



2nd Annual UO
UNDERGRADUATE
SYMPOSIUM

May 24, 2012

Event Program

Welcome Letter

May 16, 2012

Dear Students,

Welcome to an event that is still very new -- the second edition of the University of Oregon Undergraduate Symposium. We're delighted that this year's symposium is even bigger than the inaugural one, and that it is more diverse in every sense. We have a total of 139 students participating through 68 posters and 36 talks. The range of questions and ideas that motivate your work is remarkable – from the way orchids respond to climate change, to how our brains deal with visual distraction, to how we might teach math more effectively.

In addition, we are fortunate to have very special guests. Our UO Symposium participants are joined this year by students contributing to the Indigenous Peoples, Climate Change and Environmental Knowledge Conference. This is a perfect opportunity for all of us to share insights and experiences. One of the wonderful things about creative work is that it brings people together by virtue of their curiosity about similar things or their desire to solve common problems. In addition to showcasing your own work, I hope that this Symposium will help you find new friends – people who will become your partners in the creative adventures you've chosen.

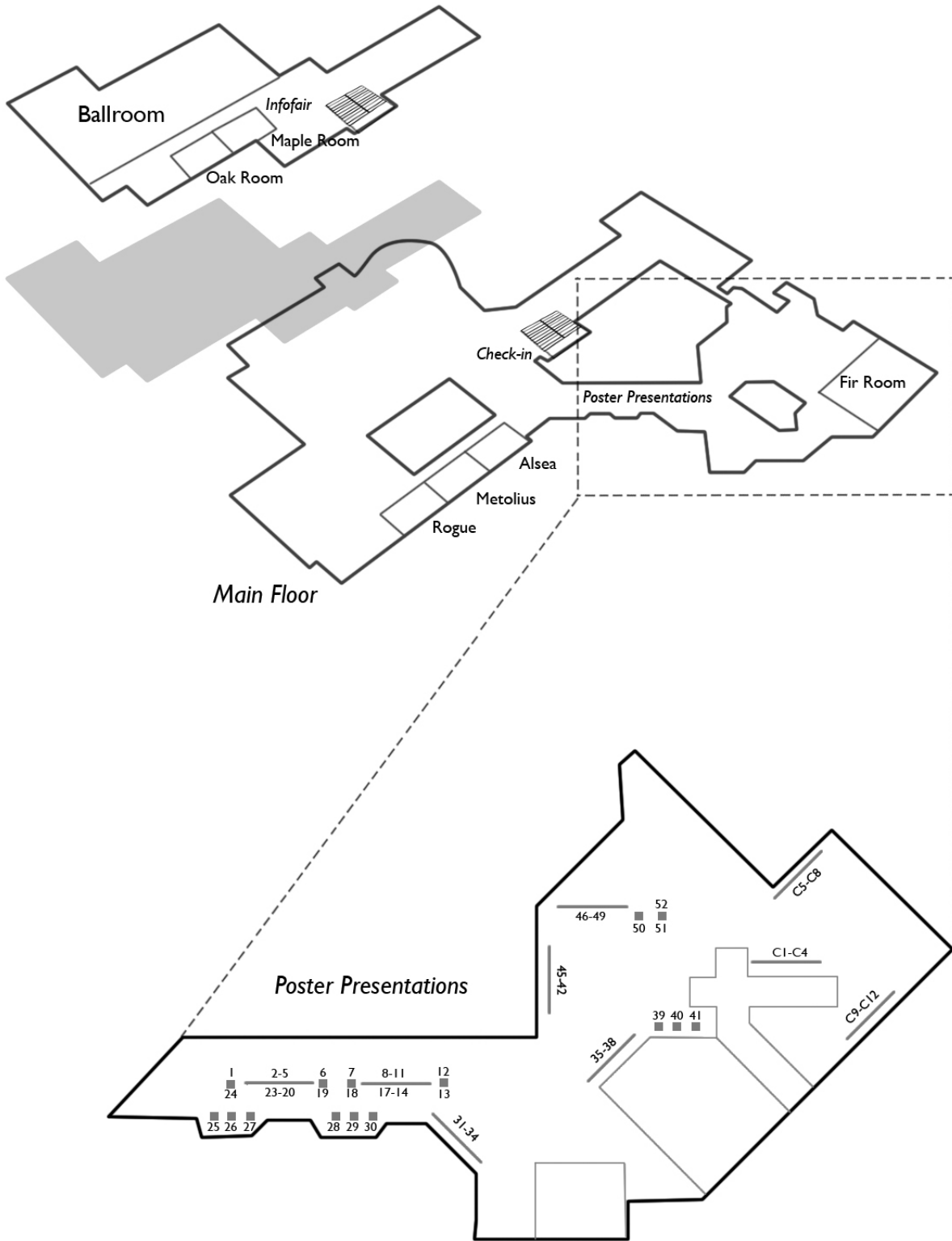
Sincerely,

Karen Sprague
Professor of Biology
Vice Provost for Undergraduate Studies

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Venue Map



Undergraduate Symposium Schedule

Thursday, 24 May 2012

8:00-10:30am: Registration, *EMU Concourse Lobby*

10:30-11:00am: Welcome Reception, Address by Karen Sprague, *EMU Ballroom*

11:00-12:00pm: AM Session

- Posters Presentations, *EMU Concourse Area*
- Oral Presentations, *River Rooms, Maple and Oak Rooms*

