these same issues. By focusing on the documentary evidence of the division of the forest into multiple categories of use within medieval France, I examine how resource management was necessary for the survival and self-sufficiency of French towns. Such an examination will offer insights into positive and negative responses to resource management issues and can inform what types of decisions should be made today.

**YIMENG HE**

**ART HISTORY**

**ORAL SESSION 1C Title: The Orient Is No Longer an Unknown World: Confusion and Fear in Aubrey Beardsley's "The Peacock Skirt"**

**Research Area: Humanities**

**Faculty Mentors: Joyce Cheng, Akiko Walley**

**Abstract:**

British artist Aubrey Beardsley's "The Peacock Skirt" (1893) is one of the illustrations created for the script of Oscar

Wilde's drama *Salome*. This work illustrates many typical characteristics found in other Beardsley works, such as interest in evils, adoptions of exotic elements and the defeminization of female figures. The critics in Beardsley's period interpreted these elements from a moral perspective. The analysis focuses on artist's attitude toward morals. Recent scholars take different approaches and try to relate these characters to some social and historical issues in late nineteenth century. All of these critics analyze the characters separately and rarely consider the connections between them. Additionally, most of the critics relate characteristics to the domestic social environment of Britain rather than analyzing the changes on a global level. In my view, all of the characteristics represented in Beardsley's "The Peacock Skirt" can be regarded as the confusion between traditional views on the "oriental world" and the new impression of the non-western world. In other words, the original story provides Beardsley with the orientalist perspective, so his use of the exotic elements and the defeminization of the female figure are a natural choice for the artist to represent such a scene. However, for British people, with the establishment of the colonial system, the "oriental world" is no longer unknown but the margin of the empire. This social change inevitably brought changes to the traditional orientalist perspective.

**ERICA HEIM**

**ENGLISH**

**ORAL SESSION 2G Title: The Historical Culture of Romantic Poetry and Contemporary Works**

**Research Area: Humanities**

**Faculty Mentor: Forest Pyle**

**Abstract:**

I am interested in how literary works from the Romantic period (1791-1821) relate to contemporary works, and what kind of historical and artistic merit is achieved therein. Using Walter Benjamin's *Theses on the Concept of History*, we can see how Romantic works like those of William Wordsworth and Samuel Coleridge interact and converse with modern works, like those of electronic musician Clams Casino and nonfiction writer Ta-Nehisi Coates. The fragmentary and nostalgic nature of Wordsworth's and Coleridge's poems - so romanticized in their time - is repeated, reiterated, and in some instances, answered by modern artists. Their art seems to "speak" to one another, creating what Benjamin calls a "meaningful constellation" of literature. Where the works of Wordsworth and Coleridge seem incomplete, the fragmented styles of Clams Casino and Ta-Nehisi Coates reflect a nostalgia evident in many modern-day art movements -- as reminiscent as they are revolutionary. This duality of revival and revolution is exactly the spirit of Romanticism. How these fragmentary elements work together as a cohesive "constellation" will illuminate a larger, historical conversation of art and life. I will explore this "constellation" using specifically excerpts from William Wordsworth's *Prelude* and *Preface to Lyrical Ballads*, Samuel Coleridge's dreamy *Kubla Khan*, music video *All I Need* by electronic composer Clams Casino, and Ta-Nehisi Coates' show-stopping *Between the World and Me*. Observing these fragmentary artworks alongside each other will either demonstrate or challenge Benjamin's historical rubric, and show the relationship these contemporary works have with Romantic history.

**KYLE HENTSCHEL**

**JOURNALISM**

**CREATIVE WORKS SESSION 4A Title: Steeped in Sri Lanka: A Multimedia Exploration**

**Co-Presenter: Srushti Kamat**

**Research Area: Social Science**

**Faculty Mentor: Ed Madison**

**Funding: The UO School of Journalism and Communication; The UO Holden Center for Leadership and Community Engagement**

**Abstract:**

Journalism requires field work—and understanding the complexities of storytelling across different platforms and cultures is essential for advancing both the craft and the industry. In December 2016, the School of Journalism and Communication partnered with the Holden Center for Leadership and Community Engagement to bring 18 students to Sri Lanka. Our team, which consisted of videographers, photographers, writers, and audio storytellers, collaborated on a multimedia project documenting the lives of rural Sri Lankans. Against the backdrop of their current social climate, which is undergoing a globalization that impacts their traditional values, our team created an interactive website inspired by projects from the *New York Times*, *Washington Post*, and other new media companies who are pushing the boundaries of digital storytelling. Our goal is to educate people by using the skills we have learned through SOJC classes and projects, merging multiple platforms together to visually share the narrative of these rural communities.

**AMANDA HILL**

**EDUCATIONAL FOUNDATIONS**

**ORAL SESSION 3G Title: The Hidden Curriculum of Rape Culture: How Schools Are Perpetuating a Culture of Sexual Assault with Lacking Sex Education and Discriminatory Dress Codes**

**Research Area: Social Science**

**Faculty Mentors: Courtney Rath and Asilia Franklin-Phipps**

**Abstract:**

We live in a culture where sexual assault is permissible in that perpetrators are not held accountable, and survivors are questioned when they come forward. This type of culture is defined as a rape culture, and it is both reflected and constructed by the institutions around us. One such institution is our schools, and specifically the hidden curriculum of many of our schools. In investigating the connections between curriculum and rape culture I examined articles, journals, studies, and statistics. In this work, I found two specific aspects of curriculum that were continuously cited in conjecture with the construction of rape culture: dress codes and sex education. School dress codes typically include clauses that target girls disproportionately, and the rationale for codes is also often that the girls need to cover themselves to not distract their male peers. This research connects discriminatory dress codes to rape culture as they teach girls to cover themselves because young men aren't responsible for their actions. Sex education curriculum in the United States often lacks a crucial topic with regards to sexuality: consent. This research connects the lack of instruction about consent in sex education to a culture of sexual assault, in that the exclusion of consent from the sex education curriculum implies that consent is not important. An examination of how rape culture is constructed in schools can help to draw attention to the problematic aspects of this hidden curriculum, and bring us one step closer to transforming the rape culture.

**CALI HODGE**

**EDUCATIONAL FOUNDATIONS**

**ORAL SESSION 1C Title: Our Miss Brooks: Leaving a Legacy of Female Teachers in Radio, Television, and Film**

**Research Area: Social Science**

**Faculty Mentor: Tim Williams**

**Abstract:**

In the mid-twentieth century, the program *Our Miss Brooks* offered one of the earliest representations of a female teacher. As a radio program, television show, and feature-length film, *Our Miss Brooks* reached a wide audience throughout the United States. Broadcasted into a nation characterized by sweeping homophobia, a strict bifurcation of gender roles, and an increasingly important education system, *Our Miss Brooks* landed at the intersection of these three key aspects of society. This investigation explores the role of the media in shaping public perception of female teachers, highlighting *Our Miss Brooks* as the foundation for a long-lasting pattern of representation. In turn, how do society's expectations and assumptions based on these representations affect the experiences of female teachers within their own communities? *Our Miss Brooks*, in radio, television, and film, serves as the principal primary source base for this investigation. Newspaper articles from the 1950s offer examples of public response to the program, indicating the popularity of the program and the wide reach and impact of its messages. To situate the program in a broader understanding of teachers, this investigation references scholarly research on the lives of teachers and the media representation of their profession. These scholars highlight the single female teacher's position in a unique intersection of homophobia, femininity, and the dominance of the nuclear family. This investigation demonstrates the impact of media representation of female teachers on those in the profession, and how this stereotypical image negatively affects the experiences of teachers, students, and the greater community.

**BLAKE HOLCOMB**

**BIOLOGY**

**ORAL SESSION 3E Title: Ecclesiastical Relations between Byzantines and Crusaders Prior to 1204**

**Research Area: Social Science**

**Faculty Mentor: Michael Peixoto**

**Abstract:**

In 1204, the Fourth Crusade was diverted from initial plans to attack Ayyubid Egypt to the fellow Christian city of Constantinople, long time capital of the Eastern Roman Empire. After hostilities broke out, the capture of Constantinople and the subsequent establishment of the Latin Kingdom culminated centuries worth of tension

between Western Latin Christianity and the Byzantine Empire. A focal point of scholarship of Latin- Byzantine relations during the Crusades is religious discord between the Catholics and the Greek Orthodox Churches. In their examination of the events leading up to the sack, historians such as Gibbon, Neocleous and Lillie point to religious discord as a major reason for the sack of Constantinople. However, despite disunion between the Christians, there is an underrepresented element of religious tolerance and intermingling amongst the Byzantines and Latins. Using Anna Comnena, religious edicts from the Comneni Dynasty, and Papal letters my research examines the extent and rationale behind the toleration and intermingling of Greek Orthodoxy and Catholicism. The identification of religious crossover between Latins and Byzantines is indicative of the larger cultural relations between a wide variety of Christian and non-Christian groups in the diverse religious landscape of the Near East. The religious crossover effectively halted by the Fourth Crusade was an attempt to heal the religious schism between Eastern and Western Christianity, and its' cessation cemented the division that is still present today.

**SARAH HOVET**

**BIOLOGY, ENGLISH, ENVIRONMENTAL STUDIES, GENERAL SCIENCES, INTERNATIONAL STUDIES, JOURNALISM, UNDECLARED**

**ORAL SESSION 3B Title: Countering Nature Deficit Disorder in Eugene Middle Schoolers: Sense of Place at HJ Andrews Old-Growth Forest**

**Co-Presenters: Annalise Helm, Chaney Hart, Danielle Stein, Elizabeth Yurkov, Evan King, Jordan Morales, Sara Fatimah, Sarah Hovet**

**Research Area: Natural/Physical Sciences**

**Faculty Mentors: Katie Lynch, Ashley Studholme**

**Abstract:**

Children, especially those living in urbanized areas, are spending less time in nature than previous generations resulting in what Richard Louv calls nature deficit disorder, which contributes to higher levels of obesity, ADHD, and behavioral problems in school. They also suggest contact with natural spaces has a restorative effect on attention. As a service-learning project of the Environmental Leadership Program, the Canopy Connections team partnered with HJ Andrews Experimental Forest (HJA) and the Pacific Tree Climbing Institute to facilitate nine day-long field trips at HJA to connect middle schoolers with nature. We worked with 120 students from local middle schools, including underserved Fern Ridge, Prairie Mountain, and Blue River, as well as Ridgeline. We sought to strengthen the bonds between students and nature and strength their sense of place, and introduce students to the unique qualities of old-growth forests and the Pacific Northwest. We developed and implemented lessons about biodiversity, soil composition, and water and topography, as well as climbed 90 feet into a Douglas fir to connect with the canopy. During winter, we learned about Coyote mentoring, an approach to environmental education that focuses on awakening children's sensory awareness. We then integrated many of their activities and approaches into our field trip, including sit-spotting and journaling. We hope to create an ecologically enlightened generation of Willamette Valley residents who, through their reconnection with nature, will act to positively change the environment.

**JACQUELINE IGNACIO**

**EDUCATIONAL FOUNDATIONS**

**ORAL SESSION 3G Title: Neoliberal Multiculturalism in Elementary School Hidden Curriculum**

**Research Area: Social Science**

**Faculty Mentors: Alison Schmitke**

**Abstract:**

The purpose of teaching multiculturalism is to make sure underrepresented groups feel supported or welcome in society. Today, we often see something called "neoliberal multiculturalism". Neoliberal multiculturalism makes everyone feel like they are making a positive difference and are making underrepresented groups included. In reality, neoliberal multiculturalism ignores structural oppression and instead continues the damaging cycle of oppression. This can be dangerous because people believe they are making a positive change when they are in fact contributing to the cycle of oppression. This research essay explores how neoliberal multiculturalism is taught within elementary schools' hidden curriculum. We particularly focus on racial, gender, LGBTQIA+ oppression in school.

**AYANTU ISRAEL-MEGERSSA  
INTERNATIONAL STUDIES**

**ORAL SESSION 1F Title: The Other on Their Own Land: Internal Orientalism, Genocide, and the Northern Paiute of the Oregon Great Basin**

**Research Area: Social Science**

**Faculty Mentors: Kevin Hatfield, Jennifer O'Neal**

**Funding: VPRI Undergraduate Research Fellowship**

**Abstract:**

The Northern Paiutes, an American Indian tribe from Central and Eastern Oregon, experienced a significant reduction in their population at the hands of white settlers and the Oregon and federal governments over the course of the 19th century. Those who were left of the Northern Paiute population by the late 19th-20th century were subjected to cultural genocide in the form of severe assimilationist policies and economic subjugation through the reservation system. And yet, this is not a history that is widely studied, written about, or taught in schools in Oregon or around the country. My research will explore the Northern Paiutes in the context of settler colonialism in the 19th century in order to make the case that as occurrences of mass murder carried out by the state of Oregon and the federal government, the Northern Paiutes were the victims of genocide. Current research into the subject has briefly referred to the Northern Paiutes as victims of genocide, but has yet to explore the relationship between settler colonialism and genocide in the region. My research will show that frameworks for the analysis of settler colonialism, such as Edward Said's seminal work, *Orientalism*, will prove that the Northern Paiutes were the victims of genocide at the hands of the Oregon and US governments, and illuminate the way in which this genocide was rationalized and justified by white settler colonizers in the region.

**CHELSEA INGRAM**

**ENVIRONMENTAL STUDIES, ENVIRONMENTAL GEOGRAPHY, HISTORY**

**ORAL SESSION 3B Title: Cultivating Connections: Developing After-School Curriculum for School Gardens**

**Co-Presenters: Bianca Flynn, Emily Jenkins, Justin Knowles, Abbey Leonardi, Trisha Maxfield, Kaelin Opedal**

**Research Area: Social Science**

**Faculty Mentor: Kathryn Lynch**

**Abstract**

Environmental education aims to increase students' awareness of environmental issues, build a foundation of knowledge to comprehend their complexity, and encourage civic engagement. From this framework, our team was organized to pilot a new project within the Environmental Leadership Program (ELP), a service-learning program that pairs undergraduates with community partners. We collaborated with School Garden Project (SGP), a nonprofit organization that supports on-site gardens at K-12 schools within Lane County. As part of their mission, SGP provides garden-based teaching resources to educators in order to increase the usability of on-site gardens. To help them further this goal, our team developed five lesson plans designed for the garden during after-school programs. We implemented our lessons every week for five weeks, and assisted with SGP's in-school sessions, collectively providing 190 hours of direct community service. After facilitating our lessons, our team spent an additional 280 hours revising and improving our curriculum. Through this iterative process, we were able to develop professional quality lesson plans for SGP to share with their vast community of educators. Our lessons allow students to become more aware of seasonal changes and gain knowledge about the biological processes and features that affect life in the garden (including weather, pollination, habitat, and the reciprocity of edible plants). Students acquire the knowledge and skills necessary to garden for themselves. By increasing the availability of environmental education for students in our community, we are empowering students to cultivate a connection to and sense of responsibility for their environment.

**TATE JAMES**

**COMPARATIVE LITERATURE**

**ORAL SESSION 1C Title: A Feminist Analysis of Puella Magi Madoka Magica and its Narrative Treatment of Female Purity and Agency**

**Research Area: Humanities**

**Faculty Mentor: Alisa Freedman**

**Abstract:**

The Japanese animated television show (or “anime”), Puella Magi Madoka Magica, has garnered significant popularity. Anime fans and critics alike often hail the show as a progressive criticism of the magical girl genre. Indeed, the show gives its female characters complex, nonlinear narratives, breaking down the dichotomy between innocent young girls and evil old women that is prolific within the magical girl genre. While Madoka Magica does make important headway in the realm of dismantling harmful female archetypes, however, the moral judgments the show assigns to those archetypes, coupled with the regressive ways in which it represents female agency, problematize such a positive reading. In order to address this issue, I will briefly examine the history of magical girl anime, locating Madoka Magica within its generic tradition. Next, I will perform a close reading of the show using a feminist critical perspective in order to assess the way that the elements of the show critics have cited as progressive function within its broader narrative, especially in relation to female purity and agency. Eventually, I argue that Madoka Magica’s revolutionary potential is stifled by the fact that it demonizes impurity at the same time as it portrays impurity as almost inescapable, ultimately suggesting that the only acceptable strategy for girls is to be completely passive in order to remain pure.

**JACOB JANSEN**

**CULTURAL ANTHROPOLOGY**

**ORAL SESSION 2D Title: Perspectives in Honeybee Production: A Gozo Case Study**

**Research Area: Social Science**

**Faculty Mentor: Stephen Wooten**

**Abstract**

The island of Gozo, Malta is known for its rural landscapes and attractive tourist destinations. It is also home to a variation of honeybees, maintained by the beekeepers of Gozo, and desired by farmers for the purpose of pollination. In July of 2016, I spent three weeks on this island, practicing skills in applied anthropology through the Off the Beaten Track field school. I was interested in the means of production that go into the creation of honeybee products, and specifically the people that make this process possible. During my time in Gozo I met Adam, a 60-year-old beekeeper, who provided me with some of his perspectives on honeybee production. Working alongside Adam and his bees offered me a glimpse at what it means to be a keeper in Gozo. Recently this practice is experiencing new challenges, shaping the tasks and concerns of Gozitan beekeepers. Worries alluding to perceptions of potential bee extinction are present as signs of colony collapse disorder (CCD) arise. With this, the environment of Gozo is encountering unfamiliar conditions that are potentially related to climate change. These issues are faced by a community of keepers that survive the practice of beekeeping on Gozo through the exchange of local knowledge and dialogue. I left Gozo with further questions about how the island’s environment shapes beekeeping and what the future of this practice will have an impact on our warming planet.

**ANNALYSSA JOHNSTON**

**SOCIOLOGY**

**POSTER 62 Title: Career or Family: Can Women Manage Both?**

**Research Area: Social Science**

**Faculty Mentor: CJ Pascoe**

**Abstract:**

The decision to pursue both a career and family has become increasingly popular among middle class women in recent decades. Middle class women specifically are in a financial position to pursue higher education necessary for more advanced occupations and are better able to access resources to prevent unplanned pregnancies. As women are able to achieve more high status careers and are entering the workforce in larger numbers, it is no surprise that they aim to have both a career and family. Raising a family and pursuing a career are both time consuming, demanding responsibilities, and attempting to do both at once makes this endeavor all the more challenging. For the women that attempt this endeavor, do they feel they have had to choose between either having a family or having a



successful career? An anonymous online questionnaire was completed by 109 women, ages 26-55 who provided responses to questions probing at issues that arise when women attempt to pursue both family and career. The findings from this research shed light on a problem rarely discussed in today's society: are women able to manage both a family and career or are they sacrificing one for the other. Ultimately this research found that many women, while they claim to be managing both family and career, are indeed sacrificing either their work desires or family desires to achieve success and goals in the other.

**JANIKA JORDAN**

**INTERNATIONAL STUDIES**

**POSTER 63 Title: For Those Who Want to Leave the Home: An Examination of Transportation Problems Faced by Women from the Middle East and North Africa Settling in Oregon**

**Research Area: Humanities**

**Faculty Mentor: Angela Joya, Louise Bishop**

**Abstract:**

Over the past decade, a growing number of individuals from the Middle East and North Africa have been seeking refugee status or entering the immigration in order lottery to come to Oregon. This work examines problems women face when they emigrate from the Middle East and North Africa to the Portland and Eugene areas, which resulting from, a lack of adequate public transportation and issues surrounding the acquisition of driver's licenses. The topics of a reassertion of patriarchy in families introduced into a new culture, women's access to employment and education, and gaps in the specific resources devoted to ensuring the successful integration of refugee families into society are considered in my research. It incorporates academic research, interviews with women who have immigrated from the Middle East and North Africa to Oregon, and interviews with employees of social service networks in Oregon. It additionally contains interviews with social service workers in Michigan to compare how the problem is dealt with across two states. This work seeks to draw conclusions from this research with the goal of proposing policy solutions that take into account the empowerment of women from the Middle East in the process of their integration in Oregon.

**KIARA KASHUBA**

**PUBLIC PLANNING, POLICY, AND MANAGEMENT**

**ORAL SESSION 2E Title: Textbooks or Groceries: Exploring the Prevalence, Correlates, and Consequences of Food Access Among University of Oregon Students**

**Research Area: Social Science**

**Faculty Mentor: Laura Leete**

**Funding: Whole Foods Market Eugene**

**Abstract:**

Various studies are emerging across the United States indicating that college students are lacking adequate access to food, adversely affecting their academic success and overall wellbeing. To contribute to this growing field of literature, I am conducting research into how this issue takes shape at Oregon's flagship university. This ongoing study investigates the prevalence of food insecurity among University of Oregon students (N = 1,XXX) the relationship between food insecurity and various demographic indicators, and how food insecurity may impact academic success. It employs a self-administered, cross-sectional online survey, utilizing the U.S. Department of Agriculture's Household Food Security Survey Module and student self-reported demographic variables. Results will demonstrate that X% of the students in the overall sample were classified as food insecure, with another X% at risk of food insecurity. Students at higher risk of food insecurity will include those who reported X and those who reported X. Students identifying themselves as X or as X were also at increased risk for food insecurity.

**TARYN KAWASHIMA**

**BIOCHEMISTRY**

**POSTER 64 Title: Functionalization of Nanohoops towards Biological Imaging Agents**

**Research Area: Natural/Physical Sciences**

**Faculty Mentors: Ramesh Jasti, Brittany White**

**Funding: UROP – VPRI Undergraduate Research Fellowship**

**Abstract:**

The research presented will include the synthesis of nanohoop derivatives for cellular imaging and targeting. Nanohoops are the smallest cross section of carbon nanotubes. The well-established and size-selective syntheses of these nanohoops have revealed unique size dependent fluorescent properties that are potentially useful for developing new biological probes. Using synthetic strategies, the nanohoops have been prepared with versatile azide functional handles for further manipulation via copper-catalyzed “click” chemistry. The easy derivatization could allow for cellular targeting and multicolor imaging.

**DONNA KAYAL**

**BIOCHEMISTRY**

**POSTER 65 Title: Gap Detection as a Metric for Understanding the Neural Circuitry of Temporal Acuity**

**Research Area: Natural/Physical Sciences**

**Faculty Mentors: Mike Wehr, Aldis Weible**

**Abstract:**

Speech comprehension requires processing sound information with a high degree of temporal precision. As a standard metric for assessing temporal acuity, gap detection allows us to understand the neural circuitry involved in such everyday speech processing. Additionally, achieving the finest levels of temporal acuity requires cortical involvement. In the present study, we used a transgenic technique known as optogenetics to manipulate activity in specific subsets of cortical neurons to better understand how cells in different layers of the auditory cortex contribute to brief gap detection. We have also applied neuroanatomical techniques to better understand the position of these populations of cells within the cortical circuit. One such technique utilized fluorescent beads that were retrogradely transported from inferior colliculus and medial geniculate to auditory cortex. This study allows us to verify the cortical canonical circuit in speech processing as well as shed some light on how changes in cortical function contribute to speech pathologies.

**LILA KAYE**

**CELLULAR, MOLECULAR, AND DEVELOPMENTAL BIOLOGY**

**ORAL SESSION 1A Title: Determining the Fitness Advantage Conferred by Anti-inflammatory Gene**

**Expression to Commensal Bacteria**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Karen Guillemin, Annah Rolig**

**Funding: SPUR; Meta Center**

**Abstract:**

Commensal bacteria signal to reduce or prevent immune responses that, when overactive, can cause chronic diseases like inflammatory bowel disease (IBD), making commensals critical for maintaining host health. People suffering from such diseases host fewer species known to reduce intestinal inflammation, while healthy individuals do contain commensals that provide this service. The host clearly benefits from reduced inflammation, however the potential evolutionary benefits to the bacteria are not known. Understanding why bacteria carry genes to reduce host inflammation may allow us to promote their inclusion in microbial communities of patients with diseases like IBD. The Guillemin laboratory discovered that the zebrafish commensal *Aeromonas* secretes an immunoregulatory protein (IRP), that lowers intestinal innate immune response. I previously investigated the benefits of IRP to *Aeromonas*, demonstrating that mutant *Aeromonas* lacking IRP (dIRP) suffer a colonization defect in monoassociations compared to wild type. This defect may be worse in a complex microbial community. Given this observable defect in dIRP, here I ask whether dIRP colonization can be rescued by mimicking the effect of IRP in the host. The conditions I am testing are: (1) bacterial genetic complementation, (2) introduction of exogenous IRP, and (3) a transgenic zebrafish mutant lacking intestinal inflammation. If immune modulation by IRP is a mechanism evolved by *Aeromonas* that allows it to thrive in the host, then reduced immune response should promote successful dIRP colonization. Once we understand the benefits of an anti-inflammatory function to commensal bacteria, we can manipulate microbial communities to foster bacteria with health promoting qualities.

**BRIANNA KENDRICK**  
**ANTHROPOLOGY**  
**POSTER 66 Title: Archaeoparasitology of the Paisley Caves**  
**Research Area: Natural/Physical Sciences**  
**Faculty Mentor: Dennis Jenkins**  
**Funding: UROP – Mini-Grant**

**Abstract:**

Parasites' egg sacs from coprolites recovered from archaeological contexts often offer unique views into the diets and health of early humans. Excavations of the Paisley Caves site of Central Oregon have resulted in the discovery of human coprolites dating back approximately 14,300 cal. BP years ago. In spring 2016, thirty coprolites and their corresponding sediment samples from Paisley Caves were analyzed for pollen. Portions of the coprolites separated from the main coprolite matrix included bone, fur, macrobotanicals, and amorphous plant materials. The remaining materials were stored in double-distilled water and refrigerated for later analysis. Microscopic examinations of the remaining coprolite materials show the presence of parasite egg sacs. Here we report on current research on these parasite egg sacs, and what we hope to achieve in the near future.

**LEAH KENNON**  
**ADVERTISING & ENVIRONMENTAL STUDIES**  
**POSTER 67 Title: What Does it Take to Break Up With Coal?**  
**Research Area: Natural/Physical Sciences**  
**Faculty Mentor: Marquis Blaine**

**Abstract:**

In 2016 Oregon was ranked 4th in state renewable energy production and became the first state to pass legislation to completely phase out coal, but renewable energy sources are not as steady as coal generated energy, so what exactly a future without coal generated energy might look like remains enigmatic. In response to Oregon's groundbreaking energy legislation and the pressing issue of climate change I compiled research from sources including the Oregon Department of Energy, U.S. Energy Information Administration, and Oregon State University to examine what the transition to 100% renewable energy could look like for Oregon. I examined current energy usage and production within the state, as well as projected future production, and technological advancements that affect the viability of different renewable energy sources. Based on my research, the path towards renewable energy may be much more complex than it appears at first, requiring changes at almost every level of the energy system.