11:15am-1:45pm: Information Fair, *EMU Ballroom Lobby*

- UO Libraries Undergraduate Research Award
- Oregon Undergraduate Research Journal
- Holden Leadership Center
- UO Career Center

12:00-1:00pm: Lunch. Keynotes by Kimberly Espy and David Wildcat, RSVP Invitation Only, *EMU Ballroom*

1:15-2:15pm: PM Session

- Posters Presentations, *EMU Concourse Area*
- Oral Presentations, *River Rooms, Maple and Oak Rooms*

2:30-3:15pm: Closing Celebration, Distribution of Certificates of Participation, and Group Portrait, *EMU Ballroom*

OURJ and UO Libraries

Call for Papers

OURJ Oregon Undergraduate Research Journal

The ***Oregon Undergraduate Research Journal*** is currently soliciting research and creative projects for publication in the Fall 2012 issue. OUR Journal is a peer-reviewed, open access academic journal that showcases exceptional work produced by undergraduates in all fields.

Submission Deadline: Friday, June 19, 2012

Want to get involved with editing, peer review, and outreach? Join the OUR Journal Editorial Board! Applications accepted on a rolling basis.

For more information, visit
<http://journals.oregondigital.org/OURJ>
or email OURJ@uoregon.edu



UO Libraries Undergraduate Research Awards Competition

The Undergraduate Research Awards, sponsored by the UO Libraries, is an annual competitive program honoring UO students who produced outstanding original research and scholarship in the previous calendar year using resources available through the UO Libraries. Submissions for the Undergraduate Research Awards for papers and theses written during the 2012 calendar year (winter, spring, summer, or fall term, 2012) are now being accepted. The deadline is February, 2013. For complete information on the program and submission guidelines, visit: <http://library.uoregon.edu/general/libaward.html>. The 2011-12 Undergraduate Research Award winners are:

Erik Erlandson: "Cattle Plague in NYC: The Untold Campaign of America's First Board of Health, 1868" (Honors College Thesis) |

Award: \$1,500 | Faculty Sponsor: James Mohr, History

Acknowledged Library Staff: John Russell (Social Sciences and History Librarian), Tom Stave (Head, Document Center), Tamara Vidos Glencross (Microforms Coordinator)

Laura Barton: "Interdependent Parts of the Whole: Edward Weston's Studio Nudes and Still Lives, 1925-1933" (Art History Thesis) |

Award: \$1,000 | Faculty Sponsor: Kate Mondloch, Art History

Acknowledged Library Staff: Cara List (Art and Architecture Librarian)

James Bean: "Ground: For Four Players and Their Instruments" (Music Composition, School of Music and Dance) | Award: \$1,000 |

Faculty Sponsor: Robert Kyr, School of Music and Dance

Acknowledged Library Staff: Terry McQuilken (Music Services Technician)

Elan Ebeling: "The Tumultuous Nature of American Public Health at the Grass Roots Level During a Transitional Decade: Wheeling, West Virginia, 1850-1890" (History Department Thesis)

Award: \$1,000 | Faculty Sponsor: James Mohr, History

Acknowledged Library Staff: Margaret Bean (Resource Sharing Librarian), Tamara Vidos Glencross

Vanessa Fiedler: "Solid Waste Management: Improving Waste Disposal Options in Rural Areas of Central America" (International Studies and Honors College Thesis) | Award: \$1,000

Faculty Sponsor: Galen Martin, International Studies | Acknowledged Library Staff: Tom Stave

Indigenous People, Climate Change and Environmental Knowledge Conference

Indigenous people are disproportionately affected by climate change and natural disasters, yet they are often marginalized from policy and academic discussions. Moreover, discussion of indigenous people and climate change opens up much broader discussion about environmental epistemologies across diverse cultures, as well as environmental management, race and class dynamics, and the intersection of local, national, and global issues. To expose UO students and the broader university and public communities to these issues, Professor Mark Carey of the University of Oregon Robert D. Clark Honors College is organizing this conference along with a corresponding academic course.

Keynote Speakers

Dr. Daniel Wildcat, Haskell Indian Nations University

<http://www.haskell.edu/climate/dwildcat.html>

Dr. Daniel Wildcat is a Professor of American Indian Studies at Haskell Indian Nations University. He is a Yuchi member of the Muscogee Nation of Oklahoma and has worked extensively on climate change issues. He is also co-director of the Haskell Environmental Research Studies Center, which he founded with colleagues from the Center for Hazardous Substance Research at Kansas State University. His newest book is *Red Alert! Saving the Planet with Indigenous Knowledge*.