**ANTON KHOKHRYAKOV**  
**BUSINESS ADMINISTRATION**  
**ORAL SESSION 3E Title: James I and the Jews of Aragon: A Relationship Based on Fear and Oppression**  
**Research Area: Social Science**  
**Faculty Mentor: Michael Peixoto**

**Abstract:**

In his autobiographical *Llibre deis Fets* (Book of Deeds), King James I of Aragon (1213-1276) thoroughly documents the accomplishments and difficulties of his reign. In fact, the king so concerned himself with keeping a record of his life for posterity to the point that he introduced paper registers in the kingdom and brought scribes along on campaigns. As a result, a great number of historical records involving James I and his successors survive, giving insight into Aragonese medieval society. In the study of the Jews of Aragon historians have cultivated the perception that the Aragonese Jews experienced a "Golden Age," of peace and tolerance lasting until their expulsion in 1492. As a result of these misperceptions, most academic literature romanticizes the Aragonese kings as tolerant and benevolent leaders, who cared about the Jews beyond their monetary value to the Crown. My research challenges this trend. Through an analysis of royal charters, registers, and notarial records, I explore the relationship between James I of Aragon and the Jews. In particular, this paper will examine the specific nature of their relationship, its origins and implications for both, the king and the Jewish community. I will explore how the Jews established a connection with James I and how that allowed him to exploit their community for economic and historical benefits.

**JACK KIEMEL  
BIOCHEMISTRY**

**POSTER 68 Title: Investigating the Role of NPFs in the Arp3ΔC Phenotype**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Brad Nolen**

**Funding: National Institutes of Health**

**Abstract:**

The Arp2/3 complex is an assembly of seven protein subunits that nucleates branched actin networks involved in cellular functions such as endocytosis. Previous work has determined the complex is intrinsically inactive, and can be turned “on” by activators like ATP or proteins called nucleation promotion factors (NPFs). It has been hypothesized that the complex remains in an auto-inhibited state due to the c-terminus of the Arp3 subunit. Deletion of the c terminus (Arp3ΔC) results in a hyperactive Arp 2/3 complex in a purified in-vitro system. Strikingly, this complex is inhibited by the canonical NPF wiskott-aldrich syndrome protein (wsp1). These contrary phenomena are complicated further by the observation of endocytosis in-vivo. In *S. Pombe* fission yeast, Arp3ΔC generates endocytic patches that have a reduced internalization percentage compared to wild type cells but assemble at nearly the same abundance. This suggests preferential binding of a single NPF to Arp2/3 that polymerizes actin, but in an incorrect manner for endocytosis. Here, we will investigate involvement of dip1 amongst other NPFs in the Arp3ΔC phenotype. Dip1 has been shown to be involved in the temporal regulation of actin polymerization during endocytosis; deletion of this activator results in both decreased patch density and longer but more stochastic patch lifetimes before internalization. Utilizing *S. pombe* as a model organism, Arp3ΔC will be combined with NPFΔ constructs to determine which activator is responsible for actin polymerization in the absence of the Arp3 c-terminus. Analysis of crosses is accomplished primarily with spinning disk confocal microscopy.

**MATTHEW J. KIM  
POLITICAL SCIENCE**

**ORAL SESSION 1D Title: Ali Revived?: Colin Kaepernick and Traditions of Black Anti-Militarism**

**Research Area: Social Science**

**Faculty Mentor: Daniel HoSang**

**Abstract:**

This paper serves to evaluate the potential connection between Colin Kaepernick's 2016 season-long protest of the national anthem before NFL preseason and regular season games, and the historical narrative of black anti-militarism within the United States. This paper will trace the growth of black anti-militaristic politics from their origins during the Spanish-American war in the 1890's through to their development during the protests of Muhammad Ali, Martin Luther King Jr., the Olympic Protest of 1968, and basketball player Mahmoud Abdul-Rauf in the mid-1990s. The connections between each of the aforementioned protests are revealed through three distinct themes; their ability to connect domestic issues to international conflict, showing solidarity towards those oppressed, and standing up against white supremacy. The belief that the United States has historically been imperialistic and tyrannical on the foreign stage, by relying on the use of violence to solve problems in an effort to oppress others abroad as it has historically accomplished at home, is found throughout the narrative of many prominent civil rights leaders and African American professional athletes. My work will examine primary accounts and statements from each athlete and those opposing American imperialism in addition to thorough analysis by renowned researchers such as Dave Zirin and Zareena Grewal. My research contextualizes Colin Kaepernick's stand in light of this history through a careful examination of notable civil rights protests regarding the actions and attitudes of American militarism, doing so from an historical perspective. “Does Kaepernick's critique and protest fall within the historic tradition of black anti-militarism or should it be understood from a different vantage point?”

**JOSIE KINNEY  
ENVIRONMENTAL STUDIES AND SPANISH**

**ORAL SESSION 2C Title: Asparagus Justice: A Case Study of the Peruvian Asparagus Industry and Its Social Implications**

**Research Area: Social Science**

**Faculty Mentor: Mark Carey, Shaul Cohen**

**Abstract:**

Over the past thirty years, Peru has not only become the number one exporter of fresh asparagus, but also the most

efficient producer in the world—with over 125% higher yields than their closest competitor. Moreover, this asparagus is cultivated in a virtual desert, with water being irrigated hundreds of miles. This study of asparagus is intended to determine neither the sustainability nor morality of such a practice, but rather to understand the variety of factors that have contributed to such a development. Thus far, Peru's asparagus industry has been minimally understood, and what is known has primarily been researched through the ecological and hydrological lens. Therefore, this study seeks to understand how factors such as political institutions, international economic demands, local climatic and hydrological systems, and social factors such as labor, both historically and currently, fostered the rise of the asparagus industry. First, this study identifies the stakeholders—from the local level to the international level—then identifies the groups that may benefit, and the groups that may be disadvantaged by asparagus exports in an effort to better understand potential social and environmental justice issues. The methodology includes looking at primary and secondary source documents. Primary sources included documents such as Peruvian water laws, archived Peruvian newspapers from the 1970s to current, and statistics on production and exportation from the Food and Agriculture Organization. Secondary literature was then analyzed to see if the trends found in Peru apply to broader global trends with regard to social and environmental justice.

**KATHRYN KINNEY**

**EDUCATION FOUNDATIONS**

**ORAL SESSION 2B Title: Multiple Perspectives on Formulation of Intelligence: How Implementing Gardner's Multiple Intelligence Theory and Einstein's Thinking into Curriculum Can Provide an Abundance of Variety on Learning About and From the World**

**Research Area: Social Science**

**Faculty Mentor: Asilia K Franklin-Phipps**

**Abstract:**

When you speak, how do you visualize or think about the words in your head? Do you write them on paper, or perhaps by typing them on a keyboard? You may not visualize your speech at all, but you may have a personal regulation system that you use when you prepare speech. We are continuously discovering new ways to integrate learning to coincide with development. Dimensions of intelligence can be accessed in different ways, and through different experiences in their individuality. The primary focus of this proposal would be how a growing person processes stimuli of interest and the different ways in which their environment exposes them to multiple intellectual processes. Personal meanings are created when information is perceived by an individual's experiences to all forms of sensory information. In an academic setting, students should be engaging in their own formulations of intelligence, and encouraged to discover the best way they personally learn. Natural learning occurs spontaneously and is congruent with an individual's inner nature. This knowledge construction enables learners to explain and adapt in any academic setting, simultaneously supporting themselves, the educator, and other peers. Children develop language knowledge comparable to how scientists develop scientific knowledge, which educators could then integrate the scientific process at an earlier age to support this engagement in their environments. Integrating a learner centered philosophy into a diverse curriculum can support all forms of intelligence and could open the door to new perspectives of the world.

**HELENA KLEIN**

**BIOLOGY**

**POSTER 69 Title: Effects of Environmental Adaptation of a Commensal Zebrafish Bacterium on Gut Colonization**

**Research Area: Natural/Physical Sciences**

**Faculty Mentors: Karen Guillemin, Cathy Robinson**

**Funding: META Grant**

**Abstract:**

The strategies that bacteria use to facilitate host colonization is an important and little-understood area in the field of host-microbe interactions. In the Guillemin lab, adaptive evolution experiments were conducted by in vivo passaging of *Aeromonas ZOR0001* to generate evolved isolates with increased colonization fitness in an effort to find novel mechanisms of host colonization. The evolved isolates, which displayed increased colonization capacities, were also observed to reach higher population densities in the water. This aquatic environment contains only empty chorions and other by-products of larval hatching, and thus has many fewer nutrients than typical growth media. This correlation between increased gut and environmental colonization suggests that the ability of a particular commensal microbe to reach higher densities in the fish's water may lead to an increased colonization potential. I set out to test

this hypothesis using experimental evolutionary techniques to serially passage the ancestral *Aeromonas* strain in fish-conditioned water for two weeks. I found that while the evolved strains did grow to higher population densities in the water compared to the ancestor, the higher population density did not increase gut colonization. Furthermore, one of the evolved isolates showed reduced colonization, indicating a mutation/s in a gene or set of genes critical for gut colonization in this isolate. Future work will include genomic and transcriptomic analysis of these isolates to identify genetic differences between the evolved isolates and the ancestor which can lead to better probiotic development in the future.

**HELENA KLEIN**

**BIOLOGY**

**ORAL SESSION 1F Title: The Return to Oregon: The Northern Paiute Exodus from the Yakama Reservation and Reception by Agent Smith at Warm Springs 1880-1884**

**Research Area: Social Science**

**Faculty Mentors: Kevin Hatfield, Jennifer O'Neal**

**Abstract:**

After suffering abuse at the Yakama Reservation, many members of the Northern Paiute tribe tried repeatedly to escape. Twenty-four members were finally successful, escaping to the Warm Springs Reservation in September 1880. Previous histories skipped over this critical time. Even the most complete history of the Warm Springs Reservation, a dissertation by Thelma Cliff, contains only a few sentences discussing the Northern Paiute. Through examination of correspondence between Agent John Smith and his superiors, and reports on his Agency, I argue Smith tried to reunite Paiute families, and actively disobeyed and delayed orders in an attempt to help the Paiutes on his reservation. I use decolonizing methodologies including oral histories from Northern Paiute elder, Myra Johnson, to paint a novel picture of the Paiute exodus to Warm Springs Reservation. Agent Smith's actions shaped Paiute life on this new reservation, which has many repercussions for the Paiute people living there today.

**WILLIAM KOMODA**

**POLITICAL SCIENCE**

**ORAL SESSION 2B Title: Shifting Perceptions and Outcomes in Public Education for Neurodiversity**

**Research Area: Humanities**

**Faculty Mentor: Courtney Rath, Asilia Franklin-Phipps**

**Abstract:**

For the lives of children and adults with disabilities, the formative struggles and successes of their lives inform unique perspectives of the world and their communities. Many of these experiences happen in a public school. Across the discourses about education, social justice, government policy, and more, the need is clear for a diverse community of voices and stories to make the institution of education work for everyone, including the disabled community. The purpose of this research is to examine ways to encourage students and teachers with disabilities to become critical educators and community leaders. To this end I gathered literature about students and teachers with disabilities in the public education classroom. The argument to be made from this research is that public education teachers have a role to play in fostering leadership in their students, and that the curriculum they teach by can be used to inspire a classroom into meaningful activism. This work may inform a critical educator in ways to design such a curriculum for the classroom.

**PEACE KOTAMNIVES**

**PHYSICS AND MATHEMATICS**

**POSTER 70 Title: Comparison Between ATLAS and CMS Luminosity Data at the LHC**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Eric Torrence**

**Abstract:**

Precise luminosity measurements are important for particle physicists. At the Large Hadron Collider (LHC) in Europe, two bunches of protons are accelerated circularly to collide with each other at some intersection points for every 25 nanosecond. The number of proton collisions that can lead to the discovery of new physics particles is measured by a parameter called "instantaneous luminosity". At the LHC in particular, ATLAS and CMS experiments, which located on opposite site of the 27-kilometer ring, are expected to receive the same luminosity performance. However, in the

2016 run, CMS consistently reported more delivered luminosity from proton collisions than ATLAS. To investigate this difference, our research aims at studying the pattern of ratios between ATLAS and CMS luminosity data delivered from proton collisions per bunch. Our results could help in answering the question whether there are systematic errors in ATLAS or CMS luminosity, or if the LHC genuinely delivers different luminosity to both experiments.

**GRACE KURLYCHEK**  
**UNDECLARED**  
**POSTER 72 Title: Toxic Colonialism**  
**Research Area: Design**  
**Faculty Mentor: Jessica Swanson**

**Abstract:**

Toxic colonialism is defined as targeting poor communities of color in third world nations for waste disposal and exporting possible environmental disasters. I have been focusing on North American examples, specifically related to oil pipelines and tar sands). In my research, I have discovered the difficulty of finding unbiased information, which further complicates finding possible prevention or solutions. I have looked at information provided by oil companies as well as environmental group's policy suggestions. Toxic colonialism is a specific area within the idea of environmental racism. Socially marginalized minority communities are subjected to disproportionate exposure of environmental hazards, denied access to sources of ecological sustenance, and communities are forced to live in areas with infertile or degraded and undesirable land. Long-term negative effects of environmental racism are often unknown and under researched. The significance of this research has to do with amplifying the voices of marginalized communities. I am interested in illustrating long-term health and ecological problems caused by an industrialized society and lack of accountability by corporations

**THEODORE J. LAGROW**  
**COMPUTER AND INFORMATION SCIENCES, MATH**  
**ORAL SESSION 1G Title: Do You Know Where Your Research Is Being Used? An Exploration of scientific literature using Natural Language Processing**  
**Research Area: Natural/Physical Sciences**  
**Faculty Mentor: Boyana Norris**  
**Funding: National Science Foundation REU, OURJ Publication**

**Abstract:**

In a complex and dynamic field such as computer science, it is of interest to know what software resources are available and to understand the usage and purpose of these resources. We demonstrate the feasibility of automatically identifying resource names, such as a bibliography, found in scientific literatures and show how the generated data can be used for the exploration of software and topics. While scholarly literature surveys can provide some insights on what is being used by researchers, large-scale computer-based approaches to identify methods and technology from primary literature is needed to enable systematic cataloguing. Further, these approaches will facilitate the monitoring of usage more effectively. We developed a software tool using Natural Language Processing to determine if articles relate to a specific technology or methods. We then evaluated a trend of technology and methods used in each specific area of science, such as genetics, astrophysics, computer science, and statistics. As we continue to expand this software, the researchers' sentiment about a written technology or methods in a paper will be used to evaluate the field's perception of the technology or method. This is help grants evaluate validity of future research.

**THEODORE J. LAGROW**  
**COMPUTER AND INFORMATION SCIENCES, MATH**  
**POSTER 73 Title: Short Term Memory and the Effects of Locomotion**  
**Research Area: Natural/Physical Sciences**  
**Faculty Mentor: Yashar Ahmadian**  
**Funding: Presidential Undergraduate Research Scholarship**

**Abstract:**

In the Neuroscience Department at the University of Oregon, Dr. Cris Niell's lab studies the neurons of mice. The lab recently made novel discoveries on short-term memory with locomotion using trained mice. The mice were

trained using a Pavlovian reward system based on water deprivation. While on a dynamically rolling ball, the mice were given a vertical or horizontal visual stimulus conducted the mice to move either left or right, respectively. The data were given to the Ahmadian Lab to analyze. Using eigendecomposition, dimensional analysis, singular value decomposition, and principle component analysis, we show the effects of movement maintain the effects of movement maintain a longer dimming time in mice. . The findings suggest that movement increases the dimming time of a neuron cluster, which show that short term memory is improved. The results of this analysis conclude locomotion improves short-term memory.

**THEODORE J. LAGROW**

**COMPUTER AND INFORMATION SCIENCES, MATH**

**POSTER 74 Title: Complex Hawkes Processes and the Prediction of Aftershocks**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Christopher Sinclair**

**Abstract:**

Around the world, earthquake data is collected near fault zones from thousands of sensors. Countries such as Japan, Australia, and New Zealand have publicly release databases from the past few decades filled with readings of earthquakes. Dr. Yoshihiko Ogata is a Japanese statistician leading the field in modeling earthquakes and predicting their effects. However, as more data is collected, techniques developed in the late 1980's should be refined given the greater amount of data. When given a series of events known to decay in intensity as a function of time, a stochastic process can predict the subsequent intensities of the given events, including exponentially decaying events. By simulating the public data, a Poisson process called a Complex Hawkes Processes can greater refine the predictions of Ogata's models. Based on an initial earthquake, the Complex Hawkes Process can greater predict the ratio of time and magnitude in each region. Thus, with these refinements, the Complex Hawkes Processes can great predict intensity over a given time.

**VIRGINIA LAGROW**

**GENERAL SOCIAL SCIENCE**

**ORAL SESSION 1C Title: Saint Leoba: The Last of a Generation**

**Research Area: Natural/Physical Sciences**

**Faculty Mentors: Lisa Wolverson, Michael Peixoto**

**Abstract:**

Saint Leoba is a legacy of Anglo-Saxon nuns and missionary life. She lived in a time where her role as a woman was rapidly changing and her actions were already considered abnormal. Under Charlemagne and Louis the Pious there was a push to reform monastic life to previous "purity" and separate men and women. Leoba is at the end of the first generation of missionaries from England, and was entering into a new era where double monasteries do not exist. This makes Leoba's vita unique in that is she the best record historians have of women in this time. Rudolf's Leoba is a representation of a strong, female Anglo-Saxon abbess during a period where women's leadership was declining in monastic life. He showcases the best of England's double monastery system through Tetta's management at Wessex, the capability of a female's lead in ecclesiastical educational, and the proficiency of an abbess with close kinship ties to other Anglo-Saxon missionaries. Leoba's vita is a tribute to a disappearing era during the beginning of a turbulent period in the Carolingian era.

**CONNOR LANE**

**BIOLOGY**

**POSTER 75 Title: A Genome Scan Reveals Patterns of Genome Wide Variation Between Pollination**

**Ecotypes of the Bush Monkeyflower**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Matt Streisfeld**

**Abstract:**

A major goal of speciation research is to understand how genomic differences accumulate during the formation of new species, a process known as speciation. Early in the process, when isolating barriers are weak, only regions of the genome associated with isolating barriers are expected to diverge, while the rest of the genome is homogenized by gene flow. Thus, by identifying these differentiated regions, we may gain some insight into the genomic basis of



reproductive isolation early in speciation. I used a genome scan approach to identify genomic regions that are highly diverged between red- and yellow-flowered ecotypes of the bush monkeyflower (*Mimulus aurantiacus*). The ecotypes, which are distributed in San Diego County, are partially reproductively isolated from one another by pollinator preferences despite ongoing gene flow between them. My genome-wide F<sub>ST</sub> analyses revealed a small number of genomic regions that are consistently differentiated between the ecotypes, suggesting that they are associated with pollinator isolation and speciation in this system.

**DAVID LEE**

**BIOLOGY, BIOCHEMISTRY**

**ORAL SESSION 3D Title: Leafcutter Ants Inside The Nest Have Sharper Mandibles than Ants Outside the Nest**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Robert Schofield**

**Funding: McNair Scholars Program**

**Abstract:**

Mandibular wear has a strong impact on leafcutter behavior and energetics. We report that the mandibles of ants outside the nest have higher wear on average than the mandibles of ants inside the nest by a factor of 2.14 ( $p = 5E-18$ ). 95% of ants found outside the nest had wear that was more than .025 mm, and 70% of ants found inside the nest had wear that was less than .025 mm. This wear difference between ants inside the nest and outside the nest may indicate that ants do not go outside of the nest until their mandibles have worn, and that ants with the sharpest mandibles stay inside the nest where most of the cutting occurs.

**ROSS D. LENCH**

**ENGLISH**

**ORAL SESSION 2G Title: Comedy, Chaos and the New Norm in a Post-Network Era: The Tale of Norm Macdonald Live**

**Research Area: Humanities**

**Faculty Mentor: Robin Zimmerman, Brendan O'Kelly**

**Abstract:**

We live in the internet era in which artists are allowed new creative freedoms and audiences feel they have relationships with the producers of their favorite media. The video-blog Norm Macdonald Live exemplifies the current state of media and the implications of its future. The Program uses both the oldest tropes of comedy and the newest trends in media to create something new; a hybrid of reality and the highly theatrical. By redeploying the standbys of comedy, particularly the late night show format. Norm Macdonald Live produces truly deep interviews, provocative comedy, and reveal a window into the future of the post-network era. My work explains why this new generation of media is coming about and how Norm Macdonald Live plays off of its format to the greatest degree for comedic effect. My work draws on Dmitri Nikulin's book, *Philosophy Seriously*, which speaks to (of? about?) the societal importance of comedy. This study also draws on articles from the last five years, which substantiate the trend of consumer-based programming and discuss the implications for the future of media. The work outlines a rough future for post-era media and explains both the positive and negative impacts of these shifts. By investigating this expertly crafted piece of comedy, which couples the past and the future in an unstable present, all creative minds can find inspiration in their ability to overcome and adapt in the face of chaos, while staying true to humanity's oldest and truest intentions which present themselves as comedic logic.

**HANNAH LEWMAN**

**ADVERTISING, SPANISH**

**POSTER 76 Title: Framing Livability: A Strategic Communications Approach to Improving Support for Public Transportation in Oregon**

**Co-Presenters: Benson Winklebleck, Cameron Kokes, Pauline Rode, Talia Berniker**

**Research Area: Design**

**Faculty Mentor: Deborah Morrison**

**Funding: National Institute for Transportation and Communities**

**Abstract:**

The city is a complex system, and making improvements to it is a complex task. Using Portland, Oregon as a case study, our team explored what makes a space liveable and crafted design solutions around these findings. After reading through extensive research showing a strong correlation between public transit and liveability, we conducted our own research on what people need in their cities. Through a series of intercept interviews in Portland, we found the strongest factor for a city's livability is mobility. Forty-nine percent of people interviewed mentioned urban congestion, transportation, and the need for public transit. With transportation as our focus, our creative team researched motivations for and barriers to transit use, identified a target audience, and worked to craft creative solutions that would get people to use public transit. The main hypothesis of this creative work is that transit advertising must convey the authentic voices of transit users, not the institutional voice of a transit agency. To test this hypothesis, we will be conducting message testing this April, investigating how audiences react to traditional transit advertising compared to more authentic, guerilla-style messaging. From these findings, we will create a best practices guide advising transit agencies on how to get new riders who might otherwise choose to drive. Our goal is to create a framework for messaging that would get drivers off the road and ultimately make the city more liveable.

**HOPE LIOU**

**BIOLOGY**

**POSTER 77 Title: Phenotype Analysis of RNA Polymerase II Mutations that Alter Backtracking, Arrest, and Rescue**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Diane Hawley**

**Abstract:**

RNA Polymerase II (RNAP II) is an enzyme that copies (transcribes) the DNA corresponding to a gene in the first step of gene expression. In addition to the forward movement when synthesizing RNA, RNAP II can reverse direction on the template DNA by sliding backward, a process known as backtracking. When backtracking occurs, the RNAP II either will momentarily pause before sliding forward again or will use a second enzymatic activity to cleave the growing end off the RNA and resume transcription from the backtracked position. However, sometimes the RNAP II backtracks too far and becomes arrested. In this case, the RNAP II must be reactivated by the action of a protein called TFIIIS or degraded in a series of events that requires modification of amino acids on the surface of the enzyme. Mutations that alter functions of RNAP II in the yeast *Saccharomyces cerevisiae* have been previously identified in our lab. We are interested in mutations that interfere with normal arrest and rescue. Some of the RNAP II mutants had more than one amino acid change. This study examined the phenotypes of these multiple mutant alleles and compared them to single mutants to determine which mutation or combination of mutations was responsible for the observed phenotype. We also examined the ability of TFIIIS to reactivate arrested mutant variants of RNAP II. The overall goal is to understand the mechanisms that control RNAP II backtracking, arrest, and reactivation and the physiological consequences of these events.

**COLIN LIPPS**

**HUMAN PHYSIOLOGY**

**ORAL SESSION 1A Title: The Effect of a Fatiguing Run on Hip Abductor Strength and Runner Mechanics**

**Co-Presenter: Hao Tan**

**Research Area: Natural/Physical Sciences**

**Faculty Mentors: Li-Shan Chou, JJ Hannigan**

**Funding: UROP Mini-Grant**

**Abstract:**

There is a body of evidence to suggest that a 30-minute run at 80% maximal effort can be effective in inducing hip

abductor muscle fatigue when comparing pre-fatigue and post-fatigue strength. Yet, there is a lack of literature testing how joint angles during running are affected by the fatigue protocol at intervals throughout the run. Therefore, the intent of our project is to test how this new fatigue protocol affects runner mechanics during a fatiguing run, and to examine any hip abductor muscle strength changes the protocol induces. To test these questions, we plan on recruiting at least 30 subjects comprised of half females and half males. These subjects will perform three maximal voluntary contractions with their hip abductor muscles before and after a fatiguing 30-minute run. We will compare pre-post strength data with the results from current literature and with a study in our lab that uses an isokinetic fatigue protocol. Furthermore, to examine the changes in our subjects' running mechanics throughout the run, we will use our 10-camera motion capture analysis system. This technology records exact joint-angle positions based on 39 reflective markers that are strategically placed on each subject's body. After completion of the study, we will analyze statistical changes in kinematic data such as hip abduction/adduction, knee varus/valgus, and hip sway in hopes of identifying how the 30-minute run affected runner gait-mechanics. This portion of the study could result in significant findings on mechanisms of runner injury leading to a better understanding of runner injury prevention.