Larry Mercurieff, Seven Generations Consulting

<http://www.arcus.org/arctic-visiting-speakers/bureau/search?keys=mercurieff>

Larry Mercurieff has almost four decades of experience serving his people, the Aleuts of the Pribilof Islands and other Alaska Native peoples in a number of capacities related to climate change and environmental issues. He is currently part of Seven Generations Consulting and the Deputy Director of the Alaska Native Science Commission. In 2007, Mercurieff received the Environmental Excellence Award from the Alaska Forum on the Environment for his lifetime achievements on environmental issues, as well as the Buffet Finalist Award for Indigenous Leadership.

Sponsors of the climate conference and Carey's corresponding course include the Americas in a Globalized World Big Idea, the Center for Latin/a and Latin American Studies, the College of Arts and Sciences, Office of Institutional Equity and Diversity, Robert D. Clark Honors College, Latin American Studies Program, Environmental Studies Program, Climate Change Research Group, Department of Ethnic Studies, Northwest Indian Language Institute, Department of Anthropology, Department of Linguistics, and Department of Romance Languages.

Schedule and Sponsors for Indigenous People, Climate Change and Environmental Knowledge Conference

9:00 – 9:30 a.m. — Welcome and Opening Keynote Address

Daniel Wildcat, Haskell Indian Nations University, Kansas

Larry Mercurieff, Seven Generations Consulting, Alaska

9:30 – 10:40 a.m. — Panel 1: Traditional Knowledge and Climate Change

10:50 – 12:00 p.m. — Panel 2: Cultural Perspectives and Responses to Climate Change

1:00 – 1:30 p.m. — Poster session for public viewing and discussion

1:30 – 2:30 p.m. — Panel 3: Cultural impacts and climate education

2:30 – 3:00 p.m. — Closing Ceremony

Indigenous People, Climate Change and Environmental Knowledge Conference Abstracts

Oral Presentations (in chronological order)

Presenter: Forrest Callaghan, Northwest Indian College

Northwest Indian College Carbon Footprint: Baseline Data for Raising Consciousness among Indians

Northwest tribes are based on a culture of harvest from the sea. Salmon are the center of religious ceremonies, economics, and the physical health of tribes. Northwest tribes additionally depend upon shellfish harvests. Greenhouse gases are an issue for Northwest tribal life for a number of reasons. Rising levels of greenhouse gases lead to ocean acidification which can affect calcium levels in the sea and prevent krill, shrimp, shellfish, abalone and other organisms from properly forming their shells. This is particularly problematic for the tribes because populations of these culturally and dietarily important organisms can then decline. As important, some of these organisms are part of the diet of salmon, the most significant of species to Northwest tribes. In this study, we used the Clean Air Cool Planets Green House Gas (GHG) Inventory Calculator (Carbon Calculator) to determine the amount of greenhouse gas produced by Northwest Indian College's Lummi Campus. Data were taken for two different years, from July 2009 to June 2010 and from July 2010 to June 2011. The GHG calculator takes input data from five major areas: electricity, garbage, air travel, propane gas and travel of supplies, e.g. paper. Our effort to document the NWIC Lummi Campus carbon footprint is part of a larger effort toward greater sustainability including green-buildings, recycling and composting. Our eventual hope is to use the data we gather to help move the college toward becoming an official part of the American College and University Presidents' Climate Commitment. This should help students become more conscious of carbon footprints in a way that will allow them to pass on their knowledge to others, including their families and their tribes.

Presenter: Elise Downing
Environmental Studies

Nature-Culture Dualism in US Climate Change Discussion

The purpose or expectation of this research is to explore how perceptions of climate are related to the common understanding of the human-nature relationship in the USA. Research methods include surveying the scholarship on the human-nature relationship and evaluating popular dialogue and scientific research on climate change to test if there is evidence of dualistic divide between people and nature, via news sources and the IPCC, etc. The line of reasoning or structure for this project will begin with a discussion of the scholarship on human-nature relationship. The academic discourse on the more general relationship between people and the environment reveals a deeply entrenched nature-culture dualism that defines humans, and the things they create, as different from the rest of the natural world. Popular discussion and understanding of climate and climate change occurs within this socially constructed and reinforced dualism between nature and culture. When the discussion of any issue is restricted to a certain framing or understanding, the responses or actions that result from that discussion are also restricted. This confined discussion of climate issues could ultimately define "realistic" solutions for the industrialized West as only those that align with the dualistic human-nature relationship, thereby excluding other options for climate change mitigation and adaptation that result from alternate understandings of how people ought to relate to nature.