**GEENA LITTLE**

**EARTH SCIENCES, GEOPHYSICS, APPLIED MATHEMATICS**

**POSTER 78 Title: Variation in Seismic-wave Attenuation along the Cascadia Subduction Zone Determined from Tectonic Tremor**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Amanda Thomas**

**Funding: UROP Mini-Grant; UO Department of Earth Sciences; Walter Youngquist Fellowship - UO Department of Earth Sciences**

**Abstract:**

Many subduction zones worldwide host large, devastating earthquakes, such as the 2011 M9 Tohoku-Oki earthquake. In addition to fast, seismic slip 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 downdip of where large earthquakes typically occur. This behavior is thought to reflect variation in frictional properties, effective stress, or both in between the aseismic and seismic sections of the seismogenic zone (area capable of generating earthquakes). Seismic-wave attenuation is a parameter that quantifies the decrease in amplitude of seismic waves as a function of distance from the earthquake source. Estimates of attenuation are commonly used in ground-motion prediction equations (GMPEs) that quantify ground motion during an earthquake. Because tremor occurs frequently when compared to regular earthquakes in Cascadia, it presents an opportunity to better define attenuation parameters used for GMPEs in earthquake engineering. Our goal is to quantify seismic wave attenuation in Cascadia and determine its spatial variations using tectonic tremor. By inverting tremor ground motion data for the attenuation parameter, we can analyze if and how the results vary spatially in Cascadia and attempt to relate these variations to lithology and/or other physical properties. Changes in seismic-wave attenuation along the Cascadia Subduction Zone could result in significantly different ground motions in the event of a very large earthquake, hence quantifying attenuation may help to better estimate the severity of shaking in densely populated metropolitan areas such as Vancouver, Seattle and Portland.

**JIawei LIU**

**BIOCHEMISTRY**

**POSTER 79 Title: Zebrafish *gsdf* Mutant Provides a Disease Model for Human Polycystic Ovary Syndrome**

**Research Area: Natural/Physical Sciences**

**Faculty Mentors: John Postlethwait, Yilin Yan**

**Funding: National Institutes of Health Grant**

**Abstract:**

Zebrafish is a good model system for genetic disease research. In this study, we knock down zebrafish *gsdf* gene (gonad soma derived factor) using a gene editing method (TALENs). We find *gsdf* mutant could cause delay the process of bi-potential gonad becoming obvious ovarian or testes during gonad developed. Besides, *gsdf* mutant female had similar phenotypes with polycystic ovary syndrome (PCOS) in human. PCOS is a set of symptoms due to elevated androgens (male hormones) in women that can cause difficulty getting pregnant and no way to cure yet. These phenotypes include the accumulation of premature oocytes in ovaries, obesity and diabetes, similar to PCOS in human. We conclude the *gsdf* mutant in zebrafish could provide a disease model for studying PCOS in human.

**NICK LIVINGSTON**  
**PSYCHOLOGY**

**POSTER 80 Title: Effortless Assessment of Stressful Environments: A Passive Mobile Sensing Tool for Assessing Psychological Risk States**

**Research Area: Social Science**

**Faculty Mentors: Nick Allen, Michelle Byrne**

**Funding: UCSF – Stress Management Network**

**Abstract:**

Recent developments in mobile and wearable devices allow users and researchers to collect data that provide valuable insight into an individual's mental health status. These data include affective naturalistic language, geolocation, physical activity, facial expressions, and acoustic voice quality. In order to capture these data streams, our lab has developed the Effortless Assessment of Risk States (EARS) tool, an Android smartphone application that collects these psychologically relevant data as part of an individual's regular daily phone use. Our Effortless Assessment of Stress Environments (EASE) pilot study utilizes the EARS tool, along with self-report questionnaires and salivary (inflammatory and telomere) measures, to assess behavior and mood amongst undergraduate students during low-stress (regular academic term) and high-stress (finals week) periods of the academic term. This experimental design allows us to evaluate which data streams best indicate changes in psychological stress, as well as validate our innovative digital tool. Currently, the EASE pilot study is finishing the data collection phase (N = 24). In this poster, we will present a preliminary and descriptive summary of the type of data we collected in EASE and explain our future analysis approach for testing the validity of passive mobile sensing data. Our ongoing development of the EARS tool aims to provide individuals, researchers, and clinicians alike with a user-friendly tool that can reliably monitor and evaluate mental health. We plan to utilize our passive mobile sensing tool in the future to predict and prevent mental health crisis, such as suicide.

**LILLIAN LOFTIN**  
**COMPARATIVE LITERATURE, SPANISH**

**ORAL SESSION 1E Title: Transculturation as Rewriting in Borges' "The gospel according to St. Mark"**

**Research Area: Humanities**

**Faculty Mentor: Mayra Bottaro**

**Abstract:**

In "The Gospel according to St. Mark," Borges weaves the idea of transculturation into his understanding of rewriting. "Transculturation" describes the phenomenon of merging and converging cultures, a process that encompasses more than transition from one culture to another, and consequently creates a new cultural phenomenon. Borges' transfer of the crucifixion on Golgotha, the central act of Christianity, to an Argentine ranch, rewrites a foundational book in western culture and complicates the opposition between the European nations and Latin American peoples. In this story, Borges imagines the Gutre family, whose forebears, the Guthries of Inverness, descendants of Christians, have become barbarians. With the blending of their reddish hair and Indian features, two traditions survive "in their blood, like faint tracks: "the rigid fanaticism of the Calvinist and the superstitions of the pampa Indian". Borges imagines Espinosa as himself, a product of the inheritance and freethinking just as his father and his Catholic mother. Borges' rewriting is itself a cultural hybrid, a literary expression of the plural ethnicity inherent in all of his characters as much as it is a product of Borges' own understanding of his own inheritance. Borges "barbarizes" the Gospel as a way to reinscribe the original text and vindicate America as a privileged site of enunciation but also his own task as writer, to rewrite into his own language. Borges' rewriting is intertwined with the way in which he conceived his own identity, not as a stable reality, but constantly changing ("The Argentine writer and tradition").

**EUGENIA LOLLINI**  
**ANTHROPOLOGY, ROMANCE LANGUAGES**

**ORAL SESSION 2F Title: Before the Spectacle: Shaping Gender and Class in Beirut's Beauty Salons**

**Research Area: Social Science**

**Faculty Mentor: Carol Silverman**

**Funding: VPRI Undergraduate Research Fellowship; Humanities Undergraduate Research Fellowship**

**Abstract:**

"Beirut, in the words of one designer...is like a third world country that's put on some makeup" writes Rima Suqi in a recent article in the New York Times. Indeed, scholars worldwide have coined Beirut the trendsetting beauty

city of the Middle East. Striking evidence for this ["this" here would refer to the nickname, not the phenomenon itself includes 2007 National Bank of Lebanon billboards advertising plastic surgery loans and long lines of women waiting outside beauty salons every weekend. Contemporary discourse on the popularity of beauty work in Lebanon is often explained by the reaction to the Lebanese Civil War, and by individualistic attitudes celebrating life, glamour, and living in the moment. However, such assumptions overlook the extent to which familial and social networks constitute the body in Beirut's interconnected and visual society. My research explores: 1) How social pressure from family members and close friends to engage in beauty work supports the patriarchal family structure; 2) How beauty work in Beirut can become a medium of social distinction among different classes of women; 2) How beauty work may contribute to or resist women's subordination in society. To complement my salon research, I also examine how public sites such as nightclubs and bars influence the type of beauty work done in salons. In order to achieve this, I study 4) how men and women perform and display their beauty, gender and class in public sites. Most previous studies of Lebanon's beauty culture focus on the growing number of cosmetic surgery procedures; in contrast, my research addresses non-invasive beauty work.

**CAROLINE LUDLOW**

**EDUCATIONAL FOUNDATIONS**

**ORAL SESSION 3G Title: The Implication of Heteronormativity in Sex Education**

**Research Area: Social Science**

**Faculty Mentor: Alison Schmitke**

**Abstract:**

Five out of fifty United States legally require sex education in public schools to be LGBTQ inclusive. Heteronormativity is the promotion of heterosexuality as the preferred, or normal, sexual orientation that assumes sexual and marital status to be between people of the opposite sex. This paper discusses the inherent promotion of heteronormativity in sex education in the United States. The sex education standards and mandated curriculum in federal and statewide US policy do not exhibit legitimate schooling towards LGBTQ students and families. My research analyzes how the concepts of heterosexuality and homosexuality rose to debate within health and sex education. While the works of researchers have explained the spectrum of human sexuality, the central role of heterosexuality as the norm took precedence in health and sex education; the influences of traditional family planning manipulated the curricula. This research analyzes the current mandates of education law and how they promote heterosexual sex and homosexual sex in two different manners. The repercussions of these findings within sex education create different attitudes towards sexual acts that are outside of the heteronormative sphere, which create a lasting impact within the school setting.

**MAXFIELD LYDUM**

**ENGLISH**

**ORAL SESSION 2G Title: Reading Niels Lyhne in the Anthropocene**

**Research Area: Humanities**

**Faculty Mentor: Gantt Gurley**

**Abstract:**

My project offers a reading of Jens Peter Jacobsen's 1880 novel Niels Lyhne through the critical lens of the Anthropocene, the new epoch of geologic time in which humans bear the most important role in shaping the Earth's natural environment and geologic structure. Along with biologists and other natural scientists, students of philosophy and literature must contend with the problems posed by this new chapter in geologic time. The Anthropocene forces us to reconcile the possibility of species death with immortality, an entrance into Earth's geologic narrative. With these seemingly opposing realities in mind, I seek to understand how a 19th century Danish novel like Niels Lyhne behaves under the scrutiny of Anthropocenic criticism. Making use of Jacobsen's imaginative, yet calculated and in some ways scientific use of color and shading, I pinpoint the ways in which metaphor and metonymy create and exacerbate a textual conflict between aesthetic decadence and material constraints. Jacobsen pits these worlds against each other, revealing how poetry must always give way to the prosaic. Placing the text's characters in the current of geologic time, I attempt to unravel what is Anthropocenic about Niels Lyhne's concern for the failures of poetry.

**ROBERT W. MACY III**  
**MATHEMATICS, COMPUTER and INFORMATION SCIENCE**  
**POSTER 81 Title: Digital Image Manipulation Identification Using Bayesian Networks and Logistic Regression Ensembles**  
**Research Area: Natural/Physical Sciences**  
**Faculty Mentor: Daniel Lowd**

**Abstract:**

Digital media forensics is a field of research growing in importance because of the wide availability of tools such as Photoshop for manipulating images. Thus, methods for automated image integrity determinations are necessary to analyze large image databases held by companies and government agencies. For example, a use case for this type of software would be a news outlet wanting to know if an image that will be included in an article has had content added or removed. Our research aims to develop a method for analyzing the integrity of a digital image based on twelve integrity indicators that look for different manipulations. We are focusing on building probabilistic graphical models that can make predictions about where and what types of manipulations have taken place in an image based on the predictions of the integrity indicators. These indicators focus specifically on detecting where content was added, removed, or duplicated. We use an ensemble of machine learning techniques (Bayesian networks and logistic regression) to build these models. Using Bayesian networks, a type of probabilistic model used in artificial intelligence for updating probability distributions in inference tasks using observed information related to the query, we encode the relationships between grid segments of an image. We use logistic regression as a means of generating probability distributions for manipulations over a specific region in an image. Our process of using logistic regression to allow for continuous valued evidence in Bayesian networks allows us to identify complex relationships among different manipulation types.

**BECCA MARSHALL**  
**ENVIRONMENTAL STUDIES**  
**ORAL SESSION 1F Title: The Lands We Gather From: The Northern Paiute's Fight for Food Sovereignty**  
**Research Area: Social Science**  
**Faculty Mentors: Kevin Hatfield and Jennifer O'Neal**

**Abstract:**

Through dispossession and assimilation measures, Euro-American settler-colonial forces displaced tribal members and erected barriers limiting the Northern Paiutes' access to their traditional food lifeways, and thereby their self-sustainment and food sovereignty. These traditional foods were historically central to their lives and expression of sovereignty, and still play a crucial role in their culture today. I argue that the Northern Paiutes' exercise of, and ability to express, their food sovereignty affects not only their overall food security, but also, their cultural food security. In collaboration with the Northern Paiute community, with significant contributions from tribal elder course partners Wilson Wewa and Myra Johnson-Orange, this study practices a decolonizing approach to researching the food sovereignty of the Northern Paiute. Furthermore, the work highlights the voices of Northern Paiutes through interviews, recordings, newspapers, and articles, and will be shared with the Northern Paiute community in a monograph compiled with other research. Primary sources examined to better understand the Northern Paiutes' food sovereignty included tribal constitutions, codes, treaties, declarations, and federal Indian case law. Critical secondary sources included Elaine Power's article on cultural food security, "Conceptualizing Food Security for Aboriginal People in Canada", Felix Cohen's, Handbook of Federal Indian Law; chapters from Laura Berg's book, The First Oregonians; and James Gardner's Oregon Apocalypse: The Hidden History of the Northern Paiute. A complex network of federal, state, and individual forces limit the food sovereignty of the Northern Paiutes. Yet, the Northern Paiutes have in the past, and continue to exercise their food sovereignty through different tribal government and community initiatives. This research fits into the broader scope of food security for the Northern Paiutes, illuminating the role tribal food sovereignty plays in realizing food and social justice for the Northern Paiutes, along with the cultural importance of sustaining access to traditional food lifeways to achieve food security for the tribe.

**LEANDRO MARX-ALBUQUERQUE**  
**BIOLOGY**

**POSTER 3**      **Title: Atractosteus Spatula Genetic Linkage Map Elucidates Gar Family Genome's Ancestral Condition and Improves the Reliability of Lepisosteus oculatus as a Biomedical and Evolutionary Research Model**

**Research Area: Natural/Physical Sciences**

**Faculty Mentors: Angel Amores, John Postlethwait**

**Abstract:**

Using RAD-tag protocol (restriction site associated DNA), we constructed a genetic linkage map containing the genetic information of the Alligator Gar fish (*Atractosteus spatula*) in order to study its genome and elucidate the ancestral condition of gene order and chromosomal organization within the gar phylogeny. Because of its highly assembled genome, Gar fish, more specifically spotted gar (*Lepisosteus oculatus*), are an excellent model to use for biomedical and evolutionary research. They provide insight to the evolution of various genetic developments in tetrapods and teleost alike and have maintained many conserved non-coding elements (CNEs) present in tetrapods that other teleost lost during the teleost genome duplication event (TGD) (1). Through analysis of the position of RAD-tag markers within alligator gar genome relative to spotted gar as well as other, more distantly related, species, we determined where major genomic rearrangements have occurred as well as highlighted where chromosome fusions and fissions occurred to illustrate discrepancies between the spotted gar genome and alligator gar genome. By comparing these discrepancies, we were able to clarify the ancestral and derived conditions of the gar family genome. These insights obtained through the analysis of the positioning of genetic loci within the alligator gar genome will provide the scientific community with a second, gar specific, reference to compare data to and ultimately improve the reliability of biomedical and evolutionary studies conducted using spotted gar as a model .

**JULIA MAURO**  
**EDUCATION STUDIES**

**ORAL SESSION 3G**      **Title: The Importance of and Methodology of Teaching and Representing Adoptive Families in Education Curriculum**

**Research Area: Social Science**

**Faculty Mentor: Courtney Rath**

**Abstract:**

Perhaps because of the achievement and opportunity gap between both students of color and low income students and their more privileged counterparts, there has been an immense push towards including what is considered a multicultural curriculum in the classroom. A multicultural curriculum is a curriculum that is engaging and inclusive of the diversity of students in terms of learning styles, identity, and experiences. However, as progressive as a multicultural curriculum often claims to be, it too often makes the incorrect assumption that all children are not adopted, thus erasing and disregarding the experiences and identities of those students that are. School curriculum and assignments often unknowingly contain within them identity and representation conflicts for adopted children. In this research, I will illustrate how certain education curriculum and practices can be hurtful to adopted children and then, using the multicultural curriculum framework, present ideas for teachers to use that do encompass the experiences and identities of adopted children .

**LOGAN MCCLAIN**  
**MUSCI EDUCATION**

**CREATIVE WORKS SESSION 4B**      **Title: Understanding the Creative Aspect of Music**

**Research Area: Fine/Performance Arts**

**Faculty Mentor: Don Latarski**

**Abstract:**

The act of creating music bridges between the analytical and creative side of a person. It is a deeply emotional process, but draws from technique and knowledge developed through hours of dedicated practice. Not all music was written while the composer was sitting in a dream like state in a beautiful meadow, nor can it be written in a sterile practice room. It is a balance between the two. I will be performing multiple original arrangements on guitar, and speak about the creative process. I will also speak about the ways music acts as an incredibly positive emotional outlet.

**SAM MCGEE**  
**ANTHROPOLOGY**

**ORAL SESSION 1F**      **Title: Homeland vs. New Land: The Northern Paiutes' Battle for Place in the Great Basin**

**Research Area: Social Science**

**Faculty Mentors: Kevin Hatfield and Jennifer O'Neal**

**Abstract:**

The colonizing Euro-American population came to the Great Basin in Oregon with a different understanding of the land, of place, than the Northern Paiute people who occupied it. Through history, and even into modern times, these two contrasted understandings of place have created conflict and strife. This paper first investigates the two understandings of place, that of the Euro-American colonizer and that of the Northern Paiute. This is followed by a discussion of the Euro-American efforts to change the Northern Paiute's relationship with the land and the Northern Paiute's resistance to these changes, both spiritual and physical. The investigation concludes with a discussion of how these two different understandings of place are in conflict today. The sources used to provide the Northern Paiute perspective are accounts from interviews with members of the Northern Paiute, as well as historical accounts of the Ghost Dance. The sources used to understand the Euro-American perspective include historical accounts from various US government officials, and doctrine relating to manifest destiny and westward expansion. This investigation presents two contrasted understandings of place in the Great Basin. To the Euro-American population, it was a new, undeveloped land of opportunity. To the Northern Paiute it was their homeland, central to their identity and their way of life. This connection was why the Northern Paiute fought so hard to stay on their land and continue their way of life, and why they are still fighting today to maintain their culture and connections to their homeland.

**HANNAH MCINTOSH**  
**ENVIRONMENTAL SCIENCE**

**POSTER 82**      **Title: Quantitative Trait Locus (QTL) Mapping Reveals the Complex Basis of Phenotypic Divergence between Ecotypes of the Bush Monkeyflower**

**Research Area: Natural/Physical Science**

**Faculty Mentor: Matt Streisfeld**

**Funding: UROP Mini-Grant; VRPI Undergraduate Research Fellowship**

**Abstract:**

How does adaptation occur in the face of gene flow? This question has long puzzled biologists because gene flow between populations opposes selection, making divergence difficult. Recent theory suggests that specific genetic architectures facilitate divergence by making selection more efficient. First, adaptation is most likely to occur when traits are controlled by few loci of large phenotypic effect, which are more visible to selection than loci of small effect. Second, favorable combinations of adaptive traits are more easily maintained if they are controlled by loci in the same genomic regions. To test these hypotheses, we used QTL mapping to identify the genetic basis of divergent traits thought to underlie local adaptation and reproductive isolation between ecotypes of bush monkeyflower. This analysis revealed a total of 35 QTL across 20 floral and vegetative traits, with an average of 1.75 QTL per trait, and an average of 9.07% variation explained per QTL. The discovery of many QTL of small effect indicates that most traits have a complex polygenic basis, rather than the predicted simple genetic basis. Further, the QTL for different traits are spread across all 10 chromosomes, rather than co-localizing to one or a few genomic regions. Thus, there is little evidence that genetic architecture facilitates divergence in these traits. Instead, our results show that adaptive divergence can occur in the face of gene flow even when traits have a complex genetic basis, and indicate that strong selection plays a fundamental role in ecological speciation in this system.

**MICHAEL MCINTOSH**  
**ECONOMICS, POLITICAL SCIENCE**

**ORAL SESSION 2C**      **Title: Analysis of the Economic Impacts of Immigration in the United States**

**Research Area: Social Science**

**Faculty Mentor: Anca Cristea**

**Funding: UROP – VPRI Undergraduate Research Fellowship**

**Abstract:**

In this paper, I attempt to establish a causal relationship between immigration and the local economic outcomes of educational attainment, wages, and native employment. My estimation sample consists of national data on each



economic output organized by state, along with state- and national-level data on a number of other macroeconomic factors, including population, unemployment, Consumer Price Index, and a construction of remittances, that I believe impact the economic outputs. I use Ordinary Least Squares estimation methodology and, where applicable, Two Stage Least Squares estimation methodology to correct for endogeneity. Overall, my data largely reveals positive or ambiguous effects of immigration on the outputs specified. That is, immigration either increases or has a neutral effect on local educational attainment, local wages, and local employment of United States citizens. I then discuss potential theoretical economic explanations for my estimation results, ranging from simple endogeneity to labor supply and demand interactions, and a complementarity effect leading to labor specialization among immigrants.

**DREW J MCLAUGHLIN  
LINGUISTICS**

**ORAL SESSION 1B Title: Individual Variation in the Perception Of Different Types of Speech Degradation**

**Research Area: Social Science**

**Faculty Mentor: Melissa Baese-Berk**

**Funding: UROP – VPRI Undergraduate Research Fellowship**

**Abstract:**

Both environmental noise (e.g., talkers in the background) and talker-related variation (e.g., accented speech) can create adverse listening conditions for speech communication. Individuals recruit additional cognitive, linguistic, or perceptual resources when faced with such challenges, and they vary in their ability to understand degraded speech. However, it is unclear whether listeners employ the same additional resources when encountering different types of challenging listening conditions. In the present study, we compare individuals' ability on a variety of cognitive-linguistic skills—including vocabulary, selective attention, rhythm perception, and working memory—with transcription accuracy (i.e., intelligibility scores) of speech degraded by the addition of speech-shaped noise or multi-talker babble and/or talker variation. Initial analyses show that intelligibility scores across degradations of the same class (i.e., either environmental or talker-related) significantly correlate, but correlations of intelligibility scores across degradation classes are weaker. The relationship between intelligibility scores and cognitive-linguistic skills is similar, showing that while vocabulary and working memory correlate with multiple degradation types, rhythm perception only correlates with environmental degradations. Taken together, these results indicate that listeners may recruit different resources when faced with different classes of listening challenges.

**DREW J MCLAUGHLIN  
LINGUISTICS**

**ORAL 2F Title: The Role of the Listener in Nonnative Speech Perception Research**

**Research Area: Humanities**

**Faculty Mentor: Melissa Baese-Berk**

**Funding: Humanities Undergraduate Research Fellowship**

**Abstract:**

Difficulties in speech communication can be caused by a number of factors related to the speaker, the listener, or the environment. Reaching a shared understanding may be more challenging in a conversation between a nonnative speaker and a native or naïve listener (i.e., a listener who is unfamiliar with the accent of the non-native speaker), than it is between two speakers who share a language background. Since the 1980s, language researchers have investigated how nonnative accented speakers and native or naïve listeners overcome communication difficulties using a number of research designs. Here, I propose a review of nonnative speech perception experiments that examines how the listener is portrayed in the manuscript. Is the listener a participant used as a tool in the experimental design to measure qualities of the stimuli (i.e., representations of the nonnative speaker), or are the qualities of the listener—such as language background and cognitive skills—what is being measured? By examining the role of the listener in experimental design, previous research can be sorted into two design categories, which I refer to as tool and contributor frameworks. Observing the use of tool and contributor frameworks over time may provide important insight into whether previous research methodologies have approached the subject holistically.

**MERIDA MEHAFFEY**

**HISTORY**

**POSTER 83 Title: Decolonization Through Collaborative Land Management: A History of Matiu Island Conservation Partnerships**

**Research Area: Humanities**

**Faculty Mentor: Marsha Weisiger**

**Funding: McNair Scholars Program Summer Research Stipend**

**Abstract:**

The topic of my honors thesis project is the land management history of Matiu Island, located off the southern coast of New Zealand's North Island. Once an important settlement for several Maori tribes, since 1839 Matiu Island has been used as an animal quarantine station, wartime prison camp, and ecological restoration site by the New Zealand government. In 2008 Matiu was included in an treaty redress that returned land to local Maori tribes (iwi). Currently, the island is managed by an administrative board appointed by the Minister of Conservation and Iwi Settlement Trust, illustrating a unique partnership grounded in shared ecological values. In recent years, scientists have published a number of reports regarding restoration progress on the small island. However there has not been an adequate study of the unique land management history of the island. My thesis will specifically focus on the 2008 Matiu ownership transition and the management collaboration born out of this transition. It will also evaluate the effectiveness of current management strategies, taking into account the goals and involvement of iwi representatives and Department of Conservation representatives. I will conduct interviews and do archival research, while also utilizing publically-available records to better understand the conservation history of the island since 1980 and the roles of various government and non-government agencies in this history. My research on this management model's effectiveness will contribute to a growing body of knowledge aimed at identifying specific mechanisms that allow for successful collaborative relationships between indigenous peoples and government agencies.

**TIGEST MEQUANINT**

**BIOLOGY**

**POSTER 84 Title: Hair Cortisol Measurement and Relationships with Growth Among Amazonian Shuar Children**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Josh Snodgrass**

**Funding: Richard A. Bray Faculty Fellowship to J Josh Snodgrass**

**Abstract:**

Cortisol is a hormone secreted by the adrenal gland in response to stress. It is a widely-used biomarker of chronic stress. Measurement of cortisol from hair allows assessment of cumulative concentrations of cortisol, and therefore stress, over a period of months. The aim of this research was to establish reference levels of hair cortisol in Shuar children and to examine relationships between cortisol and growth parameters. Hair samples, anthropometric dimensions, and immune function data were collected from Shuar participants (3-19 years old) in Amazonian Ecuador in 2012. At least 3 cm of hair was cut from the posterior vertex of the scalp using surgical scissors to represent the prior 3 months of cortisol accumulation given human hair growth of ~1 cm/month. Cortisol was extracted from pulverized hair samples using a modified version of the method of Meyer et al. (2014) and assayed in duplicate using Salimetrics ELISA kits. Twenty one of thirty four samples had extremely low levels of cortisol. Eighteen of these twenty one samples with extremely low levels of cortisol were individuals taller than the average height, whereas those with relatively high levels of cortisol tended to be shorter than those with extremely low levels of cortisol, suggesting a negative association between cortisol levels and height. This research is valuable because it investigates the relationships between a long-term measure of psychosocial stress and growth in a non-Western population. In addition, it describes refinements of an existing method and helps make this technique available to other researchers.

**KEIRA MEYER**  
**INTERNATIONAL STUDIES, ROMANCE LANGUAGES, COMPARATIVE LITERATURE, SPANISH, LATIN AMERICAN STUDIES**  
**ORAL SESSION 1E Title: Jorge Luis Borges and his Poetics of Rewriting**  
**Co-Presenters: Lillian Loftin, Ana Osorio**  
**Research Area: Humanities**  
**Faculty Mentor: Mayra Bottaro**

**Abstract:**

Famous Argentine writer Jorge Luis Borges' obsession with rewriting not only produced multiple versions of all of his texts, it became a fundamental aspect of his own theory of literature, which he conceptualized as a literary mimesis. In Ancient Greece, broadly defined as the perfection and imitation of nature, mimesis (from the Ancient Greek, μίμησις, "to imitate") governed the creation of works of art and their correspondence to the physical world. From Plato and Aristotle, to Coleridge, Freud and Auerbach, and others, mimesis has contributed to building multiple theories of representation in Western Culture. Borges writing is rewriting in the sense that his literature proposes a literary mimesis, as he willingly and cunningly admits and manipulates a series of predecessors' works into his own writing. Taking as our point of departure Harold Bloom's identification of Borges as "a supreme theoretician of literary indebtedness," each of our three presentations in this panel explore Borges' poetics of rewriting as the ultimate weapon against external influences. In this way, Borges has realized the dreams of 19th-century Argentine intellectuals like Sarmiento: to become his own precursor.