Presenter: Lehua Kauhane, University of Hawaii at Manoa
Environmental Law Program

Climate Justice, Energy, and Native Hawaiians

Hawaii's dependence on foreign oil threatens our economic, social, and cultural wellbeing as oil prices continue to rise and the consequences of climate change become more apparent. Imported oil accounts for 90% of Hawaii's energy needs, Hawaii consumers pay the highest electricity prices in the United States, and over \$7 billion a year goes outside Hawaii to meet our energy consumption. In 2008, the Hawaii Clean Energy Initiative (HCEI) was launched to provide a framework for "[c]lean, locally developed, renewable energy [that] will in the long run boost Hawaii's economy because the land, the sea, the sun, and the wind are all capable of producing limitless amounts of indigenous energy- forever." Building on the HCEI, current state law requires that by 2030 seventy percent of Hawaii's energy be "clean energy," coming from a combination of efficiency measures and renewable energy sources. The input of

Native Hawaiians, Hawaii's indigenous people, however, has by in large been minimal in formulating a policy to achieve this transition. Where the voices of Native Hawaiians have been most clearly heard, is at the implementation phase, and in opposition to clean energy initiatives, such as geothermal development on Hawaii Island and big wind energy projects on Lanai and Molokai. The disconnect between the development of energy policy, and the communities most affected by the construction of renewable projects, is unfortunate because there is one common goal- for Hawaii to move towards energy independence. Yet the question remains, how can we move towards greater energy self-sufficiency for all of Hawaii's people, while respecting the rights of the Native Hawaiian communities whose beliefs and lands have been most greatly impacted by large scale development of renewable energy? This paper offers one suggestion, which is to look at the ways in which international climate change mitigation efforts are increasingly incorporating the recommendations of indigenous peoples in order to implement more effective and just solutions.

Presenter: Mary Kennedy, Northwest Indian College

Weaving Traditional Ecological Knowledge through Tsimshian Stories

Throughout history, Tsimshian stories were an important element about how to live in balance within our environment. There are elders who tell me that those stories changed as our environment changes. During a weaver's conference in Ketchikan, Alaska, a discussed took place about the importance of the materials that are used in gathering. In this paper, I discover the importance that "storytelling" plays in sharing our knowledge about our plants, fishing, hunting and not merely surviving- but how this was much more than entertainment but it was a method used to teach important information on living in balance in our eco-system. There are two stories shared in this that many Tsimshian communities shared and demonstrated the ability to "adapt." This includes the Prince and the Salmon people and the Spider and the princess. Each community shared stories to demonstrate adaptation to global warming and other issues.

Presenter: Christa Linz
Environmental Studies

Teaching about Climate Change: Awareness and Ability to Respond

Although many believe that "America will only be as strong in this century as the education that we provide our students" (Obama, 2010), there is little focus on climate change in public school curricula. With the urgency of climate change, we need to begin developing creative solutions to deal with this complex problem, and the education system has the power to build up awareness and an ability to respond to climate change. Building upon years of environmental education achievements, this study proposes five standards by which to evaluate climate change educational programs: the development of knowledge, the encouragement of creativity, the connection to culture, the skills of collaboration, and the ability to participate in positive action. However, the major climate change programs in the US focus on only a couple of these criteria for a successful curriculum – particularly, knowledge. While the science of climate change is critical for understanding how to react to it, we need a more holistic understanding of the social causes and ways to develop solutions that transcend the purely scientific truth of climate change. By comparing the aforementioned standards of educational programs to the North American Association for Environmental Education (NAAEE) standards for environmental education and the curricula of major climate change programs, we can develop a greater understanding of what type of curricular reforms are necessary to develop a generation of people able to tackle the issue of climate change.

Presenter: Natasha Steinmann
Environmental Studies

Indigenous Ecological Knowledge: Collaborative Land Management and Climate Change Adaptation (An Australian Case Study)

The effects of climate change are altering lifestyles across the globe, particularly those of indigenous communities. Due to the intimate relationship with the land that such communities have, these effects (such as changing river flows, dry-land salinity, and increased frequency in devastating bush fires) are increasing the already existing vulnerability that many indigenous communities face. One tool to address this increasing vulnerability is to modify land and resource management in response to these new issues. Historically, Australian land management has been built upon Western values and ideas about 'management' and 'environment'. However, with the recognition that local knowledge is critical for accurate and appropriate management plans, it makes sense that indigenous Australians (with their deep attachment to place, thorough knowledge of the land, and high stake in the productivity and survival of the ecosystem they live in) should be included in the development and implementation of such plans. This research describes how the integration of different knowledge systems (indigenous and Western) can be used as a tool for improving adaptability to climate change impacts in indigenous Australian communities through innovative land and resource management strategies.

Presenter: Kelsey Stilson
Paleontology (Geology)

Humans and the North American Pleistocene Megafaunal Extinction

The Pleistocene Megafaunal Extinction (PME) culled two-thirds of the world's megafauna (mammal species with an average mass of >44 kg) over the relatively short period of 50,000 to 3,000 years ago. Megafauna are usually the first animals to become extinct in a weakened ecosystem. Human impact and climate change are considered the two main catalysts of the PME. This study looks at this global event from a North American lens, where extant species have been shown to have been genetically altered by the N. American PME and a Bison trans-continental migration has been shown to have a higher correlation with the PME in N. America than human impact or climate change. The 'overkill' or 'blitzkrieg' model concerning human impact is overturned in favor of a more moderate approach considering the available data. The PME must be thought of on both a local and global scale, where global events greatly increase the likelihood of extinction, but local variation is the ultimate determinate in megafaunal survival, much like the endangered megafauna today.

Presenter: Carson Viles
Environmental Studies

First Foods and Climate Change in the Pacific Northwest

This research focuses on first foods, food security and climate change in the Pacific Northwest. Traditional foods of indigenous populations, more commonly known as first foods, are being affected by climate change in varied ways. Key issues to first foods caused by climate change in the Northwest include access to salmon and health of salmon populations, shellfish harvesting, threats to estuary ecosystems, changing species distribution of berries and roots, changes in growing seasons for plant-foods, issues of access caused by distribution changes, amongst others. Because of the central role of first foods to native cultures in the Pacific Northwest, threats to these foods also represent a dire threat to the health of indigenous culture. As climate change has intensified and created what has been described as "climate chaos," i.e., less predictable weather and the social complications that come with it, native people in the Northwest have responded in a variety of ways. This research investigates how indigenous Northwest peoples are affected by climate change through first foods, how they are working to mitigate the effects of climate change on first foods, and how they are maintaining their relationships with these foods in the midst of a rapidly changing climate.

Poster Presentations

Climate Change conference posters appear on the Venue Map (Page I) with a C affix.

C1

Presenter: Hillary Boost
Family and Human Services

Effects of Global Climate Change on the Psychology of Children and Adolescents

This is an evaluation of the psychological impacts of global climate change on children and adolescents. It is hypothesized that global climate change has effects on the psychological wellbeing of children and adolescents, including increased rates of depression, insecurity, anxiety, and suicide rates. This paper analyzes existing county, state, and country documents detailing rates of the issues listed above as well as research articles examining the ways in which climate and psychological wellbeing interact to determine the relationship between global climate change and increased rates of psychological concerns for children and adolescents, particularly in western society. Given the gradual and cumulative nature of climate change and its psychological effects, studying its impact on child and adolescent psychological wellbeing may provide new insight into the vast repercussions of global climate change.

C2

Presenter: Frances Bursch
International Studies

Sustainable Development and Climate Change Policy: Cooperation for the Mitigation of Climate Change Impacts on Communities

Climate change and sustainable development are hot topics today as a consequence of increasing rates of climate change, the continued global disparity in wealth and resources, and the imminent exhaustion of non-renewable resources. However, climate change

and sustainable development knowledge exist in unique fields and often don't speak the same language. Integration of climate change adaptation and mitigation efforts with sustainable development policy and practice helps communities achieve development goals such as adequate availability of food, water, and energy, and the augmentation of a diverse economy. Objectives of the collaboration between climate change and sustainable development knowledge are to reduce the climate related vulnerability and improve the adaptive capacity of climate-affected communities. As humans continue to be impacted by climate change it is important to understand the relationship between people and environment and to restructure policy and practice as climate changes.

C3

Presenter: Weston Cooper
Undeclared

Sports, Sustainability, and Climate Change

Sports and sustainability have a natural bond. From the beginning, sport was developed in the outdoors and made use of the natural resources available. Without available fresh air, land, and water athletic achievement would be severely diminished. The Olympic committee has recognized this connection and made the environment one of the three Olympic pillars. The United Nations also recognized this connection by organizing the World Conferences on Sport and the Environment through the United Nations Environment Program (UNEP). This emphasis had its first affect on a local level, driving athletic events to pursue low waste solutions. However, climate change has now evolved to the central issue. As best illustrated in the 2008 Olympic games in Beijing, the air quality was so poor some athletes contemplated skipping the games all together, and climate change was thrust to the forefront of the media and public's attention. From this experience the culture surrounding large scale sporting events has forever changed. China has taken steps to launch a comprehensive cleaning of the air quality that has echoed through the World Exposition in Shanghai. The following Olympic Games in 2010 had the most environmentally friendly venues ever and achieved Platinum LEED certifications. Now, all large cities that are seriously considering an Olympic bid must first consult a sustainability expert. But, is this because event organizers are truly concerned about the long-term environmental impacts of the games? I believe so, but the economic and status benefits are equally important.

C4

Presenter: Madeline Culhane
Journalism

Climate Change in the Maldives: A Rising Tide That Cannot Be Ignored

The Maldives is a nation composed of a chain of islands in the Indian Ocean known for its tourism industry and white sand beaches. But it is also a modern example of a nation that must grapple with the immediate effects of climate change, as their homeland is being threatened by rising sea levels that may entirely swallow the entire country. Higher ocean temperatures in the late 1990s heavily damaged a lot of the coral reef surrounding and protecting the islands. Former President Nasheed has rallied the rest of the world to join their endeavors in trying to get the Maldives to become carbon neutral as one way to counter the threats of climate change. Nasheed has introduced plans to use wind energy to provide power for everything from buildings to cars and boats as means to achieve this goal. Nasheed is also soliciting advice from other nations, asking for help and ideas, as well as solidarity, from other countries. However, the effects of years of pollution and human interaction from billions of people across the globe will present an incredibly steep challenge for the country of nearly 400,000 people. While addressing these issues is literally a matter of life and death for their homeland, the practical costs are high for a vulnerable and developing nation. The Maldives will serve as an example for the rest of the world in upcoming years, as a case study for the effects of climate change and how we as a world choose to deal with it.