**KEIRA MEYER**  
**ROMANCE LANGUAGES, INTERNATIONAL STUDIES**  
**ORAL 1E Title: Translation/Tradition/Betrayal as Rewriting in "The Gospel according to St. Mark"**  
**Research Area: Humanities**  
**Faculty Mentor: Mayra Bottaro**

**Abstract:**

The idea that a translation should be a faithful representation of the source text is a widely accepted truism. However, the old Italian adage "traduttore, traditore" offers a pun to imply the idea that every translator is a traitor and to hint towards the ultimate untranslatability of language. In "The Gospel according to St. Mark," Borges invokes this connection between translation and betrayal in the replication of Judas's betrayal of Christ in the Gutre's betrayal of Espinosa, and into Espinosa's betrayal in his translation of King James' Bible to the Gutres. Additionally, Borges interrogates the idea of betrayal in relation to the idea of tradition (his own tradition as writer and the Gutre's learned tradition that gets broken and repaired through Baltazar). In the end, Borges' short story deploys translation in three distinct ways: first, in that Baltasar Espinosa, the protagonist, literally has to translate King James' Bible to the Gutre family; second, in that in this short story, Borges' rewriting is a kind of "translation" of the fundamental scene of the Bible (the crucifixion in the Golgotha) to a new environment (Argentine pampas); third, in that literary writing for Borges can be said to be a task of translation in the sense of "transfer" (translatii) of metaphors, myths, stories into different contexts. Extending my analysis to other works by Borges that clearly demonstrate these connections (like "Pierre Menard, author of El Quijote", and "Universal History of Infamy"), my presentation explores these three layers, paying particular attention to the last one and bringing into the analysis Borges' own work as a translator. Borges' complete disregard for the traditional view that the source text is sacred is the foundation for the ultimate betrayal that will cost Baltazar his life, and for thinking of rewriting as translation.

**ELIJAH MEYER**  
**PHYSICS**  
**POSTER 85 Title: Exploring the Mechanisms Behind Particle-Filter Interactions in Marine Filter-Feeding Organisms Using a Dynamically Scaled Model**  
**Research Area: Natural/Physical Sciences**  
**Faculty Mentor: Kelly Sutherland**  
**Funding: National Science Foundation Internship**

**Abstract:**

Appendicularians are small, ubiquitous, marine filter-feeding organisms that capture prey through the use of several tangential flow mucus filters. Once clogged, these filters are abandoned and sink, thus serving an important role in

the transfer of organic material to ocean depths. Understanding the filtering process will increase our comprehension of the function of appendicularians within the pelagic food web. My research focused on exploring and analyzing the mechanisms behind the particle-filter fiber interactions. Due to the submicron scale of the filters, water undergoes viscous flow through the filter pores; therefore, the use of a dynamically scaled model allowed me to explore mechanisms that would otherwise be difficult to observe. To mimic this condition, I used highly viscous fluid and slow fiber velocities. Using image analysis software, I analyzed the particle detachment process for several geometrically scaled particles to develop an understanding of the mechanics involved in particle detachment. I found that the drag force on the particles scales quadratically with radius which disproved the previous assumption that prey particles undergo Stokes' drag, the type of drag a solitary sphere experiences in viscous flow. Based on dimensional analysis results, larger particles are more likely to detach than their smaller counterparts. However, this result disagrees with previous observational results showing that the percent of particles remaining adhered to the filter linearly increased with particle size; therefore, the next steps for the project involve investigating why the model results and observations do not agree.

**MELINDA MEYER**

**BIOCHEMISTRY**

**ORAL SESSION 2A      Title: Moroccan Health System**

**Research Area: Social Science**

**Faculty Mentor: Kristin Yarris**

**Abstract:**

Good health can be seen as a public good, a guarantor of worker productivity, and even a fundamental human right. However framed, it is necessary for human potential to be fulfilled. Despite its centrality to human existence, health concerns are often neglected by actors with other priorities, especially in international aid and development. My presentation explores the consequences of policy written with an economic and political lens on the lives and health of people by examining the particular case of neoliberal restructuring and public health in Morocco. I reviewed the history of market liberalization, public sector spending and regulation in Morocco in the context of the Washington Consensus on economic development, and the country's IMF loans and related structural adjustment policies. The direct impacts of reforms on the health care system, including infrastructure, access to services, and insurance are discussed. The impact of neoliberal restructuring on the economy more broadly is also discussed, including increasing worker precarity, changes in infrastructure development and standards of living, education spending, and agricultural policy and nutrition, all of which have been impacted by economic modernization efforts in Morocco.

**JULIA MUELLER**

**JOURNALISM**

**ORAL SESSION 2E      Title: Adapting Literature for Young Audiences**

**Research Area: Humanities**

**Faculty Mentor: Barbara Mossberg**

**Abstract:**

The goal of this creative project is to 'translate' classic literature into an engaging format for young readers. Although typical classic literature is complex, the stories are so characterized as 'classic' because of a strong message or metaphorical importance. Children can still understand this strong message, even if they cannot read the full text. I've translated John Muir's short story Stickeen into an illustrated children's book to display how the message of pieces of classic literature can be made accessible and relevant to children. My short illustrated version captures the plotline and moral of the story. I chose the story Stickeen because the subject matter is relatively reminiscent of what might be found in a children's book: a small, clever animal and an outdoor adventure. But Stickeen is more than that – it is a profound short story about inherent human-animal bonds, danger, death, underestimation, survival, nature and bravery. This project was created within the span of an Eco Literature course, and so another underlying intent was to adapt a story with an environmental theme and message. With this translation project, I hope to express my belief that children's literature should not be confined to simple stories, and that children are fully capable of understanding and learning from the message of a piece of classic literature.

**EMILY MYERS**

**HUMAN PHYSIOLOGY**

**POSTER 89 Title: Deep Vein Thrombosis Clinical Significance in the Profunda Femoris Vein**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Rachel Bash**

**Funding: OHSU**

**Abstract:**

Deep Vein Thrombosis (DVT) can develop in an individual with co-morbidities. An individual may at risk for DVT in specific regions within the upper or lower extremities. This study aims to investigate the Profunda Femoris vein (PFV) and whether individuals are more likely to develop DVT in this specific vein as opposed to the veins distal or proximal to the lower extremity vasculature surrounding it. As a cohort study, individuals with the specific categories of co-morbidities and co-factors were chosen for analysis as well as a control group. Co-factors such as Diabetes Mellitus, Hyperlipidemia, Coronary Artery Disease, Myocardial Infarction, Age, Sex, Family History, Surgical history, Medications, Anatomical features, Co-morbidity index, Mortality, etc. were all calculated and carefully analyzed, in order to understand the clinical significance the PFV has in DVT. The results showed that there was a correlation between the PFV and DVT in the lower distal extremities.

**EAMONN NEEDHAM**

**EARTH SCIENCES**

**POSTER 90 Title: The Salinity Dependence of  $\delta^{18}\text{O}$ -w in Inorganically Precipitated Calcite**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Jim Watkins**

**Funding: UROP – Presidential Undergraduate Research Fellowship**

**Abstract:**

Oxygen isotopes in calcite can indicate the temperature of their formation, which is useful for determining paleoclimate. To calibrate the relationship between oxygen isotope compositions and temperature, we precipitated calcite under controlled conditions. Previous experiments assumed that calcite grown on a timescale of days can grow in near isotopic equilibrium with the host solution. If this were the case, then the  $\delta^{18}\text{O}$ , the ratio of  $^{18}\text{O}$  to  $^{16}\text{O}$  of the calcite compared to the ratio of the solution, would only change as a function of the temperature of formation. Recent work has called into question whether natural and experimentally precipitated calcite actually grows in isotopic equilibrium with the host solution (Dietzel et. al. 2009, Watkins 2014). Dietzel et al. (2009) demonstrated that the stable oxygen isotope fractionation factor between calcite and water is affected by temperature, the pH of the solution, and the rate of calcite precipitation. Our lab showed that the isotopic disequilibrium in calcite may be derived from the dissolved inorganic carbon species in solution. We developed experiments designed to isolate the temperature, pH, and growth rate-dependence of oxygen isotope fractionation between calcite and water. Using the same setup, we show that salinity also has a significant influence on the oxygen isotopic fractionations; at high salinity, the  $\delta^{18}\text{O}$  of calcite decreases by 2‰ relative to low salinity, corresponding to a temperature difference of 8°C. Since much of the calcite found worldwide occurs in saline environments, the results have implications for the interpretation of oxygen isotope variability in nature.

**VANESSA NOBLES**

**BIOLOGY**

**POSTER 91 Title: The Genetics of Ethanol Tolerance in *Caenorhabditis elegans***

**Co-Presenter: CJ Paulin**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Patrick Phillips**

**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. At high concentrations, ethanol absorption leads to high death rates 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 and

measured survivorship. In our conditions, 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. It is then likely that *daf-16* does not regulate an effective stress-response in acute ethanol stress conditions. Future SCORE cohorts will investigate the role of *daf-16* in the response to chronic ethanol exposure by utilizing long-term pre-exposure to low concentration ethanol solutions. Overall, mentorship programs like SCORE can achieve their educational missions while concurrently making advances in original research.

**KATHRYN NOCK**

**ENVIRONMENTAL STUDIES**

**ORAL 3C Title: Re-Examining the Scientific Revolution: The Advantages of Analyzing the History of Science within Contemporary Environmental Discourse**

**Research Area: Humanities**

**Faculty Mentor: John Baumann**

**Abstract:**

Descartes's statement, "I think therefore I am," is one of the most referenced statements from the Scientific Revolution in 16th-17th century Europe. His words mark a turning point in science by exposing a new foundation for examining the natural world. However, his words imply that those we do not perceive as having intelligence- the ability to "think"- are "not" and places humans in a role far superior to our surrounding environment. Fueled by the Scientific Revolution, this shift in perception deepened the rift between humans and nature. Despite having roots in natural theology, the Scientific Revolution also encouraged the divorce of science from religion that endures today. I will show that the changes that occurred in the two relationships continue to contribute to the current environmental crisis by reflecting the anthropocentric- "human-centered"- nature of the Scientific Revolution. Furthermore, the immense shift in the way the masses understood their reality that resulted from the Scientific Revolution exposes the dynamic nature of cultural thought and provides evidence of the potential for a dramatic transition within the Western epistemology to occur again. While there is extensive scholarship around this time in history, including numerous critiques of Cartesian philosophy and mechanistic science, an interdisciplinary analysis of the role that the history of science plays within the current environmental discourse is lacking. I aim to use contemporary scientific theories of plant intelligence and mycological mutualism that directly combat Descartes's statement and provide an opportunity to deconstruct the scientific hierarchies and assumptions of the past, to begin constructing the framework for the next shift in environmental consciousness.

**JUSTINE NGUYEN**

**HUMAN PHYSIOLOGY**

**POSTER 92 Title: Re-Examining the Scientific Revolution: The Advantages of Analyzing the History of Science within Contemporary Environmental Discourse**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Kryn Stankunas**

**Funding: UROP – VPRI Undergraduate Research Fellowship**

**Abstract:**

Trabeculae are spongy muscle that form in the ventricle of the heart to produce the force necessary for contracting blood to the rest of the body. Improper trabecular development can lead to inefficiencies that cause the heart to become weaker and pump less efficiently. The purpose of my research is to study the developmental programs that underlie ventricular trabeculation and the role vascular endothelial growth factor (VEGF) plays in regulating this process.

During mouse embryogenesis, the cardiovascular system, one of the first major systems to develop, begins to form around embryonic 7.5 days (E7.5). It undergoes drastic remodeling to meet increasing metabolic demands of the growing embryo and to create a system that can efficiently transport blood throughout the organism. The muscular trabeculae begin to develop at around E9.0. To study trabecular development, pregnant mice are dissected when the embryos are between E8.5-E10.5, around the timepoint of the development of the trabeculation. Embryos are isolated and processed so that their hearts are examined through various cellular biology techniques. A highly specific small molecule inhibitor, Cabozantinib is used to inhibit VEGF signaling, thus disrupting the formation of the trabeculae. A VEGF inhibited sample can then be compared to an untreated, wildtype sample to compare genes that are expressed due to VEGF signaling, thus potentially directing trabeculation development. Currently, we predict that the gene *Bmp10* plays a role in VEGF signaling, however, *Bmp10*'s expression is in the myocardium while the VEGF receptor is expressed in the endocardium. The first step is determining the direct target gene affected by VEGF

signaling, mediating signaling to Bmp10. Genes of interest are differentially expressed from previous RNA-Seq data and are endocardially expressed. Genes of interest will be used to test whether exogenous VEGF protein induces transcriptional activity by real-time quantitative PCR (RT-qPCR), western blotting, and immunofluorescence staining methods. To test potential VEGF target genes, bovine aortic endothelial cells (bAECs) are cultured along with primary heart cells derived from embryonic mice to test candidate genes in VEGF signaling.

**LINDSEY OBERHELMAN**

**PHYSICS**

**ORAL SESSION 3A Title: Commissioning the Robbins for Undergraduate Research**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: R. Scott Fisher**

**Funding: Oregon Space Grant**

**Abstract:**

I present and summarize my work and research related to the commissioning and operations of a new telescope system at Pine Mountain Observatory (PMO). Throughout the summer of 2016 my team and I brought this new system on-line, I learned to operate it through hands-on experience and the development of operational procedures, and led the initial commissioning and use of the telescope by obtaining the first engineering and science quality data from the integrated system. The so-named "Robbins" is a 14-inch Meade Cassegrain telescope. Coupled to this is a research-quality CCD camera with multiple filters and an auto-focus system. With a focal length 2.54 cm, the system has a field-of-view of 35x35 arc minutes and a pixel scale of 0.7. Initial observations show that it is an extremely sensitive system, which will allow us to perform legitimate undergraduate research at the facility. This summer I devised an observing log and operations procedures, constructed a flat field box for calibration of the telescope/camera system, learned how to reduce and stack images with the professional software packages IRAF and Astroconda, and developed a database search algorithm. Over the course of my work, I became adept at operating and collecting data with the Robbins through our interface software named Maxim DL. In addition to commissioning the Robbins system, I was the lead student volunteer for our "Public Nights" program at PMO. Between May and September I led tours for over 1,500 observatory visitors

**MCKENNA O'DOUGHERTY**

**WOMEN'S AND GENDER STUDIES**

**ORAL SESSION 3G Title: Queer Pedagogy and Potential for Sexual Violence Prevention Education in the High School Sexual Health Classroom**

**Research Area: Humanities**

**Faculty Mentors: Margaret Rhee, Alison Gash**

**Abstract:**

We teach sexual education in the majority of secondary schools the United States in a way that reifies heteronormative values, allowing rape culture to continue without interruption. In a heteronormative society, where gender is binary - men are expected to be active aggressors and women are expected to be passive receivers - sexual violence is an unsurprising outcome. Feminist theorist C.J. Pascoe offers this explanation in her ethnography, *Dude, You're a Fag*, "Compulsive heterosexuality [for boys] is not about desire for sexual pleasure per se, or just about the desire to "be one of the guys"; rather, it is "an excitement felt as sexuality in a male supremacist culture which eroticizes male dominance and female submission." Broadly speaking, in heteronormative systems, women have no voice if they do not say what men want to hear, which leaves little room for sexual negotiation or refusal. In this thesis project, I propose that the use of queer pedagogy and the acknowledgment of gender performativity in high schools offers an opportunity to dismantle the foundation of sexual violence of college-age folks by addressing gender and power before students arrive in the increased risk environment of college. I examine sociological and institutional factors that molded sexual health education in the past, and analyze curricular standards to improve sexual health education in the future. My conclusions include the need for curricula to include opportunities for thinking critically about gender and sexuality as a prevention method to improve the health of all students.

**ELIZABETH OLSON**  
**COMPUTER and INFORMATION SCIENCES**  
**ORAL SESSION 3A Title: Multi-Objective Optimization of Electrostatic Lenses**  
**Research Area: Natural/Physical Sciences**  
**Faculty Mentor: Ben McMorran**

**Abstract:**

The McMorran lab studies electron vortices, beams of electrons with orbital angular momentum. Particle tracking calculations assume a perfect lens to use Fourier transforms for the estimation. However, no such lens exists. Current electron microscopes must have significant correcting hardware attached to the microscope to account for this. The McMorran lab wants to further study electron vortices and observe their spin effects. The correcting hardware prevents the lab from viewing this physical phenomena to its full potential. Using the particle tracking software package, SIMION, we created software that can calculate both spherical and chromatic aberrations for a given lens. Aberrations refer to the amount of spread a lens condenses to, instead of a finite point. With this software, we are optimizing the lens shape, voltages, and other parameters to minimize the aberration. We are using multi-objective optimization, to minimize chromatic and spherical aberration simultaneously.

**ANA OSORIO**  
**LATIN AMERICAN STUDIES, SPANISH**  
**ORAL 1E Title: Intertextuality as Rewriting in Borges' "The gospel according to St. Mark"**  
**Co-Presenters: Kiera Meyer, Lillian Loftin**  
**Research Area: Humanities**  
**Faculty Mentor: Mayra Bottaro**

**Abstract:**

Intertextuality is a term first used in Julia Kristeva's "World, Dialogue and Novel" in 1966. The concept that she initiated proposes the text as a dynamic site in which relational processes and practices are the focus of analysis instead of static structures and products. She writes: "The literary word is an intersection of textual surfaces rather than a point (a fixed meaning), as a dialogue among several writings". This means that there are always other words in a word, other texts in a text. Borges' own idea of literature reflects this concept, as he understood texts not as self-contained systems but as differential and historical, as traces of otherness, shaped by repetition and transformation of other textual structures. Borges' humble authorial persona reflects these ideas multiple times in his writings and his own interviews as well. Taking the short story "The gospel according to St. Marc" as a case study, my presentation will focus on the idea of intertextuality as rewriting. As the Gutres hear Espinosa's translation of King James' Bible, they begin to interact actively with the text in a way that recontextualizes and actualizes its reading. In this way, the Gutres insert themselves into the narrative and modify it and our reception of the biblical tale. My claim is that Borges' short story is an actualization of the concept of intertextuality. Additionally, in order to support this reading, I will offer a reading of "Asterion's House" and "The Aleph" in relation with this text.

**THALIA PADILLA**  
**BIOLOGY**  
**POSTER 93 Title: Molecular Genetic Studies in C. elegans**  
**Research Area: Natural/Physical Sciences**  
**Faculty Mentors: Bruce Bowerman, Molly Jud**  
**Funding: McNair Scholars Program**

**Abstract:**

During embryogenesis of all multicellular organisms, cells must propagate, undergo differentiation, and migrate to give rise to tissues, organs and the general body plan. The three tenets of development (cell growth, differentiation and morphogenesis) are imperative to produce a complete organism. Morphogenesis is the study of how cells migrate and change its shape to complete the organism's general body plan and organs. The broad purpose of this project is to discover more alleles of genes known to affect morphogenesis, and to discover new genes that have never been identified to affect morphogenesis. Disruption of morphogenesis is known to cause a variety of birth defects in humans, including vascular, neural tube closure and limb developmental defects. Therefore, understanding the genes and signaling pathways required for morphogenesis to properly occur is of great importance. Using the model organism *C. elegans*, I am currently screening for genes that are critical for morphogenesis, focusing on the



Bowerman lab's temperature sensitive (TS) mutant collection for morphogenetic mutant alleles. This study may provide insight into morphogenetic defects during human embryogenesis and suggest therapeutic approaches to address those issues. The methodology I will be using will follow the standard procedure for screening genes as described in Brenner et al.

**ELLIOT PARRISH**

**PHYSICS**

**ORAL SESSION 3A Title: Measuring the Energy Response of Clustering Algorithms in the ATLAS Detector**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Stephanie Majewski**

**Abstract:**

CERN, located outside Geneva, Switzerland, hosts the world's largest particle accelerator, the Large Hadron Collider (LHC). Four main experiments are located on the LHC: ALICE, LHCb, CMS, and ATLAS. The ATLAS Collaboration is looking to expand upon the discovery of the Higgs Boson in 2012 through searches for new particles. To ensure the continued success of this experiment, there are a series of planned upgrades to the ATLAS detector. Following the Phase II upgrade, scheduled for 2026, ATLAS will receive proton-proton collisions from the LHC every 25 ns, with an average of 140 interactions per collision. Most of these interactions are not energetic enough to produce interesting physics, and instead lead to a phenomenon referred to as pileup. The large quantity of pileup produces a massive amount of data, currently ~60 TB/s prior to the upgrades. In order to reduce the data rate after the upgrades, new triggers are needed. Various types of algorithms are being investigated for the Trigger System. This study focuses on the energy response of various clustering algorithms to be implemented in the Trigger System.

**CARLY PATE**

**ANTHROPOLOGY, GENERAL SCIENCE**

**POSTER 94 Title: Anthropogenic Effects on Wildlife: Raccoon Body Weight Through Time, Latitude and Urbanization**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Frances White**

**Funding: Anthropology Undergraduate Awards for Research and Conference Participation Grant**

**Abstract:**

Raccoons (*Procyon lotor*) are ecologically flexible mammals that indicate anthropogenic effects on wildlife. Urbanization increases wildlife food availability and could increase raccoon body weight with time. Also, Bergmann's rule predicts that weight should increase with latitude. Raccoon interorbital breadth is the best predictor for body weight. I estimated body weight from raccoon skulls (n=449) collected between 1880 and 1980, in urban and rural locations from 12 to 45 degrees north. With rural specimens, no significant relationship was found in a two-way ANOVA between body weight and latitude or decade (F=0.85, ns). With urban specimens, the two-way ANOVA was significant (F=4.51, p<0.05) with decade having a significant effect on body weight (F=8.77, p<0.05) and a significant interaction term (F=4.09, p<0.05). Therefore, decade was investigated separately for each latitude using regression for thirteen latitudes with sufficient sample sizes. Positive regressions with body weight increasing over time were found in the following latitudes: rural specimens within latitude 41 (from years 1900-1970, n=15, F=5.50, p<0.05) and rural specimens within latitude 42 (range 1940-1950, n=16, F=26.98, p<0.05). In addition one positive regression is suggestive in urban specimens within latitude 40 (range 1890-1970, n=9, F=4.16, p 0.0806). Our results do not support Bergmann's rule. Within latitudes 41 and 42 raccoon body weight is increasing through time. Future analyses will further investigate trends through latitude and time.

**NATALIE PEARSON**

**EDUCATIONAL FOUNDATIONS**

**POSTER 95 Title: The Leaping Lesbian: Redefining Womanhood In Ann Arbor, Michigan 1977-1980**

**Research Area: Humanities**

**Faculty Mentor: Tim Williams**

**Funding: General University Scholarship, UO**

**Abstract:**

This project analyzes the writings found in *The Leaping Lesbian*, an unpublished periodical printed from 1977-1980

by the lesbian-feminist community of Ann Arbor, Michigan. It addresses the question of how contributors to *The Leaping Lesbian* sought to challenge traditional definitions of womanhood as dichotomous to and dependent upon manhood, and identifies three major themes of lesbian-feminist writing in order to do so. These themes are the production of women's culture and entertainment, spirituality, and lesbian motherhood. This project further places the Ann Arbor lesbian-feminist community within a context of cultural feminism, separatism, and contemporary movements of gay rights activism and publishing. A review of previous works surrounding these movements reveals a rich historiography dealing with gay and lesbian publishing. Similarly, one can find an expansive history surrounding second wave feminism in the US. However, these existing works fail to simultaneously address lesbian publishing, cultural feminism, and the specific language used within these movements. Thus a close reading and analysis of the language, content, and subtext produced in 1970s lesbian-feminist writings is necessary. This project uses *The Leaping Lesbian* as a case study to meet those ends. It concludes that *The Leaping Lesbian* Collective designed the periodical as an open-admittance forum for writers in order to give lesbians the platform and power to redefine womanhood independent of patriarchal influence.

**NATALIE A. PELLITIER**

**BIOLOGY**

**POSTER 96 Title: Splicing Analysis of a Myotonic Dystrophy Type 1 Mouse Model Treated with Heptamidine, Furamidine, and Actinomycin D**

**Research Area: Natural/Physical Sciences**

**Faculty Mentors: Leslie Coonrod, Andy Berglund**

**Funding: The Marigold Foundation; The Planco and Weston Families**

**Abstract:**

The most common form of adult-onset muscular dystrophy, myotonic dystrophy type 1 (DM1) is known for its classic symptom of myotonia. Myotonia is the ability to contract, but not to relax one's muscles. Although it's only one of many symptoms, myotonia is linked to the mis-splicing of a chloride channel, *Clcn1*. The goal of this study is to determine the global ability of three small molecules to rescue splicing events in a myotonic dystrophy type 1 (DM1) mouse model. A transgenic mouse model (HSALR) was developed to mimic the expanded CTG repeats that DM1 patients have in the 3' UTR of the dystrophin myotonia protein kinase (DMPK) gene. These transgenic mice express 220 CUG repeats as a toxic RNA, which soaks up the muscleblind-like proteins like a sponge. Mice were treated with three small molecules that have been shown to rescue a few mis-splicing events in both HeLa cells and the DM1 mouse model, these include: heptamidine, furamidine, and actinomycin D. Initial differential expression analysis shows all three molecules do not affect transcription on a global level, suggesting some level of specificity. Preliminary sashimi plots show the rescue of mis-splicing of *Atp2a1* exon 22 by both heptamidine and furamidine, while *Clcn1* exon 7 mis-splicing is only rescued by heptamidine in these samples. While these small molecules will unlikely be uniquely administered directly to patients, this project will inform future DM1 drug design.

**ANDREW PENCE**

**JOURNALISM, ADVERTISING**

**POSTER 97 Title: Native Advertising and Perceived Source Credibility**

**Research Area: Social Science**

**Faculty Mentor: Heather Shoenberger**

**Abstract:**

Modern consumers have developed strategies and tools, such as ad-blocking software, that allow them to avoid online advertising. In response, online media platforms are leaving traditional forms of advertising behind in favor of native advertising. Native advertising is paid for by a brand, but is designed to resemble the form and content of non-advertising content published on the same website. Previous research demonstrates that when consumers are exposed to a native ad, they are often unable to recognize it as an advertisement. This study explores the impact of native advertising on the perceived source credibility of online news platforms. I plan to provide results on whether a consumer's ability to recognize native advertising will have a positive or negative impact on perceived source credibility. I predict a higher degree of ad literacy will increase a participant's ability to recognize native advertisements. If a participant is unable to recognize a native ad, I predict that the participant will be more likely to experience a decrease in perceived source credibility with regard to the platform that published the ad. This study will include a brief ad literacy quiz, exposure to two native ads, questions about the ads, and questions regarding participants' attitude towards the ad and the platform that published it. The study uses four native ads with two conditions each. Condition one will include a label identifying the ad as sponsored content. Condition two will not include a label.

**MAKENNA PENNEL  
CHEMISTRY**

**ORAL SESSION 3C Title: Environmental Literature Through the Eyes of a Chemistry Student**

**Research Area: Humanities**

**Faculty Mentor: Barbara Mossberg**

**Abstract:**

Converting a piece of literature into a different format gives the work new meaning and influence. Movies, plays, poems, songs, artwork-- these are "translation" examples that probably come to mind. But are there other ways we can express the power and beauty of the written word? As a chemistry aficionado and student of eco literature, I decided to see if I could combine my two interests into a single, cohesive work. An "amalgam" if you will. This synthesis experiment yielded unexpected results and I found myself grappling with the material in exciting new ways. What started as a simple translation of a passage from Masaru Emoto's book "The Hidden Messages in Water" quickly morphed into a personal quest to test the bounds and surprising utility of this new medium. I pulled out my molecule-drawing software and delighted in a way that only a chemistry major can as equations, retrosynthesis arrows, and reaction coordinate diagrams quickly covered the pages. The result? A direct translation with several tangents I couldn't keep from taking, because this manner of interpretation had prompted me to think differently about the issues at hand. Science and literature combined beautifully, elegantly, and simply on the paper before me and I found myself wondering why anyone would ever consider them incongruous. If you allow the two to combine and "react," the product might surprise you!

**NELSON PEREZ CATALAN  
HUMAN PHYSIOLOGY**

**ORAL SESSION 3E Title: Jesuit Missions in Chile, From Religious Conversion to Cultural Salvation**

**Research Area: Humanities**

**Faculty Mentor: Michael Peixoto**

**Abstract :**

Jesuit missions in Chile played a double role, as precursors and as disruptors of the Spanish conquest efforts in Patagonia at the end of the 16th century. Stories of the conflict between Spaniards and Mapuches, an unwavering indigenous community of the region, thrive in one of the longest open conflicts between nations in human history, lasting for four hundred years. The interest in cultural preservation of modern society has opened the discussion of social justice and civil rights for indigenous communities. While recent studies have tried to rescue the pre-columbian culture, few research has been carried to understand the complex interaction between the two clashing civilizations. This paper examines the role of Jesuit missions in Chile, and how they failed to motivate the advance of the Spanish conquest through conversion; Instead, they halted their efforts by sympathizing with the Mapuches. A peculiar Jesuit, Father Luis de Valdivia, first overseer of the mission in Chile (1593), impacted the history of the Mapuches and their traditions. Aided by his missionary brothers, he was publicly accused of changing his allegiance from the Spanish crown, in his efforts to preserve Mapuche language and culture. Utilizing official Spanish documents and personal letters of the Jesuit, this study intends to open a window to the past into the Arauco war, in the search of the truth behind the interest of the order to preserve this particular culture, and to rescue cultural elements lost in the past of the still-fighting Mapuche people.

**ANNE PETERS  
INTERNATIONAL STUDIES, GENERAL SCIENCE**

**ORAL SESSION 2A Title: The Global Gag Rule: Implications for Global Reproductive Health**

**Co-Presenter: Tori Carroll**

**Research Area: Social Science**

**Faculty Mentor: Kristin Yarris**

**Abstract:**

The Global Gag Rule is not a new policy. In fact, it is one that the US has been implementing and retracting since the Reagan Administration in the 1980s. Though the roots of this policy can be traced to the Helms Amendment of 1973, the Trump Administration's recent reintroduction of the policy has broad implications for global health. The implementation of the Gag Rule and associated funding cuts to a network of INGOs providing essential reproductive and primary health care services will effectively create a void in global health that will not only result in a reduction of vital health services around the world, but also increase the number of preventable deaths, particularly in regions

where access to primary care and reproductive health care is limited. The funding restrictions imposed by the Gag Rule policy will affect not just abortion services, but will hinder progress for numerous global health initiatives, including those related to maternal and child health more broadly. This presentation outlines the effect of this policy on global health organizations, health care for women and communities, the poverty cycle, and sustainable healthcare worldwide.

**FRANCESCA PICCHI-WILSON**

**HUMAN PHYSIOLOGY**

**POSTER 98 Title: Predicting Sprint Time Using Kinematic Measures**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Mike Hahn**

**Abstract:**

Sprinting performance is dependent on several different anthropometric, physiological, and biomechanical factors, only some of which can be reasonably measured in the field. Therefore, to understand which measurable factors best explain sprinting velocity, we measured the relationship between sprinting kinematics and running time. Sprinting kinematics were analyzed using 2D motion capture during a 60m run at either maximal sprint, 90% of max, 75% of max, or 60% of max. Data from the 2D motion capture included tibia angle with respect to horizontal and foot angle with respect to vertical at both heel strike and toe off stances of gait. Motion kinematics were analyzed using Dartfish software for each trial. A linear regression was run to determine the relationship between sprinting kinematics and running time. Preliminary results found the measured variables of sprint kinematics had a moderate predictive relationship with sprint time ( $R^2=0.482$ ), and angle of tibia with respect to horizontal at toe off significantly predicts sprint time ( $p=0.026$ ). This information can provide coaches, trainers, and athletes with simple information about how to easily obtain data to improve performance of sprinters.

**CHEYENNE PICO**

**SOCIOLOGY AND POLITICAL SCIENCE**

**POSTER 99 Title: Chief Diversity Offices in Higher Education Organizational Trends**

**Research Area: Social Science**

**Faculty Mentors: CJ Pascoe, Jiannbin Shiao**

**Abstract:**

This research examines the variance in organization of Chief Diversity Offices (CDO) in higher education to better understand the relationship between types of CDO positions and inclusion efforts and policies. The independent variable in this research would be the type of organization the CDO works with at their university and the dependent variables would be the policy initiatives of the CDO and their effectiveness. Although this research is focused mainly on racial awareness in higher education, many of these issues are also applicable to matters of gender, sexuality and socioeconomic diversity.

**NICHOLAS PIETROMONACO**

**MUSIC COMPOSITION**

**CREATIVE WORKS SESSION 4D Title: The Music in the Poetry Of A Drunk**

**Research Area: Fine/Performance Arts**

**Faculty Mentor: Robert Kyr**

**Abstract:**

Raw emotions are consistent in the poetry of Charles Bukowski. Sometimes it's almost like reading excerpts from a private diary, or listening to a drunken rant on a Saturday night. Which is more poetic? No matter. In the end, emotions are true. My work, *Alone with Everybody*, composed on a text of Bukowski, describes both the need and desire for human contact, which conjures up unclothed bodies and their activities in the name of love—as a potent force of nature. The piece is about the longing for connectivity within the familiar feeling of loneliness. We all know this feeling. Bukowski pushes the boundary between expression and unrestrained venting. He is free flowing, through-composed, yet formulated in perfect time in the manner of music. How might music enhance or support this flow of thought and feeling? Is justification needed? Surely finding the right music for a poem that is already whole is a daunting task in itself. The key is listening to, accepting, and feeling what Bukowski is saying. In my presentation, I will play a recording of *Alone with Everybody* and discuss how the work emerges from Bukowski's aesthetics, his literary content and style.

**CHELSEY POLICAR  
HUMAN PHYSIOLOGY**

**POSTER 100 Title: Changes in Operative and Non-Operative Thigh Muscles Following Amino Acid Supplementation in Total Knee Arthroplasty Patients**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Hans C. Dreyer**

**Funding: National Institute of Aging**

**Abstract:**

Total knee arthroplasty (TKA) is the most common and cost-effective surgery used to mitigate painful end-stage knee osteoarthritis. The goal of this study is to enhance functional outcomes following TKA by reducing the extensive muscle atrophy that occurs during the first two weeks post surgery. This study aims to determine bilateral thigh muscle cross-sectional area changes related to regenerative potential in TKA patients receiving amino acid supplementation compared to placebo. Methods: Using a double-blind placebo-controlled randomized clinical trial, 39 older adults (age 50-80) having TKA were randomized to ingest either 20 g of essential amino acids (EAA) (n = 19) or Placebo (n = 20) twice daily between meals for 1 wk before, and 6 wks after TKA. At baseline, 2 wk-post TKA and 6 wk-post TKA, an MRI was obtained to determine mid-thigh muscle and adipose tissue volume; MRI scans were obtained at the Lewis Center for Neuroimaging. Results: Our preliminary data suggest changes in quadriceps, hamstrings and adductor muscle and intermuscular adipose tissue volume after TKA. Conclusions: Our study reveals changes in muscle volume and physical function after surgery.

**BASIL PRICE  
MEDIEVAL STUDIES, ARTS & TECHNOLOGY**

**ORAL SESSION 2G Title: "I Had to be Somewhere": The Hero's Movement from Society to Outlawry in Grettir's Saga**

**Research Area: Humanities**

**Faculty Mentor: Gantt Gurley**

**Abstract:**

The outlaw hero plays unique role in Medieval Icelandic literature. Throughout the thirteenth century, family sagas emphasized the outlaw as both a genre of hero, and as a legal distinction. No saga better epitomizes this than the 14th century Grettir's Saga, which explores Grettir's tenuous relationship with the law and the heroic world. Unlike other saga heroes and the Old English hero Beowulf, Grettir's heroic deeds are not met with accolades. Instead, he is cursed to live apart from the human world as an outlaw—depriving him of the opportunity to return to human society. Joseph Campbell's definition of a hero requires the hero's masterful movement between society and the monstrous other. As a hero, Grettir fights monsters comparable to those encountered by Beowulf, but as his reward, Grettir is cursed with outlawry, unable to return to society. Although Grettir does not fulfill Campbell's definition, he is still regarded as the quintessential Medieval Icelandic outlaw hero. Through William Ian Miller's assessment of the social and legal norms of Medieval Icelandic society, it is possible to come to new conclusions about Grettir's characterization. Campbell's demand for mastery neglects the nuance of the outlaw's heroic perseverance, limited by, in Grettir's own words, "things beyond his control."

**LINDSAY RASMUSSEN  
ARCHITECTURE**

**ORAL SESSION 3D Title: Accounting for Embodied Carbon in High Performance Design**

**Research Area: Design**

**Faculty Mentor: Alison Kwok**

**Abstract:**

The built environment is having a significant impact on climate change. As a result, architects are focusing on driving down building operational energy consumption. Passive house is one approach to high performance design, using super insulation, airtight construction, and high performance windows. In passive houses, the operational energy savings are anticipated to be 70% better than code. However, in many cases materials with very high-embodied carbon (the amount of energy consumed in the manufacture and use) values are being used in these low-energy consuming buildings. How does the embodied carbon of the materials compare with the carbon emissions from building operation? This study explores the embodied energy and carbon emissions of a multifamily, affordable passive house building and a similar building of standard construction—the Stellar Apartments (first certified,

affordable multi-family passive house in the US, completed in August 2013). The PH building has undergone continuous energy monitoring alongside an identical building built to an optional state energy standard, Earth Advantage. The methods for comparison will use Revit (a 3D building modeling program) and Tally (R) (a lifecycle analysis plugin for Revit) to calculate the environmental impact of the materials in these buildings. Results show the PH building had 37.5 metric tons CO<sub>2</sub>e embodied carbon than the EA building, with single materials contributing significantly to that result.

**KYRIE' RAU**

**ENGLISH**

**ORAL SESSION 2B Title: The Coping Strategies of USMC Spouses during Separations**

**Research Area: Humanities**

**Faculty Mentor: John Baumann**

**Abstract:**

This study examines the strategies of five Marine Corps spouses who are stationed in Okinawa, Japan. Specifically on ways in which these spouses cope with separations (by their definition) from their active duty counterparts. The separations are put into a liminal context; with the understandings that these separations are temporary and often traumatic, needing some way to cope in an unfamiliar space. As well as cultural expectations, a general transient lifestyle, and material culture were taken into consideration in analysis. Each spouse also experienced *communitas* in the contribution of the making of a tight-knit community and bonded with other spouses outside of institutional support programs (e.g. unit family day, pre-deployment briefs, etc.) in which they organize a casual get-together of some sort, e.g. coffee dates, movie dates, drinks, etc. On a more individual or familial level they develop varying ways of coping with a separation and keeping the active duty husband a part of daily family-life even while away such as letters, creative projects, and countdown projects. The material culture developed during separations are split into three categories which will be analyzed along with the different social relationships that are either assigned or chosen is also regarded in the research in terms of behavior and different coping mechanisms. This research reveals a unique look into the “homefront” of the Marine Corps from a perspective of an insider familiar with vernacular and the lifestyle.

**HELEN RAWLINS**

**PSYCHOLOGY, MUSIC**

**POSTER 101 Title: Self-enhancing Social Comparisons in STEM Fields**

**Research Area: Social Science**

**Faculty Mentor: Sara Hodges**

**Abstract:**

The lack of Women in STEM (Science, Technology, Engineering, and Math) fields has been a budding issue in today's educational and political conversations. Ongoing research has sought to examine gender differences in the STEM fields, as well as the specific ways in which these differences may emerge, such as differences in the interpretation of feedback. The present study seeks to explore self-enhancing social comparisons in relation to feedback in STEM classroom settings. Specifically, this study examines how well people are able to predict their own grade and the distribution of grades before taking an exam, and how well people incorporate feedback into their comparative judgments (i.e. their relative standing) by asking them to reflect back to their performance after the exam. Students' theories of intelligence – either “entity” based (using innate ability) or “incrementally” based (that is, built and learned over time) – and future persistence in their fields are also measured. This study provides insight into how people compare themselves to others in real world performance, how this may affect their likeliness of staying in their field, and whether there are differences in memory for positive vs. negative feedback.

**AUSTIN ROBINETTE**

**EARTH SCIENCES—PALEONTOLOGY**

**ORAL SESSION 3D Title: Spindle-like Microfossils from the 3.0 Ga Farrel Quartzite of Western Australia**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Gregory J. Retallack**

**Funding: UROP Mini-Grant**

**Abstract:**

This study examines the continued study of the morphology, taxonomy, and origin of Earth's oldest lifeforms. Much is known about the evolution of life, but speculation exists on its true beginning; it is this debate as to how, where, and why it began that this research focuses on Archaean microfossils. Most scientists agree that life on this planet likely emerged between 3.5 and 3.9 billion years ago, but how it began is still under debate. The Oparin-Haldane hypothesis is the most popular and suggests the first life forms began in the Earth's early atmosphere as amino acids built from inorganic molecules that later combined to form more complex polymers. Others believe life may have evolved in the Earth's early oceans near hydrothermal vents, or perhaps evolved elsewhere in the universe and arrived on Earth via a meteor or comet. To contribute to the ongoing scientific exploration of these hypotheses, a considerable amount of additional data on Archaean biota is needed. This study examines Archaean (3-billion-year-old) spindle-like microfossils from the Farrel Quartzite of Western Australia, possibly the oldest known evidence of life on land. The microfossils are permineralized in chert and studied in petrographic thin section, as well as by Electron Microprobe and Scanning Electron Microscope data analysis. Previous studies have determined the microfossils are genuine remains of microscopic life and are recognized by five distinct forms. This project proposes a new hypothesis regarding the spindle-like microfossils, suggesting they were actinobacterial sporangia rather than acritarchs of shallow marine planktonic organisms.

**ANNA ROBINSON**

**LINGUISTICS**

**ORAL SESSION 1B Title: Effect of Melodic Accent On Perceived Rhythm in Songs**

**Research Area: Humanities**

**Faculty Mentor: Melissa Baese-Berk**

**Abstract:**

Songs are an enduring form of human expression created by combining two systems of communication, language and music. In studying songs, we can examine interactions between language and music because composers have to incorporate linguistic prosodic patterns with musical melody and rhythm. Rhythm is a perceptual construct, arising from patterns of alternating strong and weak syllables or musical beats. The assignment of strong versus weak, or stressed and unstressed, depends on the manipulation of duration, intensity, and pitch. Duration and intensity are strong cues to perceiving stress, but the saliency of pitch or melodic accent is less known. Previous research suggests that alignment of strong syllables with musically strong beats better facilitates attention and memory while misalignment has consequences for comprehension of lyrics. This study examines the relative importance of melodic accents in the perception of rhythm as well as the acceptability of lyric to melody pairings. Through a number of experimental tasks which test the perception of artificially manipulated song excerpts, we aim to determine if melodic accents can be used to cue expected strong syllables, overriding duration and intensity cues. The study also asks if the misalignment of melodic accents leads to problems in comprehension and intelligibility. The results of this study have implications for our understanding of the interrelationship between musical and linguistic pitch and rhythm.

**ANGELA ROTHMAN**

**HISTORY, POLITICAL SCIENCE**

**ORAL SESSION 1F Title: Well-Intentioned but Ineffective: A Legislative History of the California Native American Graves Protection and Repatriation Act of 2001**

**Research Area: Social Science**

**Faculty Mentor: Jeff Ostler**

**Abstract:**

Repatriation is the policy of returning Native American human remains and other items from museums and agencies within the United States. It became federal law in 1990 with the passage of the federal Native American Graves Protection and Repatriation Act (NAGPRA). NAGPRA required federally-funded agencies to repatriate to Native American tribes. In 2001, the California legislature created a state-level version of NAGPRA to assist non-federally

recognized California native peoples repatriate their items from state-funded institutions. However, the bill broadened the scope of repatriations and created challenges to comply with existing NAGPRA requirements for California museums.

By investigating letters of support and opposition, stages of the bill's life in the legislature, and other records, I argue that the creators of California NAGPRA were sincere in their intent to help California tribes, but fundamentally lacking in their understanding of the issues at hand. This analysis is necessary because there is a significant gap in California and national literature for a legislative history of California NAGPRA, and a want of general knowledge about Native American repatriation.

**JULIEN ROYER  
ANTHROPOLOGY**

**POSTER 103 Title: The First Described Pleistocene-Holocene carnivoran, *Meles leucurus*, from Kyrgyzstan**  
**Research Area: Natural/Physical Sciences**  
**Faculty Mentor: Win McLaughlin**

**Abstract:**

Little paleontological work has been completed in Kyrgyzstan, with most previous and ongoing work concentrated on the Miocene-Pliocene. However, some Pleistocene to Holocene material is also produced, and as of yet undescribed. This study presents the first described Pleistocene-Holocene carnivoran, discovered by Russian geologists mapping regional faults and reconstructing uplifts rates in the Tien Shan. As the fossils were recovered from a QIII abandoned river terrace, (the regional convention for naming uplifted terraces) we can identify which stratigraphic layer the fossils were recovered from. The carnivoran fossil was recovered from the QIII terrace, with an estimated age of 20,000-5,000 years old through carbon dating of other QIII terraces. Additionally, we are radiocarbon dating both bone from the specimen and an associated snail shell. The specimen, most of a juvenile carnivoran, differs from the previously collected fossil record of Kyrgyzstan, which is not only much older, but also dominated by large ungulates. The morphology of the preserved bones and the incomplete formation of the epiphysis as well as a single deciduous tooth and an encapsulated adult m1 fully formed in the lower right jaw reveal the specimen to be a juvenile. A comparison of the specimen with a modern dog skeleton shows us similar bone and teeth structure for an assignment to the Carnivora; nevertheless, the proportions of the femur and the anklebone seem unusually robust to be a part of the Canidae. We hypothesize that the robustness of the bones is grounds for diagnosis as *Meles leucurus*, because burrowing animals need a robust bone structure to burrow. In addition to morphological comparison of post crania, we have also CT scanned the encapsulated adult m1, for use in a positive morphological diagnosis. The findings of this study contributes material useful for comparing to modern species from the same area on the account of observing morphological and biogeographic changes happening through time. The *Meles* is reported in the Chinese fossil record from the Pliocene, potentially supporting the Out of Tibet hypothesis. The same population has likely not been living in the Kochkor Basin throughout the Pleistocene to Holocene period and/or had new populations move there from elsewhere in Eurasia. Lastly, Kyrgyzstan known for its seismically active recurrences, dating the fossils recovered from the recent uplift can give us information about future earthquake risks.

**ANNELISE RUE-JOHNS  
ENVIRONMENTAL SCIENCE**

**ORAL SESSION 2D Title: Climate Impacts Germination Frequency and Rate Of Prairie Forbs in the Pacific Northwest**  
**Research Area: Natural/Physical Sciences**  
**Faculty Mentors: Scott Bridgham, Laurel Pfeifer-Meister**

**Abstract:**

In response to recent climate change, the ranges of many species of plants and animals have shifted poleward. This study quantifies the effects of temperature and precipitation, the two major climate drivers, on the germination rate of ten Pacific Northwest prairie forbs. Three field sites across a latitudinal gradient, with increasing Mediterranean climate severity from north to south, reflect the potential poleward range shift of these species. Experimental plots at each site were exposed to either heating (+2.5 oC year-round), drought (-40% incoming precipitation), or control conditions. Additionally, the impact of competition was evaluated through regular weeding of half of each plot. Of the ten species seeded, four currently have their northern range-limit in Southern Oregon, two in Central Oregon, and four span the entire range of the study sites. Every species was seeded in equal quantities at all 3 sites (within and beyond their current range distributions). Current range had no significant impact on germination at different sites. For several species, heated plots experienced lower germination in central Oregon, which I hypothesize was due to



reduced insulation from snowpack. For other species, site-treatment interactions were species-specific. For most species, removing competing species increased germination. As germination is a critical life-history stage, the results of this study help to gauge the vulnerability of prairies in the Pacific Northwest to climate change and assess the possibility of surviving a northward range shift.

**ANNA SABLAN**

**ART**

**ORAL SESSION 2C Title: Saipan, Marianas Province: A brief, chronological Record of History Relating to the United States Territory island, from the Beginning of Its Inhabitation up to the Present Year, 2017**

**Research Area: Social Science**

**Faculty Mentor: Mark Harris, Lane Community College**

**Abstract:**

The ethnic diversity of Saipan, Marianas Province first began with the Ancient Chamorro and Carolinian people. Indigenous Pacific Islander descendants had existed for thousands of years throughout Micronesia's oceans. After Ferdinand Magellan's first encounter with Saipan's Ancient Chamorros, Spain, Germany, Japan and the United States, all influenced Saipan's course of history up to the present day, especially after World War II. A commonwealth was formed between Saipan, Tinian, Rota. Saipan was established as a US Territory in 1978 and has been governed since by Carlos S. Camacho (1978–1982, Dem.), Pedro P. Tenorio (1982–1990, Rep.), Lorenzo I. DeLeon Guerrero (1990–1994, Rep.), Froilan C. Tenorio (1994–1998, Dem.), Pedro P. Tenorio (1998–2002, Rep.), Juan N. Babauta (2002–2006, Rep.), and Benigno R. Fitial (2006–present, Covenant). My research is intended to help generate more discussion about US Territories, for the purpose of revealing the connection between Saipan and the United States. Factors discussed include economic statistics, cultural preservation, and a demographic history of Saipan.

**PAULLA B. SANTOS**

**HISTORY**

**ORAL SESSION 1G Title: Sexuality, Gender, and US Imperialism after Philippine Independence: An Examination of Gender and Sexual Stereotypes of Pilipina Entertainment Workers and US Servicemen**

**Research Area: Humanities**

**Faculty Mentor: Julie Weise**

**Funding: McNair Scholars Program**

**Abstract:**

My paper examines the continuation of U.S. imperialism in the Philippines through the gendered and sexual stereotypes of Philippine women and U.S. men after Philippine Independence in 1946. Perceptions of Pilipinas as submissive and dependent were constructed through women's interactions with U.S. military men, who were present due to growing U.S. concern of eastern communist influence in the second half of the twentieth century. Evidence from rest and recreation areas near U.S. bases during this time suggests U.S. servicemen were seen as powerful and wealthy, while the Philippine people, particularly Pilipinas, appeared submissive and dependent on U.S. power. The Philippine presidencies of Ferdinand Marcos and Corazon Aquino also transformed perceptions of Pilipinas. These ranged from the support and promotion of Pilipina entertainment workers to condemning and imprisoning them. However, this paper also illuminates instances of Pilipina agency that show how many Pilipinas were not simply victims to U.S. power within these entertainment districts. Many Pilipinas sought employment opportunities in order to provide for themselves, their families, and their country. This paper then connects the events around U.S. military bases during the second half of the twentieth century to present-day stereotypes associated with Asian-born women married to U.S. men in the United States, and current discussions of reopening military bases in the Philippines. Through the examination of sources such as political cartoons, music, business cards, and various others, my paper demonstrates how stereotypes of Pilipinas and U.S. men persisted or changed over time since the official period of U.S. imperialism.

**MARIA SARAO**

**BIOLOGY, SPANISH**

**POSTER 104 Title: Quantification of the Human Skin Microbiota**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Brendan Bohannon**

**Funding: UnderGrEBEs Award for Undergraduate Research; Oregon Undergraduate Researchers in SPUR, UROP Mini-Grant**

**Abstract:**

The skin is a primary interface for human-microbe interaction. Many studies have been concerned with determining what types (i.e., taxa) of bacteria inhabit the skin, rather than their absolute quantities. Current numerical estimates for skin-associated bacteria from culture-based studies range from  $10^4$ - $10^7$  cells/cm<sup>2</sup>, but these likely underestimate cell quantity because only ~1% of all bacterial species are cultivable in the laboratory. Only one study to date has used culture-independent technologies (quantitative polymerase chain reaction, or qPCR) to quantify bacteria at several skin sites. However, this study did not assess what proportions of the bacterial communities were alive or dead; this is important because even dead organisms play ecological roles such as nutrient cycling and maintaining genetic diversity. Therefore, in my study we seek to answer the following questions: 1) how are different methods (qPCR, colony counting, and fluorescence microscopy) useful for accurately quantifying the microbiota of human skin? and 2) how do the total number of bacteria and the proportion of live and dead bacteria vary across dry, moist, and sebaceous skin types? Our primary modes of quantifying total bacteria will be qPCR and colony counting. To estimate what proportion of these communities are alive and dead, we will label cells with a combination of fluorescent dyes and view them using a microscope. Our preliminary data from qPCR suggest that more bacteria inhabit dry sites, while colony counts have suggested that more inhabit sebaceous sites. Additionally, our observations from fluorescence microscopy suggest that there is a higher proportion of dead bacteria on the skin. The seemingly contradictory results from qPCR and colony counting may reflect differences in cell viability or taxa between dry and sebaceous sites; in the present study, we hope to investigate this hypothesis by analyzing samples from more participants.