C5

Presenter: Shannon Ferry
Family and Human Services

An Earth That Speaks and Those Who Listen: Climate Change in Inuit Oral Tradition

Climate change in North America is a topic often spoken about but rarely understood. Even more rarely understood are the different types of detection and attribution of climate-related events over time for different cultures. While Western society often views detection and attribution of climate-related events in a purely scientific way, there is much to be said for the means of detection and attribution in indigenous cultures through means of oral traditions and stories. In this essay, the oral stories of glacier movement and sea ice of the Inuit tribes in Northwest Canada and Alaska will be examined in conjunction with scientific studies in an attempt to synthesize the climate changes of the late Little Ice Age and after with the changing oral traditions of tribes at that time. With this synthesis, it is hoped that insight into climate change over time, effects of climate on indigenous groups, and different kinds of detection and attribution will be better understood for use in today's modern society.

C6

Presenter: Ethyn Kelley
Pre-Journalism

Whooping Cranes and Texans: A Plan for Water, Survival, and Coexistence

In the Guadalupe river basin of Texas, a low lying stretch of coastal marshes and grasslands, human development and weather alterations are beginning to cause problems for whooping cranes and humans alike. There is not enough water there to support both humans and animals, especially in times of drought. Whooping Cranes have never lived easy. Ignoring difficulties with migration from Alberta, Canada to Texas each year, a combination of human interference and habitat loss has now brought their shrinking populations even closer to extinction. Losing a species from our planet is a tragedy in itself, but even more frightening is the idea that humans are also struggling with an increasingly stressed water management system in Texas, along with the cranes. In the foreseeable future, we may watch the existence of the whooping crane come to an end, but what about humans living in this area? The effect of human development needs to be weighed more accurately with water availability and climate changes in the Guadalupe river basin. Water marketing should reflect the shortages occurring and that will occur to a greater degree in times of drought, and should also succumb to enhanced water conservation solutions. Lastly, laws regarding habitat protection and wildlife preservation need to support the climate in Texas more than they support development and economical gains.

C7

Presenter: Kylie Loutit
Environmental Science

Maori Traditional Knowledge and Climate Change

The Maori, the native population of New Zealand, are gradually becoming an imperative part of understanding climate and environmental events and changes in New Zealand. Maori Environmental Knowledge (MEK) has been recognized as a useful source of knowledge about climate change that cannot be accessed from standard “westernized” scientific data. Many Maori strive to live at one with nature and view it as an extension of themselves. Their stories, songs and narratives provide mechanisms to inform people of danger, as well as provide details that lead up to catastrophic events and the falling out of such happenings. The Maori are a minority in their own land; however, the reemergence of their culture coincides with the acknowledgement of the usefulness of MEK toward climate change, and is furthering their revival in New Zealand. MEK is context-dependent, making it difficult for scientists to easily incorporate it into reports. However, despite its challenges, MEK is a unique and valuable source of information that can greatly contribute toward the understanding of and response to climate change by expanding the limits of westernized science.

C8

Presenter: Paul Metzler
Environmental Studies

Indigenous Food Security in the Face of Climate Change

Indigenous cultures are often the stewards of areas with the most biologically diverse food crops. Diversity is essential to maintaining food security in the face of changing climates, and yet, indigenous cultures are often the most adversely affected by this change. This paper analyzes the struggles and successes of indigenous cultures in the Americas to maintain food sovereignty in the face of climate change and the influences of traditional ecological knowledge (TEK) on more mainstream food systems. By examining existing literature, it is clear that many cultures struggle with food security as a direct cause of climate change. However, many indigenous people have made remarkable adaptations, recently and in the past. These cultures also cultivate underutilized crops which could hold the answers to the nutritional problems many communities experience. Furthermore, TEK gained from indigenous cultures can provide insight global adaptations to climate change.

C9

Presenter: Mia Schauffler
Journalism

Climate Change Adaptations for Salmon in Indigenous Cultures

Pacific salmon populations are currently in decline. Due to a history of exploitation of their environment, certain types of salmon are at risk of extinction. Along with overfishing and fishery practices, climate change is considered a large factor in the depletion of salmon. Although the destruction of salmon affects all types of cultures, many indigenous cultures depend heavily on salmon for sustenance and as part of their culture. A study on the St’át’imc tribe provides a number of adaptation strategies such as alternative sources of protein like

deer or the more abundant pink salmon. Salmon hold an integral place in native communities and the adaptation strategies to maintain salmon are explored and initiated. These communities had traditional ways of maintaining salmon populations before the exploitation of their ecosystems disturbed the species. A combination of these traditional strategies and innovative adaptation techniques must be considered in order to maintain the diversity and quantity of pacific salmon.