**NORA SAWYER**

**ANTHROPOLOGY**

**POSTER 105 Title: Civil Action in Opposition to Hydroelectric Development in the Chiriquí**

**Province of Panamá**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Frances White**

**Funding: UORP Mini-Grant; Mills Study Abroad Scholarship; SIT Scholarships**

**Abstract:**

Hydroelectric development has increased rapidly throughout Latin America since the late 20th century. In 2014, it represented 20 percent of the world's hydropower (del Mar Rubio et al. 323). Within Panamá, much of the hydroelectric development is happening in the Chiriquí province. According to Hofstede et al. local peoples' dissatisfaction with the actions of the dam companies has increased with time, resulting in civilians and organizations taking action in opposition to dam companies and hydroelectric development. Dam construction has been slowed in part because of the occurrence of social demonstrations (Hofstede et al. 14), however, several dams have been constructed in last decade. In Chiriquí province, there is a growing environmental movement related to the protection of community water sources. In order to provide a comprehensive perspective of the regional anti-dam movement I interviewed residents living near to the uppermost dam sites of the Chiriquí Viejo River and local environmental activists. In total, I conducted 39 semi-structured interviews over a period of 12 days. Using qualitative analysis methods and primary sources I compared perspectives between activists and residents to look for inconsistencies. Furthermore this investigation provides new perspective on the regional environmental movement and its ties to hydroelectric development.

**MICHELLE SCHAEFER**  
**PRE-BUSINESS ADMINISTRATION**  
**ORAL SESSION 2E Title: Networking 100 Challenge: An Entrepreneurial Approach to Student Educational and Career Exploration**  
**Co-Presenters: Kendall Cablao**  
**Research Area: Social Science**  
**Faculty Mentor: Kate Harmon**

**Abstract:**

Graduating college students in the U.S. are struggling to find careers in their chosen field. Unemployment and underemployment rates among young graduates remain elevated in the wake of the recent recession. For young graduates, the unemployment rate is 5.6 percent, and the underemployment rate is 12.6 percent, but these high rates underscore the current unemployment crisis among young workers. Unemployment is exacerbated with the rising cost of higher education and the increasing average student loan debt upon graduation, which is currently \$37,172 nationwide. We conducted research to address this crisis and find a solution. We hypothesized that by establishing a professional network, students would gain insight on how to apply their education in their chosen field and align their passions with educational and career pursuits thus increasing their chances of obtaining a job upon graduation. To test our hypothesis, we conducted 100 interviews between ourselves and professionals in our chosen fields of interest over the course of 10 weeks. This experience resulted in a refinement of networking skills, an expansion of professional networks, and a clearer sense of educational goals. The findings from this experience suggested the need for a student program that inspires students to create a professional network and establish meaningful connections with industry leaders providing opportunity for collaboration, mentorship and innovation. Our goal is to continue to develop this program. The program takes an entrepreneurial approach to educational and career exploration and provides university students the opportunity to engage with professionals to discover their passion.

**BRANDON SCHMIDT**  
**FOLKFORE**  
**ORAL SESSION 2G Title: Liminality of Yokai**  
**Research Area: Humanities**  
**Faculty Mentor: Glynne Walley**

**Abstract:**

Yokai, the monsters of Japan, can be seen basically everywhere in Japanese art, literature, and films, and are even starting to be seen in American culture. This presentation will draw from research on Japanese art, literature films, Anime, Manga, and Folklore, to show how Yokai is prevalent in a variety of cultural expressive forms in Japan and the United States, with special attention to the liminal nature of Yokai. The method of gathering research is mostly done through reading of literature such as the Ring, internet research and viewing of films and anime portraying Yokai that show a liminal existence or liminal traits. While I have written a short paper on the subject of using Arnold Van Gennep's Rite of Passage theory, particularly the role of the Liminal stage, to study yokai, I am still researching and looking at material to strengthen my study. My presentation is representative of one aspect of my ongoing research. It is clear that there is substantial evidence to support my thesis that analysis of the Yokai as representative of liminal stage of the Right of Passage model.

**AMBER SCHOTTKY**  
**JOURNALISM, ADVERTISING**  
**POSTER 106 Title: How Different Sources Report the Same Facts about Climate Change**  
**Research Area: Social Science**  
**Faculty Mentor: Mark Blaine**

**Abstract:**

Climate change skepticism has been present ever since scientists first began publishing data on the rising temperatures and CO2 levels around the world. Even as more research is published containing indisputable proof of human contribution to climate change, a large portion of the American population still refuses to acknowledge it as truth. Where does this skepticism come from and how has it persisted through the advancements in scientific research? On March 9, 2017, newly appointed head of the Environmental Protection Agency (EPA) Scott Pruitt made this statement: "I would not agree that [carbon dioxide] a primary contributor to the global warming that we

see.” Pruitt, like many other conservatives in America, make up a large portion of climate change skeptics. Both environmentalists and skeptics alike are anxiously awaiting the changes Pruitt and his administration are going to implement in the EPA and his words are widely reported in news media. For my poster, I have taken this quote from Scott Pruitt and used it to compare how multiple highly circulated sources and news outlets, such as the *New York Times* and the *Washington Examiner*, reacted to his statement regarding CO2 contributors. I found that sources that brand themselves as “conservative” tend to use this quote to cast doubt on the science behind climate change, while “liberal” sources use it to tarnish the reputation of the EPA chief and the administration.

**DANIEL SELLERS**

**PHYSICS**

**POSTER 107 Title: Null Ship; “Lighter-Than-Air” Travel by Enclosed Vacuum**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Benjamin McMorran**

**Abstract:**

The Vacuum Airship, or Null Ship, is a concept which has existed since at least the 17th century. The basic idea is to contain an empty volume within the aircraft, rather than filling that volume with a lighter-than-air gas such as hydrogen or helium, as is done in nearly all conventional airships. However, few, if any, rigid materials exist which are capable of withstanding the enormous pressure difference while still remaining light enough to achieve lift. My research project explores a new design innovation which may circumvent this new engineering hurdle. The Null Ship would be comprised of two concentric ‘shells,’ of non-porous fabric, connected by a series of evenly distributed support lines. The space between the two shells is pressurized so that the outer shell is forced to expand, simultaneously causing the central shell, containing the evacuated volume, to expand and remain open. A thorough analysis of the physics and math which would affect such an aircraft is the sole focus of this project, accompanied by summaries of each conclusion in the most accessible terms possible. The ultimate goal is to assess and discuss the feasibility of my new idea and further compare it to other designs. The presentation will include alternate designs which have been considered and, perhaps most importantly, an outline of future research and plans for constructing a prototype.

**KEZIA SETYAWAN**

**ART, PRE-JOURNALISM, ART & TECHNOLOGY, UNDECLARED**

**FIG SESSION 5A Title: Our Bodies, Our Country, Our World**

**Co-Presenters: Cullen Sharp, Mya Clover-Owens, Kaitlyn McCafferty, Sydney Stark, Carlie Stroud, Alisha Martin**

**Research Area: Humanities**

**Faculty Mentor: Julie Voelker-Morris**

**Funding: FIG Program**

**Abstract:**

“This is your country, this is your world, this is your body and you must find some way to live within the all of it” (Ta-Nehisi Coates, *Between the World & Me*). Sparked by this quote, we, as students in the Fall 2016, AAD 199: Portable Life Museum First-Year Interest Group engaged in ways in which the art world responds to concepts of bodies, country, and world. Most particularly, we paid attention to questions of identity, inclusion, belonging, and (in)visibility. We took two classes together as a cohort: AAD 252–Art & Gender and ART 101—Understanding Contemporary Media. A variety of artforms and artists working at intersections of gender, race, class, bodies, power, oppression, and privilege were encountered. Additionally, we visited local exhibits related to these topics, were challenged to expand how we generate and develop ideas and research, and examined what is represented and chosen to be valued about peoples and places by looking at and discussing art and artists within thematic frames such as accessibility, marginalization and belonging; power and privilege in the arts; and intersectionality, spectatorship, and the gaze. That challenge culminated in this exhibit, *Our Bodies, Our Country, Our World*. Each of these pieces tells a story to encapsulate what we learned throughout the term or want to activate in others to change the world in some way.

**MANDI SEVERSON**

**BIOLOGY, HUMAN PHYSIOLOGY**

**ORAL SESSION 1A Title: Characterizing HoxB Gene Expression in DE-b4u-ENE RARE Mutants**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Robb Krumlauf (Stowers Institute for Medical Research)**

**Funding: Stowers Summer Scholars Program, Stowers Institute for Medical Research**

**Abstract:**

The nervous system in vertebrates is made up of complex neuronal circuits necessary for sensing and responding to external stimuli. These neuronal circuits are involved in peripheral sensation, the vestibular system and sense of proprioception, and the auditory system. These circuits are formed during embryogenesis, during which the Hox genes confer segmental identity along the anterior-posterior body axis as well as specify neuronal subtype. Neuron specification is dictated by the expression of unique combinations of transcription factors. Retinoic acid (RA) signaling can induce the expression of these transcription factors via cis elements called retinoic acid response elements (RAREs). There are RAREs spread out throughout the four Hox clusters, but the RAREs we are interested in are located around the Hoxb4 gene and are called DE, b4u, and ENE. While studies have been done on DE mutants and compound DE-b4u mutants, only recent studies conducted by the Krumlauf laboratory generated a line of viable mice with DE, b4u, and ENE mutations. Characterizing the gene expression of embryos with these mutations will allow us to begin to discover the contributions of all three RAREs. We began by asking how much HoxB gene expression levels would change in triple RARE mutants, what effect it would have on RA-induced anteriorization, and what effect it would have on sensory neuron projections. Our results were what we had hypothesized: quantitatively most HoxB genes were down-regulated, in terms of distribution the anteriorization by RA did not occur, and we did not find conclusive results when looking at sensory neuron projections.

**ALLY SHAW**

**ASIAN STUDIES**

**ORAL SESSION 1B Title: A Linguistic Anthropological Study of Ggotbatchim “Flower Sepal” in South Korea**

**Research Area: Social Science**

**Faculty Mentor: Lucien Brown**

**Abstract:**

This linguistic anthropological study analyzes the iconic and indexical significance of ggotbatchim in contemporary Korean society. Ggotbatchim translates literally to “flower sepal” and is performed by placing one hand on either side of the face at the chin, hands forming the “sepal” and face becoming the “flower.” Most analyses of linguistic indexicality focus on language and vocalization, but non-verbal behavior is a huge part of formed identity. Ggotbatchim falls under the category of “aegyo,” defined as a “calculated performance of cuteness that infantilizes those (most frequently female) who engage in it in the hope of gaining the favor of a superior or attracting romantic attention.” I adopt the view that linguistic and paralinguistic forms are social semiotics (study of sign processes and meaningful communication) that serve as indications of identity. I qualitatively analyzed a range of Korean media materials including advertisements and social media. My analysis shows that ggotbatchim mainly indexes cuteness, slimming, and a self-acknowledgement of beauty, ultimately serving to create a soft, cute, appealing, youthful identity. It has interesting implications in terms of Korean gender politics, seen in the softened image of a man versus the “disempowering” of women who push gender expectations by building up an almost masculine identity. My results suggest behavior does not presuppose gender; rather, gender is a product of body language and spoken language. Softer male behaviors are becoming increasingly appealing in modern Korean society and male ggotbatchim performances become iconic of the popularization of softer male identities in Korean pop culture.

**RAN SHI**  
**BIOLOGY, BIOCHEMISTRY**  
**POSTER 108 Title: Evolution of Arachidonic Acid Binding by an S100 Protein**  
**Co-Presenters: Andrea Loes**  
**Research Area: Natural/Physical Sciences**  
**Faculty Mentor: Michael Harms**  
**Funding: American Heart Association**

**Abstract:**

Calprotectin is a multifunctional innate immune protein involved in oxidative bursts, inflammatory response, phagocyte migration and nutritional immunity. While many multifunctional proteins are multi-domain and large in size, calprotectin is a relatively small molecule; it has a heterodimer of two ~100 amino acid monomers, S100A8 and S100A9. Our goal was to determine how this small molecule evolved multiple functions. We need to map the evolution of each of calprotectin's functions onto its evolutionary lineage and we have begun to do this by assessing the distribution of calprotectin functions in homologs taken from different species.

Here, we show a preliminary characterization of arachidonic acid binding—a proxy for oxidative bursting—from species across the amniotes. We have now expressed and purified recombinant S100A8 and S100A9 from human, mouse, opossum, and chicken. We tested arachidonic acid binding to the S100A8 and S100A9 alone from mouse and human, finding that neither bound. In contrast, the calprotectin complex bound arachidonic acid. This suggests that the heterodimer is required for binding arachidonic acid. We are currently characterizing binding to the opossum and chicken proteins to establish the evolutionary interval over which this feature evolved. By determining the evolutionary history of calprotectin, we can learn more about the evolution of immune system of animals and gain general insight into how proteins evolve.

**KENDRA SIEBERT**  
**JOURNALISM, ADVERTISING**  
**POSTER 109 Title: Latin American Street Art as Political Protest**  
**Research Area: Social Science**  
**Faculty Mentor: Peter Laufer, Elizabeth Raisanen**  
**Funding: UROP Mini-Grant**

**Abstract:**

Latin American history has been marred by cyclical periods of oppression due to dictatorships. The medium of street art arose as a platform for citizens to express their thoughts publicly and generate conversations among diverse communities during these oppressed periods. After studying in Argentina last summer, I learned about the ways street art can create a social dialogue and inspire change. Graffiti is an accessible medium that can be described as the voice and news of the people, and in Argentina, street art communicates otherwise untold stories. When graffiti is examined across distinct cultures, even more can be gleaned about the social and political climates of Latin America. I will be traveling to Mexico City this upcoming summer to expand on my research in a new climate. Also known for a rich street art scene and tumultuous political history, Mexico will give me the opportunity to document the ever-changing street art medium and make my own contribution by interviewing artists about their work before it is covered and re-covered again. Before setting out to conduct interviews, I will embark on a largely research-based exploration of the history of Mexico to understand the political undertones of its street art. My primary question for street artists and community members will be: How does the presence of street art influence the community and effect change? I will then synthesize my findings and connect them across different regions of South America.

**EMMA SILVERMAN**  
**HUMAN PHYSIOLOGY**  
**POSTER 110 Title: Dual-Task Gait Stability Assessment Utilizing a Wearable Motion Analysis Sensor System**  
**Research Area: Natural/Physical Sciences**  
**Faculty Mentor: Li-Shan Chou**  
**Funding: UROP Mini-Grant**

**Abstract:**

The purpose of this study was to assess the reliability of wearable motion sensors and determine the accelerometry

based kinematics that best identify dual-task gait instability. Thirty healthy college aged subjects were recruited for this study. Acceleration of the whole body center of mass was measured with a single sensor over the L5 vertebrae. All subjects performed a simple walking task 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, and by two different raters. Data collection and analysis are ongoing. Initial evaluation of the data support the working hypotheses that the measurements from wearable motion analysis sensors are reliable when performed outside of the laboratory setting, that they are stable across multiple testing days, and that there is high interrater reliability. Further, acceleration on the medial-lateral axis, as well as peak turning angular acceleration, appear to be valid measures of gait instability when tested under a dual-task paradigm. Until now, dual-task gait instability has only been able to be measured in fully equipped camera-based motion analysis laboratories. The use of wearable motion technology paired with dual-task gait analysis has the potential to translate these laboratory metrics into clinical environments. Continued development of this wearable technology may lead to simple cell phone based testing packages that provide clinicians with a reliable, low cost, and readily available tool to evaluate dynamic gait instability in patients with movement disorders such as concussion.

**PAYTON SMITH**

**ENVIRONMENTAL STUDIES, ENVIRONMENTAL SCIENCE**

**POSTER 111 Title: Floodplain Enhancement Effectiveness at Deer Creek and Baseline Data Collection at Springfield Oxbow**

**Co-Presenters: Mack Hunter, Lauren Winter, Emily Jadeski, Bradeen Prillwitz**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Peg Boulay**

**Funding: Environmental Leadership Program, McKenzie Watershed Council**

**Abstract:**

Anthropogenic activities such as logging, mining, and agriculture have led to stream channelization and large wood debris removal, jeopardizing river floodplains throughout the Willamette Valley. Riparian floodplain and connecting side channel abundance directly correlates with species diversity and provides critical habitat for juvenile salmonids and a variety of native riparian species. During Spring 2017, the Environmental Leadership Program Stream Stewardship Team will be partnering with the McKenzie Watershed Council to actively manage floodplain restoration in Deer Creek, OR and facilitate baseline data collection for management recommendations at the Springfield Oxbow along the McKenzie River, OR. Methods being used at both sites include side channel surveying, and native and invasive species monitoring using GPS waypoints and tracks. Primary and secondary channels will be analyzed utilizing protocol based from the 2016 ELP Monitoring Protocols for Deer Creek and the Stream Inventory Handbook focusing on pool characteristics and large wood debris frequency. Side channel assessment data will be used to document the abiotic features of the Springfield Oxbow and invasive species surveys will be used to document the biotic features of the property. The Stream Stewardship team will be utilizing datasets from 2015-2016 to continue restoration and re-evaluate previous work at Deer Creek. The intended outcome of our project is to create a report summarizing raw field data sheets, maps/GIS shape files, and photos. The data collected by the Stream Stewardship Team will be used by the McKenzie Watershed Council to make prioritized and informed decisions regarding the ecological value of the areas.

**OLIVIA SOMHEGYI**

**ENVIRONMENTAL SCIENCE**

**POSTER 112 Title: Sediment Accretion and Carbon Sequestration in Coos Bay Estuarine Wetlands**

**Research Area: Natural/Physical Sciences**

**Faculty Mentors: Josh Roering, Keyyana Blount**

**Abstract:**

Estuarine wetlands are highly productive ecosystems, contributing to critical ecosystem functions through coastal erosion control and carbon sequestration from the atmosphere. Estuarine wetlands are directly impacted by climate change. The ability for estuarine wetlands to migrate and accrete in response to sea level rise is debated. <sup>1</sup> Analyzing sediment accumulation rates in estuarine wetlands provides the opportunity to identify temporal changes in sediment accretion rates and carbon sequestration rates. We quantified sediment accumulation rates using radioisotope geochronology techniques to analyze sediment cores extracted near Coos Bay, OR. We compared two 80-cm cores, one extracted from a freshwater marsh and the second from a saline marsh, both of which were extracted from low-disturbance sites. Sediment accumulation rates were analyzed using (<sup>137</sup>Cs and (<sup>210</sup>Pb

distributions in 2cm increments. Based on the results from literature we expect sediment accretion rates near Coos Bay, OR to range between 0.2 to 0.5 cm/yr. ^2 Our results will reveal whether estuarine sedimentation and carbon accumulation vary with climate and intensive industrial logging activity in the second half of the 20th century.

**DANA SPARKS**

**JOURNALISM**

**POSTER 3 Title: Amber's Real World**

**Research Area: Social Science**

**Faculty Mentors: Dan Morrison**

**Abstract:**

The room feels dark and crowded. The walls have become the coloring book of friends and the floor is littered with clothes, art, and trash. There's only one, small window that the meager Oregon sun tries to poke through occasionally. It feels hard to breathe in here—the room is a physical embodiment feelings swirling around. Harsh, artificial light provide a vague comfort—sounds of TV laughter or YouTube sensations not quite covering loud, rough voices from what is the rest of world. In the corner, a small girl sits alone, trying to work. She looks at me and says that depression is like sitting outside of a lighthouse. It is dark much of the time, but the light always comes back, even if only briefly. At the time, Amber was 18-years-old and a senior at Springfield High School. Now, she's 19, a freshmen at the University of Oregon and seeking treatment for major depression and anxiety. Her disposition as an adolescent has infringed on her ability to seek treatment until now due to the normalization of teenage depression. While Amber's story is driven by the collision of adolescence and mental illness, the past year has been a documentation of her strength and determination and her adventures in growing up. Amber is a facet in the complexities of youth culture in society today.

**BRYCE SPRAUER**

**INTERNATIONAL STUDIES, SPANISH**

**ORAL SESSION 2F Title: Current Cuban Migration: Manifestations of Political Privilege and Economic Violence**

**Research Area: Humanities**

**Faculty Mentor: Dan Tichenor, Pedro Garcia-Caro, Joseph Fracchia**

**Funding: VPRI Undergraduate Research Fellowship; Humanities Undergraduate Research Fellowship**

**Abstract:**

How are policies and geopolitical relations between Cuba, Central America, and the United States generating a new increase of Cuban migration and what is the impact on both migrants and citizens of the nations involved? This question provides an exploration of the stark contradictions in economic and immigration politics in the region between these key sending, transit, and receiving states. On the one hand, more than any country in history, Cuba has experienced the longest and most severe economic sanctions than any other country by the U.S. embargo, currently lasting 56 years, causing indirect violence in the form of restricted access to medications and resources. On the other hand, Cubans are the only nationality in the world that the United States provides the exceptional privilege of automatic refugee status upon arriving in the United States. While there are a wide variety of economic and commercial sanctions on Cuba, there are also a multitude of U.S. policies that enable and encourage the immigration of Cubans, specifically working, educated professionals. These seemingly contradictory angles of geopolitics facilitate economic suffering and incentivize a "brain drain" with the aim of weakening Cuba's socialist government and imposing a democratic society as defined by the U.S. For context, Guatemalans who are fleeing extreme cases of femicide, organized violence, and violent identity-based discrimination have their asylum requests accepted at a rate of 1.8% and are labeled by United States government entities as merely economic migrants; meanwhile, Cubans, leaving the island primarily for economic opportunity, receive an automatic, federally sanctioned status of "refugee" and are provided benefits such as work visas, healthcare, higher education scholarships, and eligibility to gain citizenship after residing in the United States for a year and one day. My research focuses on Cuban migrants as they pass through Central America, which reveals the contradictory nature of discrepancies in the treatment of immigrants for political reasons. My research is propelled by the ample requests from both Cubans and Mexicans for research on the political history that informs the recent migration of Cubans. The purpose of my research is to illustrate how both U.S. economic and immigration policies toward Cuba, including the current negotiations between Presidents Obama and Raul Castro, impact and shape the regional politics as well as reinforce the inequitable, if not discriminatory, effects on migrants from Central America, the very region that Cubans are passing through to get the United States.



**BRYCE SPRAUER**

**INTERNATIONAL STUDIES, SPANISH**

**ORAL SESSION 1F Title: Indian Sovereignty and Rights: The Northern Paiutes, the Malheur Judgement Fund, and the 1965 Indian Claims Commission**

**Research Area: Social Science**

**Faculty Mentor: Kevin Hatfield and Jennifer O'Neal**

**Abstract:**

The Northern Paiutes of the Confederated Tribes of Warm Springs, like many other reservation tribes, are recognized as sovereign nations by the United States Federal Government. Their relations, however, are conducted by the Bureau of Indian Affairs in the United States Department of the Interior reflecting the historical recognition of Indian tribes as “domestic dependents.” Since various treaties, case laws, and the United States Constitution officially uphold Indian sovereignty, the tribes are inherently sovereign and independent from the recognition and proceedings of the U.S. Federal Government. There is a large discrepancy, however, between the federally documented understanding of Indian sovereignty and how it is realized in practice. Based on the relations with the U.S. Federal Government as manifested in the 1965 Malheur Judgement Fund of the Indian Claims Commission, this research seeks to understand how the Northern Paiute tribe within the Warm Springs Confederation experience sovereignty and whether sovereignty and fundamental rights are indeed upheld. The inadequate and discriminatory form of compensation yielded out of the results of the Indian Claims Commission and the 1956 Malheur Judgement Fund for the Paiute people informs the extent to which the Northern Paiute’s sovereign rights are respected and upheld by the federal government. Through review of the primary documents of the 1965-1986 Malheur Judgement Fund regarding Northern Paiute families, the 1938 Constitution of the Warm Springs Confederation, and the indigenous knowledge and oral history told by Wilson Wewa and his family—whose ancestors were compensated by the commission, the research bridges the varying forms of historical context and analyses the meaning of sovereignty for the Northern Paiute people.

**ROBERT STANTON**

**PHILOSOPHY**

**ORAL SESSION 3F Title: Technical Standards Controlling User Privacy for the Internet of Things**

**Co-Presenter: Azadeh Ghonche**

**Research Area: Humanities**

**Faculty Mentor: Colin Koopman**

**Abstract:**

As the technology is advancing, privacy is becoming increasingly difficult to maintain. Novel ideas to collect and analyze data have been developed and these new technologies are now greater part in our lives than ever before. The internet of things is a continuation of this trend but presents even more potential privacy problems because of its automated nature and decentralized structure. The goal of this project is to create a technical standard that can be used to guide the development in a way that improves the preservation of privacy among users. To prepare for the coming of the internet of things, this research transforms a philosophical conception of privacy into a standard usable by technicians in the field. The “control theory of privacy” first articulated by Alan Westin is referred and adapted from a high-level abstract definition to a standard of privacy specifically targeted for the internet of things. First, the concepts of “control” and “personal information” have been explained to clarify this theory. Second, the concrete elements necessary to fulfill the requirements of the revised theory of privacy have been listed. Finally, the workings of a small-scale internet of things model built by this researcher and the Computer Science Department to confirm the feasibility is demonstrated. Our preliminary results suggested that it is indeed possible to build an “internet of things” system that allows for the user to maintain control over their personal information.

**HANNAH STEINKOPF-FRANK**

**JOURNALISM**

**ORAL SESSION 2C Title: La Sape: Tracing the History and Future of the Congos' Well-dressed Men**

**Research Area: Humanities**

**Faculty Mentor: Torsten Kjellstrand**

**Funding: Robert D. Clark Honors College; Stamps Family Charitable Foundation**

**Abstract:**

This research is a photo series display on “la Société des Ambianceurs et des Personnes Élégantes (la Sape)” —a social movement of well-dressed men that began in the two Congos. For decades, Sapeurs, members of la Sape, have spent exuberant sums of money on designer clothes, showing them off at gatherings, in the streets, and more recently in high-profile music videos and advertisements. This project explores the status of la Sape in 2017. From its origins, la Sape has been an international phenomenon, with Congolese men traveling to France and Belgium, the two former colonizers, to acquire the latest fashions. Currently, Congolese around the world are more connected than ever, yet the sociopolitical and economic difficulties continue to push Central Africans to leave for Europe despite the challenges of building a new life. Curated in collaboration with SOJC Professor Torsten Kjellstrand, this photo series provides insight into a diverse group of men who use European clothes to build and express a postcolonial African identity. Its major focus is to explore how aesthetics and styles are constructed. The project involved intensive travels to Paris and Brussels to interview and photograph Sapeurs in their twenties to fifties. Each photo presentation pairs two photos together: one a stylized photograph of a Sapeur and another caught in the moment, often when the subject was not aware that a photo was being taken.

**DELANEY SWINK**

**INTERNATIONAL STUDIES AND ROMANCE LANGUAGES**

**ORAL SESSION 1C Title: Social Change in Morocco: Islamic Feminism and Women's Right to Education**

**Research Area: Humanities**

**Faculty Mentor: Yvonne Braun**

**Abstract:**

In the Western world, the discourse surrounding Islam is often oversimplified and prejudiced, falsely portraying Muslim women as the symbol of oppression. The discourse often leads to damaging consequences. Because of this, it is important to deepen the conversation about feminism and Islam, decentering hegemonic western feminism that excludes those outside the categories of white, secular, and liberal feminists. This research seeks to understand the existence of dominance of western feminism, theories of transnational feminism, realization of local feminisms such as Islamic feminisms in the Moroccan context, and the obstacles faced by Islamic feminism in reaching peace and equality between genders in Morocco. In this regard, the research examines the background of the Islamic Feminist movement through the Moudawana (The Moroccan Family Code), the UN Convention on the Elimination of all forms of Discrimination Against Women (CEDAW), the Arab Spring, and interpretations of contentious Quran verses. Reviewing literature and analyzing the perspectives of Islamic feminist scholars interviewed in Morocco, the methodology provides a basis for understanding women's movements in Morocco and the obstacles faced thereof. This work concludes that Islamic feminism is valuable in improving gender equality in Morocco through a culturally compatible framework, though illiteracy amongst women in Morocco serves as an obstacle that impedes on their ability to read the Quran and make their own religious decisions.

**NOAH TAKESU**

**CHEMISTRY**

**POSTER 113 Title: Extended Core Phosphaquinolinones: Substituent Effects on Photophysical Properties**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Mike Haley**

**Funding: National Science Foundation**

**Abstract:**

Phosphaquinolinones are a novel class of compounds that were first synthesized at the University of Oregon. Phosphaquinolinones are of interest to researchers in the field of chemistry because they are “five coordinate Phosphorous-Nitrogen compounds,” which in the past could only be created under conditions of harsh reactions and high temperatures. Whereas there have only been a handful of these types of compounds ever made, Phosphaquinolinones specifically can be created without the need for such harsh conditions. The goal of this

research is to expand the current library of compounds at the University of Oregon by following the synthetic means, and to characterize these compounds in terms of extinction coefficients (the light absorption capacity of the compound), emission (the visible color of the compound), and quantum yield (indicative of photon efficiency). In this regard, beyond their novel structures, by creating compounds with different structural elements, it is possible to change the visible color of these compounds. They also exhibit pH dependent emissions and quantum yields, i.e., depending on whether the compounds are in basic or acidic environments they can change their colors and can reemit light with varying efficiency. As such, these properties make Phosphaquinolinones possible candidates for use in the fields of dyes and pH sensors. To date, this researcher has created twelve of these compounds with potential for more and characterized them according to the terms described above.

**JOCELYN TAYLOR**

**BIOLOGY**

**POSTER 114 Title: The Effect of Lower Limb Muscle Fatigue on Human Gait and Working Memory Performance in Single and Dual-Task Condition in Young Adults**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Li-Shan Chou, Szu-Hua "Teresa" Chen, Barbara Mossberg**

**Funding: UROP**

**Abstract:**

Walking while performing a cognitive task may occur concurrently with muscle fatigue, especially towards the end of active jobs. Although previous research has demonstrated independent effects of fatigue and working memory tasks on walking, their interaction is rarely investigated. The purpose of this study was to examine changes in gait balance control and working memory performance of healthy young adults when lower extremity muscles are fatigued. Twenty-three healthy adults (11 females,  $20.7 \pm 1.3$  yrs) performed the following three tasks before and after a muscle fatigue protocol in randomized order: (1) walking at a self-selected speed, (2) sitting and performing a 3-back test, and (3) walking while performing a 3-back test. Whole body motion data were collected from a set of twenty-nine retro-reflective markers with a 10-camera motion system. During dual-task (walking + working memory test) relative to single-task (walking only), subjects walked more slowly ( $1.17 \pm 0.02$  vs.  $1.21 \pm 0.02$  m/s,  $p < .001$ ), had lower peak forward velocity ( $1.28 \pm 0.03$  vs.  $1.34 \pm 0.03$  m/s,  $p < .001$ ), and exhibited decreased stride lengths ( $1.17 \pm 0.02$  vs.  $1.22 \pm 0.03$  m,  $p < .001$ ). Stride width increased when subjects were fatigued ( $8.7 \pm 0.4$  vs.  $7.8 \pm 0.4$  cm,  $p = .005$ ). In single-task (only working memory) the accuracy improved after fatigue (95.92 vs. 98.37%,  $p = .013$ ), while in dual-task (walking + cognitive) the accuracy decreased after fatigue (97.44 vs. 94.09,  $p < .001$ ). Before fatigue, accuracy was greater during dual-task compared to single-task (95.92 vs. 97.44%,  $p < .001$ ) while after fatigue the accuracy during single-task was greater (98.37 vs. 94.09%,  $p < .001$ ).

**SETH TEMPLE**

**MATHEMATICS**

**ORAL SESSION 1G Title: Bean as Our Future: How Ender's Shadow Disputes the 1997 Backlash against Human Cloning**

**Research Area: Humanities**

**Faculty Mentor: Elizabeth Raisanen**

**Abstract:**

In 1997, Dr. Ian Wilmut and colleagues at the Roslin Institute performed a successful somatic cell nuclear transfer on a female sheep named Dolly. Fear-mongering media coverage of Dolly immediately postulated concerns surrounding potential human cloning. In 1999, Orson Scott Card reimagined the Enderverse with the genetically enhanced clone Bean as the protagonist for Ender's Shadow. Bean exists as Card's counterexample to the aforementioned speculation. Card's portrayal of Bean posits a world in which cloning technologies maintain human dignity, respect individuality, and benefit mankind's pursuits. This paper demonstrates the historical concerns surrounding cloning as inadequately corroborated through analyses of Bean and Ender as literary foils, of Bean and Nikolai as unique personalities despite being genetic copies, and of Bean as a helpful wholesome clone due to the Christian education Sister Carlotta provides him. By presenting a contradiction to dispute the media's fallacious and unfounded claims, Card requests more discourse over the cloning debate and pleads for an understanding of multifarious perspectives.

**AUSTIN THOMPSON  
HUMAN PHYSIOLOGY**

**POSTER 115 Title: Lower Limb Joint Moments during Obstacle Crossing Following Concussion in Adolescents**

**Research Area: Natural/Physical Sciences  
Faculty Mentor: Li-Shan Chou**

**Abstract:**

Patients with concussion often complain of instability while walking. Previous studies have shown that subjects with concussion have altered gait under different conditions such as normal walking, dual-task walking, and obstacle crossing. While other studies have looked at lower limb joint moments in healthy adolescents and the geriatric population and found that older adults have increased lower limb joint moments compared to young adults, there has not been a study looking at the changes in lower limb joint moments during obstacle crossing in subjects with a concussion.

The purpose of this study was to determine the effect of concussion on lower limb joint moments during obstacle crossing among adolescents. It was hypothesized that peak joint moments of the leading and trailing limbs would be increased in patients with concussion. Eight patients with a concussion as diagnosed by health professionals were matched with eight control subjects by age, height, mass, sex, and sport. Subjects were tested five subsequent times as follows: seventy-two hours, one week, two weeks, one month, and two months. Twenty-nine retro-reflective markers were placed on bony landmarks, and motion analysis was performed using a 10 camera, 60 Hz system. The subjects stepped over an obstacle ten percent of body height during steady state gait, and the data was analyzed using Orthotrac. This study demonstrated that changes in lower limb joint moments require larger forces generated by muscles, causing unnecessary strain and a mechanism of further injury while providing further insights into how concussions affect gait.

**CONNOR THORUD  
ANTHROPOLOGY**

**POSTER 116 Title: New Archaeological Site Recording and Assessment Along the Southern Oregon Coast**

**Research Area: Social Science  
Faculty Mentor: Scott Fitzpatrick, Nick Jew**

**Abstract:**

As part of a newly established University of Oregon field school along the southern Oregon Coast in cooperation with the Coquille Tribe and Oregon State Parks, a pedestrian survey of Bullard's Beach State Park was conducted. During the systematic survey across the southern portion of the park, known prehistoric sites were relocated, several new ones were identified and marked, and the site conditions for each were assessed. Considering the last major survey that took place more than twenty years ago, this was an opportunity to examine how these sites have changed over time as a result of various natural processes and human activities. The results garnered from a combination of ground survey, site record comparisons, and satellite imagery dating back to 1994 revealed that many of these coastal sites are actively succumbing to erosion from the wind, rain, and tidal actions. In addition, cases of looting that have caused damage to subsurface deposits were identified. It is expected that future research will further investigate a number of sites in the park to determine the timeframe of native occupation, maritime and subsistence adaptations through time, the degree to which these sites are under threat, and how adverse effects might be mitigated to ensure their long-term protection.

**CHRISTINA TRANG  
CHEMISTRY**

**ORAL SESSION 3D Title: Fundamental Characterization of Mixed-Metal Oxygen Evolution Electro catalysts**

**Research Area: Natural/Physical Sciences  
Faculty Mentor: Shannon Boettcher  
Funding: NSF; UROP—Presidential Undergraduate Research Scholar**

**Abstract:**

Hydrogen production has been an important aspect of renewable energy research as it can be obtained by splitting water in (photo) electrochemical cells. Due to the slow kinetics of the Oxygen Evolution Reaction (OER), catalysts are widely studied to increase the efficiency of the water-splitting reaction. The development of active, stable, and

inexpensive OER catalysts have been studied using first-row transition metals such as Nickel, Cobalt, and Iron. This research identifies activity trends for catalysts based on these elements in relation to compositional and structural changes.

Principle characterization techniques include electrochemical measurements, Scanning Electron Microscopy (SEM), and X-ray Photoelectron Spectroscopy (XPS). In addition, a joint experimental and theoretical study is discussed in which the effects of varying cations in electrolyte have been evaluated. Incorporating different cations into solutions such as Na<sup>+</sup>, K<sup>+</sup>, Ca<sup>2+</sup>, and Mg<sup>2+</sup> will lead to the analysis of the role of intercalated cations in OER and a better understanding of electrolyte impurities. By evaluating the effects of varying film composition, deposition techniques, and electrolyte counterions, the research provides a more comprehensive understanding of ternary OER catalysts, the role of electrolyte, and illustrates new design principles.

**NIKOLAI VALOV**

**MUSIC COMPOSITION**

**CREATIVE WORKS SESSION 4C      Title: Presentation on Application of Techniques Used to Distort Sound to Inform the Composition of Contemporary Classical Music**

**Research Area: Humanities**

**Faculty Mentor: Robert Kyr**

**Abstract:**

This project is concerned toward the application of techniques used to distort sound recordings in the format of contemporary classical music. The presentation consists of a fifteen-minute talk about the sound manipulation techniques that is being used and a ten-minute presentation of an original piece which utilizes these techniques. The first part deals with a brief overview on some of the basic concepts and techniques used for this project, followed by a discussion of the history and context behind such music which uses similar techniques as French Spectralist music and Musique Concrete. In addition, there is a short analysis of the ways in which this author's music differs from the kind of music being referred to. The second part of the presentation consists of a demonstration of the techniques that is being used in one of the original pieces. The final part is a demonstration of an audio recording of the piece composed of these techniques, "Litanei auf die Stadt Aleppo".

**MARIA VAUGHN**

**BIOLOGICAL ANTHROPOLOGY**

**POSTER 117      Title: Forwarding an Understanding of Ancient Asian Crop Taxa as a High Yield Crop**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Gyoung-Ah Lee**

**Abstract:**

This project implements hypothetical growing conditions of five ancient crops of Northeast Asia and forwards an understanding of the conditions and combinations of "crop taxa" that facilitated yields. Crop taxa in this experiment include foxtail millet, broomcorn millet, adzuki, soybean, and shiso (beefsteak plant). Agriculture has been the foundation that enabled hunter-gatherers to settle, build communities, and increase social complexity. These crop combinations are documented to have existed along the Yellow River in North China during the Early Holocene dating back to 9,000 years ago, which further spread quickly to neighboring East Asia including the Korean Peninsula and the Southwest Japanese Islands. The experiment for this project is taking place in a controlled greenhouse at the University of Oregon. By replicating prehistoric cultivation methods, the project aims to observe the growth of ancient Northeast Asian crops. The growing period required for this project ranges from 65 to 115 days from sowing. Various combinations of crop taxa are sown in eight canvas pods. The project avoids any pesticides or additional modern growth aids. The seeds used are heirloom quality (free of chemical or genetic modification), which were originally collected in Japan and China as early as 1937 and then distributed in the US.

**ASHLEE VISE  
CHEMISTRY**

**POSTER 118 Title: Effects of Fe on Au, Pd, Pt, and C Oxygen Evolution Electrocatalysts**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Shannon Boettcher**

**Abstract:**

The discovery of renewable energy is increasingly becoming more important. Solar or electricity driven water electrolysis for the production of hydrogen fuel is of particular interest. One problem associated with this energy storage technology is that the efficiency of these devices is limited by the high kinetic overpotential needed to run the oxygen-evolution reaction (OER). Catalyst can be used for this reaction. However, they are complicated materials with dynamic structures. By fundamentally understanding the interactions that are taking place on the surface of various catalyst, then more active catalyst can be developed. In this project, the catalysts of interest are bulk, thin-film Au, Pd, Pt, and C electrodes. Specifically, looking at the effect that Fe has on them. Fe is of interest because it is a cheap and abundant. It is known that the incorporation of Fe in some films has a dramatic effect on the activity of the catalyst. However, it is unknown how exactly Fe and different metals interact together. It is for this reason that this project involves looking at multiple experiments run in basic electrolyte with varying amounts of Fe. This data can be analyzed and more conclusions can be drawn on the activity of different catalyst, the effect that Fe has on the activity, and how certain metal catalyst are bonding with Fe.

**JAMES VOS**

**JOURNALISM—ADVERTISING**

**POSTER 119 Title: How many Lightbulbs does it take to Change the Climate?**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Mark Blaine**

**Abstract:**

Many groups, including the ASUO, assert that LED's are the end-all-be-all when it comes to environmentally friendly lighting and climate-conscious life decisions. I would like to shed some light on the subject. When it comes to the argument that LED's are brighter is simply a trick of the human mind. LED and CFL lights, of equal color profiles, have comparable lumen output. Along with other myths about the LED v. CFL debate, I'd like to tear down pieces of production, lifespan and recycling with a visual poster which traces the journey of our lights, and just how technology can affect the way we perceive climate change solutions

**TINA WANG**

**PSYCHOLOGY, INTERNATIONAL STUDIES**

**ORAL SESSION 2A Title: Racial Disparities in HIV/AIDS Care and Treatment in the United States**

**Co-Presenter: Kim Tolchinsky**

**Research Area: Social Science**

**Faculty Mentor: Kristin Yarris**

**Abstract:**

Differences in HIV/AIDS prevention, treatment procedures, and care policies between racial and ethnic groups exist in the United States. Data suggests that inequalities in accessibility of care for African Americans can negatively impact HIV incidence rates and worsen the course and impact of AIDS across a lifespan. Because HIV/AIDS has no cure, once contracted, affected populations need constant medication management and treatment support in order to maintain health. The duration and intensity of the "AIDS Cocktail" creates a unique situation of health care needs and, therefore, creates specific challenges for public health responses. Here, we studied the observed bias in public health through historical perspectives and current statistics. Specifically, HIV/AIDS statistics are analyzed in terms of social factors and public policy relevance. Poverty, education and sexual orientation are various social factors that create disparities in HIV/AIDS care. Public policy is vital to ensuring equality in HIV/AIDS treatment and must be addressed to realize the challenges and future of fighting this disease. Finally, this presentation ends with a review of efforts to improve treatment for HIV/AIDS for all people and of challenges those efforts face in the coming years.

**SCARLET WEAVER**  
**ARCHITECTURE**  
**POSTER 128 Title: Minimal Surface**  
**Co-Presenter: Amy Tubau**  
**Research Area: Design**  
**Faculty Mentor: Marziah Rajabzadeh**

**Abstract:**

This research looks at the effects of architectural geometry within the context of minimal surface design. The goal was to establish a set of parameters that were capable of responding to manipulation and therefore creating an adaptable architectural prototype. This was achieved through minimal surface research leading to a well-developed catalog of shapes, which through their combination could be used successfully to create any type of architectural space.

**THERESE WICHMANN**  
**HUMAN PHYSIOLOGY**  
**POSTER 120 Title: Association of Performance Physiology Measures with Sport Performance Tests**  
**Research Area: Natural/Physical Sciences**  
**Faculty Mentors: Marissa Burnsed-Torres, Michael Hahn**

**Abstract:**

Aerobic endurance fitness testing is common among coaches to assess how long an athlete can sustain moderate to strenuous dynamic activity over an extended time frame. Conducting fitness tests on a regular basis provides feedback on the effectiveness of sport specific training and enables coaches to monitor an athlete's progress so that modification to training can then be considered as required. The purpose of this study is to determine if the "Gauntlet Test" is a more accurate assessment of an athlete's fitness level than common fitness tests such as the Beep Test and Yo-Yo Intermittent Recovery Test. The Gauntlet Test, a relatively unexplored fitness test, is driven by intrinsic motivation, requiring athletes to complete a set of maximal effort runs; 1600 meters, 800m, 400m, 200m, and 100m with one-minute break in between each stage. The goal is to finish each stage as fast within the best overall time. The test is performed over two test days conducted four to fourteen days apart. On test day one a lactate threshold and VO<sub>2</sub>max test are performed followed by the Gauntlet Test on test day two. Preliminary correlation analyses (n=8) between VO<sub>2</sub>max (ml/kg/min)/Time to Completion of the Gauntlet (min) (R<sup>2</sup> = 0.84) and VO<sub>2</sub>max (ml/kg/min) / Gauntlet Maximum Heart Rate (bpm) (R<sup>2</sup> = 0.08) have been achieved suggesting that the Gauntlet is potentially an accurate measurement of fitness. Furthermore, the data from a broader sample of subjects will be collected such that a more detailed analysis of these data will allow further assessment of this new fitness test.

**KATIE WILLIAMS**  
**EDUCATIONAL FOUNDATIONS**  
**POSTER 121 Title: The Danger of Overlooking Trauma-Informed Practices in Schools**  
**Research Area: Humanities**  
**Faculty Mentor: Asilia Franklin-Phipps**

**Abstract:**

Various researchers have increasingly identified trauma as a barrier for equal access to education in schools. This research uncovers the importance of addressing trauma in education and examines some of the techniques that educators use to overcome this barrier. The study proposes trauma-informed practices as a method to promote equity within schools and to address the inequities faced by specific groups due to race, class, gender, and their intersections. In addition, the positive impact of these methods on all students will be explored. Various media that have been explored include books, videos, popular press articles, and scholarly journal articles. This work concludes that the lack of trauma-informed practices in classrooms is oppressive and perpetuates the subjugation of many individuals across identity lines.

**KEEGAN WILLIAMS-THOMAS**  
**POLITICAL SCIENCE**

**ORAL SESSION 2F** Title: **Cinematic Adaptations of Modernist Texts: Formal Re-experimentation in the Mid-20th Century**

**Research Area: Fine/Performance Arts**  
**Faculty Mentor: Mark Whalan**

**Abstract:**

Film scholar Gilberto Perez argued that difficulties in cinematic adaptation emerge because modernist culture and literature emphasize an inherent tension in film, between its reflective nature (representation) and creative nature (imagination). This project looks at the 1967 adaptation of *Ulysses*, a 1969 adaptation of “*The Reivers*”, the 1971 adaptation of “*Death in Venice*” and a 1983 made-for-television adaptation of “*To The Lighthouse*”, focusing on what techniques were utilized by cinematic adapters to try to either accommodate the interiorization of narrative and experimentation with time in these works, or to restructure the basic plot or nature of the text in an effort to work around it. Looking at adaptations of a range of modernist writers (Joyce, Faulkner, Mann and Woolf), it is possible to identify an array of methods used in the filmmaking to replicate the elements of literary modernism which are often considered most difficult to portray on film. By studying efforts to bridge the exterior or voyeuristic aspects of film as a medium and the emphasized internal narrative complexity of Modernist novels, we can gain a better understanding of these mediums and these texts. Though this research examines direct correlations between text and film, the central focus is in new meanings and techniques which emerge in the transition from novel to feature film.

**ELIZABETH WITCHER**  
**SOCIOLOGY, PSYCHOLOGY**

**POSTER 122** Title: **The Role of Social Media in the Emotional Lives of People with Vitiligo**

**Research Area: Social Science**

**Faculty Mentor: CJ Pascoe**

**Funding: McNair Scholars Program; Diversity Excellence Scholar**

**Abstract:**

The use of new media has received increasing attention over the years as scholars try to understand the effect it has on society. The current study hopes to expand on previous research by analyzing emotional experiences and compiling themes in relation to the use of Instagram (image based social media app) by people with Vitiligo. Vitiligo is a very visual, often stigmatized, common skin condition that causes loss of pigmentation (color) which affects 1-2% of the population globally without discrimination of race or gender. This research was performed to better answer the queries related to the role of social media in the lives of people with Vitiligo. Prior to the advent of the internet, there was no channel for people with Vitiligo to connect with one another. Instagram was picked for this study due to its visual nature. The visual social media application allows users to use hashtags for possible connections with others who also use the same hashtags. Participants were recruited for interviews who had Vitiligo and Instagram accounts. They were asked questions related to their use of Instagram and Vitiligo, particularly focusing on such issues as emotions and feelings surrounding the apps use in relation to Vitiligo. This research was an attempt to understand the types of communities, connections, and feelings that arise in this social media outlet. It is important as it adds to growing knowledge about New Media and the possible ways through which it can connect people who did not have ways to connect previously.

**ZOË WONG**  
**BIOLOGY AND PSYCHOLOGY**

**POSTER 123** Title: **Characterization of Microbial Interspecies Interactions that Promote Proliferation within The *Drosophila* Midgut**

**Research Area: Social Science**

**Faculty Mentor: Karen Guillemin**

**Funding: UO IMB Summer Undergraduate Fellowship 2016—Institute of Molecular Biology META Center for Systems Biology**

**Abstract:**

Gastric adenocarcinoma is responsible for the second highest number of cancer-related mortalities worldwide. Infection with human pathogen *Helicobacter pylori* is the strongest associated risk factor and is known to alter the



gut microbiota. Transgenic *Drosophila* that express genetically induced dysbiosis were generated. This dysbiotic community elicits disease phenotypes of interest, including increased rates of cell proliferation. This community includes *Lactobacillus brevis* and *Acetobacter pasteurianus*, which is different from the *Acetobacter*-only wild type community. Preliminary data show that this dysbiotic community is sufficient to promote cell proliferation, while monoassociations of *L. brevis* or *A. pasteurianus* are not. While this suggests that the dysbiotic microbiota actively contributes to proliferation, the interactions between the community members remain uncharacterized. The goal of my research is to investigate microbe-microbe interactions within the genetically induced dysbiotic community of *Drosophila*. We hypothesize that *L. brevis* synthesizes a pro-proliferative bacterial factor in response to *A. pasteurianus* in the *Drosophila* midgut. In vivo analysis of community associations with different species and strains of *Lactobacillus* will further define species specificity. In vitro analysis will provide insight into doubling time, pH changes, and morphological alterations that occur in response to interspecies interactions. Utilizing cloning techniques, we will fluorescently tag *L. brevis* and *A. pasteurianus*, which will allow visualization of microbe localization within the gut. Lastly, RNAseq will give us the transcriptional profile of the isolates when grown individually and as part of the community. This study will inform our understanding of the interspecies interactions that promote proliferation and dysbiosis.

**MICHAEL WOMACK**

**PHYSICS, MATHEMATICS**

**ORAL SESSION 3A Title: Calculating Non-Kernness of Two Black Holes**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Jim Isenberg**

**Funding: Presidential Undergraduate Research Scholars**

**Abstract:**

This research seeks to determine whether the non-Kernness of a binary black hole system approaches zero as the black holes collide, which is of practical importance for numerical simulations of black hole collisions. The non-Kernness measure is a geometric invariant that calculates whether a slice of spacetime is exactly Kerr spacetime, close to Kerr spacetime, or not Kerr spacetime. Kerr spacetime describes spacetime around a rotating, uncharged black hole. It should be noted that the non-Kernness of a Kerr black hole is zero, but in the case of a binary system, the non-Kernness is not equal to zero. Numerical simulations currently do not have standard ways of setting initial conditions for black hole simulations that mimic realistic conditions. Thus, the research seeks to demonstrate that minimizing the non-Kernness of a set of initial conditions for a black hole simulation will pick the conditions that mimic the state of the system if it were to have evolved naturally. It has been assumed that if this phenomenon is true, the non-Kernness measure could provide a way to choose initial conditions for simulations that minimize noisy data as the system evolves from the given initial conditions to a natural state.