C10

Presenter: Benjamin Stone
Journalism

Varying Portrayals of Climate Change and Water Stress in Bolivia, Seen Through Science and Journalism

In many ways, populations in developing countries are more vulnerable to the effects of climate change than those in wealthier, industrialized cultures. And in the Andes of South America, this vulnerability can be seen particularly clearly in the poor nation of Bolivia. As the effects of climate change become increasingly destructive to the water supply and traditional ways of life in Bolivia, and as Bolivian president Evo Morales becomes more vocal and impassioned at international climate change conferences, the literature analyzing Bolivia's problem is increasing. The current array of scholarly literature about climate change in Bolivia details the climate-related processes behind the water stress, focusing on ways for Bolivian cultures to adapt to climate change. Contemporary journalistic literature on the subject, however, focuses primarily on portraying current conditions for people in Bolivia who are being affected by climate change, particularly indigenous Bolivians. Through the study of these two bodies of literature, this analysis aims to show the lack of the valuable social context within the technical climate change reports that influence national policies within Bolivia, a country that will feel climate change's effects much sooner and much more intensely than most.

C11

Presenter: Inga Suneson
Planning, Public Policy and Management

Malaria and Climate Change

Malaria's dependence on specific atmospheric conditions such as an abundance of precipitation and warm temperatures makes it susceptible to climate change. A slight change in temperature, precipitation, or seasons can result in exponential changes in an area's malarial infection rate. The trend in warming weather patterns presents a potential threat by providing a more hospitable climate for malaria in places such as Africa, South America, and Southeast Asia. These potential hazards caused by changing weather patterns will largely be in places where malaria has not previously been a problem. The changing range of malaria could impact new populations, without medical infrastructure to fight it. By monitoring locations of malarial infections along with climate patterns, potential epidemics could be averted.

C12

Presenter: Laura Vigeland
Communication Disorders and Sciences

Coffee, Climate, and Society: Can Fair Trade Benefit Both Human and Plant?

Coffee is one of the most widely traded commodities in the world, with Central and South America producing the majority of this product. This study explores the effects of climate change on coffee production in these regions and the implications this has for people whose livelihood depends on this commodity. Furthermore, it examines the potential benefits of Fair Trade farming practices for both coffee yield and coffee farm workers experiencing climate change. Large coffee plantations often exploit workers; paying them salaries below subsistence level. Climate change raises concerns about people who work on these plantations, for if increased temperatures adversely affect coffee production, their wages may diminish even further. This study analyzes research articles and secondary sources about climate change and coffee production, treatment of plantation workers, and the environmental and economic aspects of Fair Trade practices. Results indicate that increased temperatures due to climate change decrease coffee production, which leads to lower wages for plantation workers. Research also shows that Fair Trade farming practices mitigate the effects of climate change on coffee yield, and that Fair Trade economic policies ensure that workers earn adequate salaries. While climate change may negatively affect coffee production and farmers, Fair Trade practices combat these issues. These findings indicate that small coffee farms that use sustainable methods will cope with climate change better than large plantations.

AM Session Oral Presentations

Panel Name

MI Genes and Neurons

Location

Oak Room

Time

11:00am - 12:00pm



Presenter: Jesse Goldfarb
Mentor: Hui Zong

The Barcode System: A Robust In Vivo Genetic Manipulation Technique to Evaluate Essential Tumorigenic Genes

The conventional method to evaluate a gene's role in tumor formation involves targeting a gene in one population of cancer cells, grafting those cells into an organism and examining whether tumor growth is altered compared to controls. Readouts for such experiments are qualitative and observational. This method carries several scientific caveats that make it difficult to elucidate the role of genetic manipulations in tumor formation, including the inherent variation between mice and the lack of a quantitative readout. Therefore, much progress in the field of gene therapy and curative cancer treatment research had been stunted because of the lack of an ideal method. Therefore, I designed a genetic manipulation system, alongside my mentor, to effectively allow for the study of the tumorigenic role of genes believed to be involved in cancer. In essence, this system, termed 'the barcode system' looks at growth potential at the cellular level instead of the organismal level. Rather than developing two populations of mice, we create two populations of cells, and inject them into a single mouse. This removes the variation of the conventional technique and introduces an internal control into the system. Further, by measuring the relative growth of each cell population via a genetic tag, a barcode, we have introduced a quantitative readout. I will address the design of this system and its early pilot testing. We found that the barcode system is a highly sensitive system that is ideal for the identification of important genes.



Presenter: Leif Schumacher
Mentor: Tory Herman

The Search for a New Gene in Synapse Formation

Neurons are cells that make up the sophisticated network of our brain. These cells interact with other neurons to form connecting structures called synapses. The Herman lab is interested in understanding the genes and molecular mechanisms behind this process. Neurons in vastly different species share many of the same properties. This allows us to study homologous genes in the fruit fly to gain a better understanding of our own development. I am working on a mutation, 317, that prevents the formation of normal synapses. I began searching for the gene responsible by crossing the 317 strains with flies carrying known and easily observable genetic markers and allowing recombination to occur between the chromosomes. Whether the progeny had my phenotype or not told me which direction on the DNA strand I should look. Every test narrowed down my search interval until it became too small to use my obvious genetic markers. Currently I am using markers only observable with a PCR technique. Once I narrow down the range to approximately 10 candidate genes, I will sequence them and compare the results to wild type flies to see which variation is responsible for the 317 phenotype. The results from my early tests showed that the gene linked to this 317 mutation is located in a segment that has no known synapse formation regulatory genes indicating that this is a new discovery. With a study of homologous genes between flies and humans, these new findings will contribute to a better understanding of how our own neurons function.