**CHARITY WOODRUM**

**PHYSICS**

**ORAL SESSION 3A Title: Evolution in Solitude: Field Galaxies from Half the Age of the Universe to the Present**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Scott Fisher**

**Funding: Oregon NASA Space Grant Consortium**

**Abstract:**

This research uses the Universe as a laboratory and time machine to determine how galaxies have evolved over the last 8 billion years. To do this, we compare galaxies that live in isolation (field galaxies) to those that exist within galaxy clusters to attempt to determine if the environment of the galaxy influences its evolution. High signal-to-noise optical spectroscopy from the Gemini Observatory and imaging from the Hubble Space Telescope is used to analyze 30 field galaxies that are no longer forming stars (passive). Our results show that at a given mass, the passive field galaxies did not evolve in size between 8 billion years ago and the present. Our analysis establishes a strong trend between the masses vs. mass-to-light ratios of our targets, which is then used to determine the ages of the galaxies. Another

way to determine the age of a galaxy is to study the strength of hydrogen lines in its spectrum. The ages of the passive field galaxies determined in this way are consistent with the ages found from the trends between the masses vs. mass-to-light ratios. We then compare the ages of the passive field galaxies to cluster galaxies in the same era and determine that the field galaxies are 1.2 billion years younger than the cluster galaxies. This is consistent with other published work, however, our results provide stronger support for this conclusion as this is the first study to use both imaging and spectroscopy of field galaxies so distant in the past.

**YINGYING YANG**

**JOURNALISM**

**POSTER 4 Title: Misunderstanding of Lolita**

**Research Area: Social Science**

**Faculty Mentor: Torsten Kjellstrand**

**Abstract:**

Lolita culture has been a misunderstanding for many people. Lolita is a fashion subculture originating in Japan based on Victorian and Edwardian clothing. Some people may think Lolita dresses are childish and exaggerated. Probably some people don't understand why would this group of girls wear such exaggerated and inconvenient clothing to school. At our campus, there are some Lolita girls. Jaye Zheng is one of the Lolita's. Zheng is also a close friend of mine. Meanwhile, during the time I spent with her taking photos of her, I understood more what she thinks and the reason for her to become a Lolita. Taking photos of Zheng and her lovely dresses are an enjoyable thing for me to do rather than finishing a project. I think looking through this photo story, people may get some ideas about Lolita group.

**JADE N. YOUNG**

**HUMAN PHYSIOLOGY**

**POSTER 124 Title: The Effect of Maternal Obesity on Offspring Skeletal Muscle Circadian Genes in Mice**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Carrie E. McCurdy**

**Abstract:**

Nearly 66% of women of reproductive age are either obese or overweight at conception. Obesity during pregnancy confers a greater and earlier risk for offspring to develop metabolic disease; however, the exact mechanism is unknown. Circadian clock transcription factors are essential regulators of metabolic genes in all cells. Obesity is associated with disruption of circadian gene expression in liver and muscle and contributes to impaired nutrient metabolism. We hypothesize that maternal obesity may alter the programming of circadian clock and clock-controlled genes (CCG) in offspring skeletal muscle, contributing to increased risk for metabolic diseases. To test this hypothesis, adult female mice were fed a control or high fat diet (HFD) prior to conception, during pregnancy, and throughout lactation. At weaning, offspring were continued on the maternal diet or switched to the opposite diet to produce four groups: Obese/Control (maternal phenotype/offspring diet), Obese/HFD, Lean/Control, Lean/HFD. At 12 weeks, offspring gastrocnemius muscle was collected every four hours over a 12 hour light/dark cycle. RNA was extracted and clock/CCG expression measured by qPCR. We anticipate that maternal obesity coupled with offspring HFD (Obese/HFD) will induce desynchrony and decrease amplitude in gene oscillation in muscle compared to Lean/HFD. Intergenerational effects can persist for more than three generations, leaving tomorrow's world entrenched with public health difficulties. Conducting research in this field emphasizes the idea that a healthy population begins with healthy mothers.

**NAOMI ZACK**

**UMOJA PAN-AFRICAN SCHOLARS ACADEMIC RESIDENTIAL COMMUNITY**

**ARC SESSION 5B Title: The History of Black Resistance from Phillis Wheatley to Martin Luther King: Their Contributions and Our Questions**

**Co-Presenters: Mykia Hernandez-Taylor, Justice Lawrence, Silas Lobnibe, Lekhoury Smith, Uba Uba, Anayla Warren-Prem Singh, Charlie Landeros**

**Research Area: Social Science**

**Faculty Mentors: Naomi Zack, Kendaris Hill**

**Funding: Division of Equity and Inclusion**

**Abstract:**

From slavery to Black Lives Matter, African American voices of resistance are insightful and inspiring. In PHIL 199, we have been considering the thought of black writers as intellectual responses to anti-black oppression, with a focus on transformative discourse—texts that sustained and changed lives in their historical times and beyond. Our approach has been philosophical, meaning that we interrogate the texts, through discussion and a series of papers. For the Undergraduate Research Symposium, we will present the results of our reading, writing and discussion over the first seven weeks of spring term. Given the philosophical methods of the course, we have emphasized certain questions. For each author we will begin with an overview of their main achievements and end with the questions they leave us. For Example: Phillis Wheatley (1753-1784) was the first African American poet. She was required to prove before a tribunal of Boston's leading citizens that she was indeed the author of her published book of poems. But Thomas Jefferson criticized the quality of her work and later black writers criticized her white-centered poetry. Question: Did Wheatley make an authentic contribution? Martin Luther King, JR. (1929-1968) Cornel West has claimed that MLK has been sanitized for the American public as a black Santa Claus. In fact, toward the end of his life, King saw anti-black racism within the United States as part of global oppression of people of color, especially during the Vietnam War. Question: Is it necessary or desirable to take a global view of racism in order to resist racism in the US? In between Wheatley and King, the discourse of resistance of Fredrick Douglass, Booker T. Washington, and W.E.B. Du Bois will be addressed in similar ways of stating their contributions and raising the questions they have left.

**ALY ZAHARIEV**

**HUMAN PHYSIOLOGY**

**POSTER 125 Title: The Effect of Added Visual Feedback on Accuracy in Shoulder Joint Repositioning Task**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Andrew Karduna, Dave Philips**

**Abstract:**

Joint position sense (JPS) refers to the sense of static joint position and is a component of proprioception, which includes the senses of movement, position, and force. Although visual feedback is regularly prohibited in JPS research to avoid the confounding influence of an additional sense, it has not been established that vision impacts JPS accuracy. The purpose of this research was to examine the effect of added visual feedback on absolute error during a shoulder joint-angle replication task. It was hypothesized that the addition of visual feedback would result in lower absolute error when compared to a control condition of no visual feedback. Data were collected from twenty-one subjects using a mobile application. An Apple iPod Touch® was attached to the upper arm of a seated subject. The application guided the subject to a target angle with auditory feedback (high and low tones), the subject memorized the position, then replicated it without auditory feedback. Three target angles were used: 50, 70, and 90 degrees, and each angle was presented four times for each condition (eyes open versus eyes closed). Results demonstrate a significant difference ( $P < 0.001$ ) between the eyes open and eyes closed conditions. The added visual feedback reduced absolute error by about one degree. Additionally, a significant difference ( $P < 0.01$ ) was found between accuracy at 50 and 90 degrees with reduced error at 90 degrees, in consistency with previous research. Based on these results, the hypothesis that added visual feedback would reduce absolute error in shoulder joint-angle replication task was supported.

**DOLLY ZHEN**  
**BIOCHEMISTRY**

**POSTER 126 Title: The Inactivation of the Primary Visual Cortex and the Superior Colliculus in The Brain of Mice and Its Effect on Prey-Capture Behavior**

**Research Area: Natural/Physical Sciences**

**Faculty Mentor: Cris Niell Peg Boulay**

**Funding: Diversity Excellence Scholar; Resident Dean's Scholar; Summit Scholarship**

**Abstract:**

Photons captured by our eyes are transduced into electrical signals that propagate to the brain. There, visual information is further processed and interpreted to guide our behavior. In mammalian brains, there are two areas that process information important for image formation and goal directed visual behavior: primary visual cortex (V1), and the superior colliculus (SC). However, it is unclear how these regions support visually-driven orienting and approach behaviors. In this study, we sought to identify how these parts of the brain direct visual behavior using a mouse's prey-capture behavior. We have previously shown that C57BL/6J mice pursue, capture, and consume live crickets as prey, and this behavior is dependent upon vision. Here, we investigated whether natural prey-capture behavior in mice is affected when regions of V1 and SC are silenced through injections of the GABA-A agonist, muscimol. We found that inhibition of the SC decreased the accuracy of approaches to prey and increased time to capture. The effect of inhibiting V1 also appears to impair prey-capture behavior by increasing time to capture. Our studies so far indicate that inhibition of both V1 and SC impairs ethological prey-capture behavior in mice. Future studies can now begin to investigate how specific neural circuits within the SC and V1 contribute to prey-capture behavior. An understanding of the specific circuitry that guides visually-behaviors will give insight into processes affected by neurological disorders such as PTSD and addiction.

**HOPE ZIMA**  
**EDUCATIONAL FOUNDATIONS**

**ORAL SESSION 2B Title: Designing Curriculum for Failure: A Risk Worth Taking?**

**Research Area: Social Science**

**Faculty Mentor: Allison Schmitke**

**Abstract:**

Currently there are many curriculum development frameworks, however, one that is gaining popularity is designing curriculum that fosters a growth mindset. Growth mindset is the idea that students persevere through struggles and select more difficult tasks for themselves, ultimately reaping more of a benefit from their education. One of the fundamental principles of growth mindset instruction is to create situations where struggle and failure are not only possibilities, but are intentional pieces of the curriculum. However, there may be drawbacks to setting a classroom precedent where failure is almost expected. I will be looking critically at the studies and articles from educators and researchers, as well as my own experience in the classroom, to determine whether building failure in to the curriculum is a wise choice for teachers to make. Although continuous failure may have a negative effect on students' self-efficacy, I expect to find that creating a curriculum where children must learn to push through the struggle is ultimately more beneficial. Creating a curriculum dependent on struggle and, occasionally failure seems risky, however, developing the ability of children to adapt and overcome cannot be overstated in a world that is becoming more adverse each day. Children today need to be prepared to be creative, curious, and, perhaps most of all, to press on when faced with challenges that may seem impossible.

# Undergraduate Research Symposium 2017 Presenters

Chris Ableidinger	Pedram Diba	Ayantu Israel-Megerssa	April McClamont	Nora Sawyer
Anisha Adeke	Renee Dobre	Emily Jadeski	Logan McClain	Michelle Schaefer
Michelle Alameda	Allison Dona	Tate James	Sam McGee	Brandon Schmidt
Sophie Albanis	Sandra Dorning	Jacob Jansen	Michael McIntosh	Amber Schottky
Stefani Aleman	Andrew Dunn	Danny Jenkins	Hanna McIntosh	Daniel Sellers
Perla Alvarez Lucio	Elizabeth Dyea	Emily Jenkins	Drew McLaughlin	Kezia Setyawan
Trace Andreason	Sam Eat	Amber Johnson	Merida Mehaffey	Mandi Severson
Carolina Arredondo	Andi Ebright	Anna Johnston	Tigest Mequanint	Cullen Sharp
Sanchez Lira	Tucker Engle	Janika Jordan	Keira Meyer	Ally Shaw
Ghoncheh Azadeh	Aleiya Evison	Srushti Kamat	Elijah Meyer	Ran Shi
Daniel Baldwin	Emily Fagan	Kiara Kashuba	Melinda Meyer	Kendra Siebert
Fred Barden	Sara Fatimah	Taryn Kawashima	Ryan Mitchell	Emma Silverman
Ellie Bartlett	Nicole Ferer	Donna Kayal	Jordan Morales	Lekhoury Smith
Augustine Beard	Josie Fields	Lila Kaye	Julia Mueller	Payton Smith
Josie Beavers	Jordan Finci	Charlie Keene	Emily Myers	Olivia Somhegyi
Tristen Bellows	Natalie Fisher	Brianna Kendrick	Eamonn Needham	Dana Sparks
Talia Berniker	Bianca Flynn	Leah Kennon	Justine Nguyen	Bryce Sprauer
Elizabeth Bezark	Francesca Fontana	Anton Khokhryakov	Vanessa Nobles	Robert Stanton
Nathan Bigot	Thomas Forman	Jack Kiemel	Kathryn Nock	Sydney Stark
Selena Blick	Eleanor Franks	Matthew Kim	Lindsey Oberhelman	Danielle Stein
Mariah Bloom	Vinitha Gadiraju	Evan King	McKenna O'Dougherty	Hannah Steinkopf-Frank
Caitlyn Boatman	Scout Galash	Josie Kinney	Simone O'Halloran	Carlie Stroud
Iago Bojczuk	Emily Galletta	Katie Kinney	Elizabeth Olson	Adrian Swain
Adrienne Bowles	Mandi Ganje	Helena Klein	Kaelin Oppedal	Delaney Swink
Varneet Brar	Kylea Garces	Justin Knowles	Ana Osorio	Noah Takaesu
Sydney Bright	Romario Garcia-Bautista	Cameron Kokes	Carlin Otterstedt	Graham Talaber
India Brock	Mary Gerhart	William Komoda	Thalia Padilla	Hao Tan
Dylan Brown	Annie Gilbert	Peace Kotamnives	Elliot Parrish	Jocelyn Taylor
Patrick Brown	Erik Gleim	Spencer Kupish	Carly Pate	Seth Temple
Jordyn Brown	Enrique Gomez	Grace Kurlychek	Haleigh Pattern-Trujillo	Austin Thompson
Kaitlin Brunik	Maxwell Good	Virginia LaGrow	CJ Paulin	Connor Thorud
Samantha Bryan	Emily Good	Theodore LaGrow	Natalie Pearson	Kim Tolchinsky
Wesley Bryant	Collette Goode	Charlie Landeros	Rachel Peri	Christina Trang
Kendall Cablao	Justin Graff	Connor Lane	Natalie Pellitier	Amy Tubau
Michael Calhoun	Willem Griffiths	Justice Lawrence	Andrew Pence	Uba Uba
Dylan Carlini	Adrian Gutierrez	David Lee	Makenna Pennel	Nikolai Valov
Joey Carlson	Sabina Hagen-Botbol	Ross Lench	Nelson Perez Catalan	Maria Vaughn
Gino Carrillo	Eliza Hallett	Abbey Leonardi	Anne Peters	Ashlee Vise
Tori Carroll	Eric Hammerschmith	Hannah Lewman	Francesca Picchi-Wilson	James Vos
Tela Caul	Josiah Hamovitz	Kaye Lila	Cheyenne Pico	Robbyn Wallis
Josh Cavoto	Erin Hampton	Hope Liou	Nicholas Pietromonaco	Tina Wang
Abel Cerros	Grace Hanich	Colin Lipps	Carson Pike	Ana Warren-Prem Singh
Adrienne Chainey	Tonya Hansberry	Geena Littell	Chelsey Policar	Scarlet Weaver
Alex Chang	Alyssa Hardin	Jiawei Liu	Basil Price	Therese Wichmann
Tanainan Chuanchaiyakul	Chaney Hart	Nick Livingston	Braden Prillwitz	Katie Williams
Sally Claridge	Alena Hartmann	Silas Lobnibe	Lindsay Rasmussen	Keegan Williams-Thomas
Rachel Cleveland	Yimeng He	Andrea Loes	Kyrie' Rau	Mathieu Wilson
Mya Clover-Owens	Erica Heim	Lillian Loftin	Helen Rawlins	Benson Winklebleck
Erin Coates	Annalise Helm	Eugenia Lollini	Austin Robinette	Lauren Winter
Cameron Colbert	Kyle Hentschel	Zhou Lou	Anna Robinson	Elizabeth Witcher
Taylor Contreras	Mykia Hernandez-Taylor	Caroline Ludlow	Lina Rode	Michael Womack
Alder Crammond	Amanda Hill	Maxfield Lydum	Eleki Romans	Zoë Wong
John Crandall	Cali Hodge	Robert Macy III	Emily Roque	Charity Woodrum
Natalie Crawford	Samantha Hoffman	Becca Marshall	Angela Rothman	YingYing Yang
William Crowley	Blake Holcomb	Alisha Martin	Julien Royer	Jade Young
Justin Culman	Sarah Hovet	Leandro Marx-Albuquerque	Annelise Rue-Johns	Elizabeth Yurkov
Elizabeth Curtiss	Mack Hunter	Julia Mauro	Anna Sablan	Aly Zahariev
Alex Denton	Jacqueline Ignacio	Trisha Maxfield	Paulla Santos	Dolly Zhen
Anu Deodhar	Chelsea Ingram	Kaitlyn McCafferty	Maria Sarao	Hope Zima

# Undergraduate Research Symposium 2017 Faculty Mentors

Jennifer Ablow	Asilia Franklin-Phipps	Kathryn Lynch	Robert Schofield
Yashar Ahmadian	Alisa Freedman	Ed Madison	Eric Selker
Michelle Alexander	Dennis Galvan	Stephanie Majewski	Autumn Shafer
Nick Allen	Pedro Garcia-Caro	Bonnie Mann	Kim Sheehan
Angel Amores	Alison Gash	Ernesto Martinez	Jiannbin Shiao
William Ayres	Karen Guillemin	Marcus Mayorga	Heather Shoenberger
Melissa Baese-Berk	Gantt Gurley	Carrie McCurdy	Carol Silverman
Rachel Bash	Michael Hahn	Patricia McDowell	Christopher Sinclair
John Baumann	Mike Haley	Erin McKenna	Paul Slovic
Andy Berglund	JJ Hannigan	Win McLaughlin	Matt Smear
Elliot Berkman	Kate Harmon	Benjamin McMorrان	Josh Snodgrass
Louise Bishop	Michael Harms	Kevin McNaught	Sean Stankowski
Marquis Blaine	Mark Harris	Jenny Mendoza	Kryn Stankunas
Mark Blaine	Jill Harrison	Adam Miller	Leslie Steeves
Keyyana Blount	Kevin Hatfield	Christopher Minson	Matthew Streisfeld
Shannon Boettcher	Diane Hawley	Dan Morrison	Ashley Studholme
Brendan Bohannan	Erica Heim	Deborah Morrison	Kelly Sutherland
Mayra Bottaro	Conor Henderson	Barbara Mossberg	Jessica Swanson
Peg Bouley	Ellen Herman	Jon Moulton	Alexandra Tallafuss
Bruce Bowerman	Sara Hodges	George Nazin	Amanda Thomas
Yvonne Braun	Samantha Hopkins	Cris Niell	Dan Tichenor
Steven Brence	Anya Hopple	Brad Nolen	Eric Torrence
Scott Bridgham	Daniel HoSang	Boyana Norris	Julie Voelker-Morris
Lucien Brown	James Isenberg	HyeRyoung Ok	Glynn Walley
Alfredo Burlando	Ramesh Jasti	Brendan O'Kelly	Akiko Walley
Marissa Burnsed-Torres	Dennis Jenkins	Jennifer O'Neal	Brent Walth
Michelle Byrne	Nick Jew	Jeffrey Ostler	Philip Washbourne
Mark Carey	Darren Johnson	Eileen Otis	Jim Watkins
Ed Chang	Angela Joya	CJ Pascoe	Aldis Weible
Teresa Chen	Molly Jud	Michael Peixoto	Julie Weise
Joyce Cheng	Andy Karduna	Paul Peppis	Marsha Weisiger
Li-Shan Chou	Torsten Kjellstrand	Laurel Pfeifer-Meister	Ray Weldon
Shaul Cohen	Brian Klopotek	Dave Philips	Mark Whalan
Leslie Coonrod	Colin Koopman	Patrick Phillips	Frances White
Bill Cresko	Robb Krumlauf	Jen Phillips	Brittany White
Anca Cristea	Michael Kuhn	Mike Pluth	Tim Williams
Justin Culman	Alison Kwok	John Postlethwait	Lisa Wolverton
Nicole Dahmen Smith	Robert Kyr	Elizabeth Raisanen	Gavin Woodruff
Edward Davis	Ana-Maurine Lara	Marziah Rajabzadeh	Stephen Wooten
Sierra Dawson	Don Latarski	Courtney Rath	Priscilla Yamin
Hans Dreyer	Peter Laufer	Reza Rejaie	Yilin Yan
Caitlin Fausey	Gyoung-Ah Lee	Gregory Retallack	Kristin Yarris
Scott Fisher	Laura Leete	Margaret Rhee	Craig Young
Scott Fisher	Andrew Lovering	Cathy Robinson	Naomi Zack
Scott Fitzpatrick	Daniel Lowd	Josh Roering	Dasa Zeithamova
Joseph Fracchia	Sharon Luk	Alison Schmitke	Robin Zimmerman

# Undergraduate Research Symposium 2017 Presenter Statistics

**Total presentations:** 242

**Total presenters and co-presenters:** 292  
(252 presenters and 50 co-presenters)

**Total faculty mentors:** 177

**Total majors:** 60

**Multi-term projects:** 169 (70%)

**Single-term projects:** 51 (21%)

**Study abroad/international research projects:** 5 (2%)

**Service learning projects:** 2 (1%)

**Community based research projects:** 15 (6%)

**Poster presentations:** 125 (52%)

**Oral presentations:** 99 (41%)

**Creative work presentations:** 15 (6%)

**ARC/FIG presentations:** 3 (2%)

**Natural/Physical Sciences:** 110 (45%)

**Social Science projects:** 75 (31%)

**Humanities projects:** 45 (19%)

**Fine/Performance Arts projects:** 7 (3%)

**Design:** 5 (2%)

## Majors Represented

(including double majors for interdisciplinary projects): \_\_\_\_\_

### College of Arts and Sciences: (281)

Biology: 37  
Environmental Studies: 31  
Human Physiology: 25  
Environmental Science: 18  
Anthropology: 13  
International Studies: 13  
Psychology: 13  
Spanish: 13  
Physics: 12  
History: 11  
Mathematics: 11  
Ethnic Studies: 10  
Political Science: 10  
Biochemistry: 9  
Chemistry: 9  
English: 9  
Computer and Information Science: 8  
Philosophy: 7  
Economics: 5  
Sociology: 5  
Earth Science: 4  
General Science: 4  
Romance Languages: 4  
Comparative Literature: 4  
Biological Anthropology: 3  
French: 3  
General Social Science: 3  
Geology: 3  
Latin American Studies: 3  
Linguistics: 3  
Asian Studies: 2  
Folklore: 2  
Geography: 2  
Marine Biology: 2

Women's and Gender Studies: 2  
Comic and Cartoon Studies: 1  
Cultural Anthropology: 1  
Food Studies: 1  
Medieval Studies: 1  
Paleontology: 1

### Robert D. Clark Honors College: (76)

Biology: 17  
Human Physiology: 14  
Spanish: 6  
International Studies: 5  
Journalism: 5  
Journalism – Advertising: 5  
Business Administration: 4  
Chemistry: 4  
Environmental Studies: 4  
English: 3  
Environmental Science: 3  
Anthropology: 2  
Biochemistry: 2  
Computer and Information Science: 2  
Economics: 2  
Educational Foundations: 2  
Journalism – Media Studies: 2  
Math: 2  
Psychology: 2  
Asian Studies: 1  
General Social Science: 1  
General Science: 1  
Geology: 1  
History: 1  
Marine Biology: 1  
Physics: 1  
Planning Public Policy, and Management: 1

Romance Languages: 1  
Undeclared: 1  
Women's and Gender Studies: 1

### College of Education (15)

Educational Foundations: 10  
Education: 5

### School of Architecture and Allied Arts: (19)

Architecture: 6  
Planning, Public Policy, and Management: 5  
Art: 3  
Arts and Technology: 3  
Art History: 1  
Interior Architecture: 1

### School of Journalism and Communication: (38)

Journalism: 24  
Advertising: 9  
Media Studies: 3  
Pre-Journalism: 2

### School of Music and Dance: (7)

Music Composition: 4  
Music Education: 1  
Music Technology: 1  
Music: 1

### Lundquist College of Business: (7)

Business Administration: 4  
Pre-Business Administration: 2  
Accounting: 1

### School of Law (1)

Legal Studies: 1

## Sponsored/Funded Research:

American Heart Association 1

American Heart Association Predoctoral Fellowship 1

American Museum of Natural History (St. Catherine's Island Foundation) 1

Anthropology Undergraduate Awards for Research and Conference Participation Grant, UO Department of Anthropology 1

Center on Teaching and Learning - Undergraduate Research Fellowship 2

Council of International Educational Exchange 1

Decision Research Grant 2

Department of Anthropology (UO) 1

Department of Education 1

Diversity Excellence Scholar 2

Earth Sciences Department Research Grant 2

Environmental Leadership Program, McKenzie Watershed Council 1

Eugene and Clarissa Evonuk Memorial Fellowship 1

First-Year Programs 1

General University Scholarship, UO 1

Holden Center for Leadership and Community Engagement, UO 1

Humanities Undergraduate Research Fellowship (HURF) 6

Institute of Molecular Biology META Center for Systems Biology at the University of Oregon 1

Marigold Foundation 1

McNair Scholars Program 5

McNair Scholars Program Summer Research Stipend 1

META Grant 1

Mills Study Abroad Scholarship 1

National Institute of General Medical Sciences–Systems Genetics of Natural Variation in Stress Response Pathways Grant 1

National Institutes of Health 1

National Science Foundation 1

National Science Foundation–Doctoral Dissertation Improvement Grant 1

National Science Foundation–Research Experiences for Undergraduates (REU) Grant 1

National Science Foundation Grant 2

National Science Foundation Internship 1

Oregon Health and Science University 1

Oregon NASA Space Grant Consortium 1

Oregon Space Grant 1

Oregon Undergraduate Researchers in SPUR (OURS) Program 4

Pathway Oregon 1

Presidential Undergraduate Research Scholars 7

Resident Dean's Scholar 1

Richard A. Bray Fellowship 2

Robert D. Clark Honors College Research Grant 3

Ryoichi Sasakawa Young Leaders Fellowship Fund 1

School for International Training Scholarship 1

School of Journalism and Communication Research Grant 2

Small Grant Program from the Oregon Watershed Enhancement Board 1

SPUR funding for summer research 2016, Meta Center 1

Stamps Family Charitable Foundation 1

Staples Scholarship from Earth Science Department, UO 1

Stowers Summer Scholars Program, Stowers Institute for Medical Research 1

Summer Program for Undergraduate Research (SPUR) 1

Summit Scholarship 1

The Planco and Weston Families 1

Undergraduate Research Opportunity Program (UROP) Mini-Grant 18

UnderGrEBEs Award for Undergraduate Research 2

University of Oregon Institute of Marine Biology–Summer Undergraduate Fellowship 2016 1

University of California , San Francisco–Stress Measurement Network 1

VPRI Undergraduate Fellowship 12

Walter Youngquist Fellowship–Earth Sciences Department, UO 2

Wayne Morse Scholar, Wayne Morse Center for Law and Politics 2

Wenner-Gren Foundation Dissertation Fieldwork Grants 1

Whole Foods Market Eugene 1

Williams Fellowship 1

Women in Graduate Studies Summer Research Award, UO 1