Presenter: Jasmine Dickinson
Mentor: Aldis Weible

Transgenically-targeted increase in the activity of medial entorhinal layer II neurons induces reversible field expansion and remapping of CA1 place cells

The hippocampal formation plays a critical role in memory acquisition and consolidation. Hippocampal pyramidal neurons fire in a location-specific manner. These "place" cells are thought to generate an internal representation of context dependent space. In a mouse model, we induced transgenic expression in layer II medial entorhinal cortex of a modified muscarinic G-protein coupled receptor that selectively binds clozapine-N-oxide. CNO, an otherwise inert metabolite of the antipsychotic clozapine, is a small molecule drug capable of crossing the blood-brain barrier. Binding of CNO to the receptor triggers an intracellular cascade ultimately resulting in the depolarization of the cell, and thus increased firing that lasts for several hours. We analyzed CA1 place fields before and after CNO injection. Many neurons expanded their place fields following grid cell activation, as predicted by models of grid cell to place cell transformations. However, other neurons drastically changed their firing fields (i.e. they "remapped"), while others were unchanged by CNO. All effects reversed twelve hours post injection. These effects underscore the generative nature of the hippocampal network, and provide empirical data to distinguish between theoretical models of place field formation.

Panel Name
M2 Chaos in the Clouds

Location
Alea Room

Time
11:00am - 12:00pm



Presenter: Vasha Dutell
Mentor: Eric Torrence

Measuring Chaos in a Double Pendulum

A double pendulum exhibits chaotic behavior given proper initial conditions. This chaotic behavior is characterized by measuring the correlation of a pendulum's track with itself over time as well as calculating the Lyapunov exponents. A chaotic path's correlation with itself (or autocorrelation) should decrease exponentially with the lag. A Lyapunov exponent characterizes the separation of infinitesimally close points in phase space over time; exponential growth of this separation typically implies chaotic behavior. A simulation with and without introduced error, as well as a physical pendulum tracked using a high-speed camera are both used to derive auto-correlations and Lyapunov exponents. Expected results are to observe these indicators of chaotic motion in both the simulated and physical double pendulum.



Presenter: Hannah Pruse
Mentor: Kevin Butler

Seeding the Cloud: Detecting Co-Residency with Network Flow Watermarking

Cloud computing has become vital in the realm of information technology by providing computing as a service. Cloud provider customers do not need to purchase and maintain their own machines to deploy web applications, but can instead run virtual machines (VMs) from the provider's datacenter. The key to supporting this model is virtualization, which allows physical resources to be shared across multiple users, allowing several VMs to run on a single computer. However, customers share resources with unknown and untrusted parties, leaving sensitive data vulnerable to unauthorized access through the exploitation of side channels. Prior co-residency detection methods relied on specific vulnerabilities of hypervisors, the underlying software facilitating virtualization, which can be easily fixed. We demonstrate that co-residency exploitation is not simply a flaw in a particular hypervisor, but is a real threat in the cloud computing model. We have developed a hypervisor-independent attack that compromises isolation of VMs, allowing for exfiltration of co-residency information by injecting a watermark, or specific patterns of delays, into the target VM's network flow. Through experiments in a local testbed and real-world deployments on a commercial cloud, we observed accurate detection of co-residency in less than 60 seconds. We demonstrate that our watermark itself can be a covert channel for malicious access of data, thus highlighting the significance of this vulnerability and the threat posed to current cloud computing platforms.



Presenters: Sheetal Krishnakumar and Grace-Ellen Mahoney
Mentor: Vera Keller

Commandeering the Public Voice: Government and Media

The role of the state in supporting avenues of public expression during the emergence of the public sphere in the 17th century has remained relatively unexplored. A historical analysis of this role will allow us to better examine current interactions between the state and the public sphere. By examining primary documents from 17th century France in the original language, and television and newspapers during the Arab Spring in both Morocco and Egypt, we explored how government can maintain control of the public as long as its image remains that of a benevolent and protective body. However, when the government loses the trust of the people, by too obviously fabricating the news or acting too slowly, no amount of media intervention can protect it from revolution. We pay particular attention to the point where the public becomes aware of this fabrication. The importance of this connection between early modern history and history that is still unfolding as this research is being done is clear. Understanding how media can affect countries, revolutions, and individuals sheds light on the politics that exist around us.

Panel Name
M3 The Grip of Money and Food

Location
Maple Room

Time
11:00am - 12:00pm



Presenter: Nicholas Drushella
Mentor: Barbara West

Is it Viable to Group Countries with Differing Cultural Values into the Same Monetary Union?

Since the crash of the euro in 2008 and the ensuing global economic meltdown, Europe has entered into a phase of fierce political and economic debate surrounding the common currency. In their haste to restore consumer confidence and stabilize the euro-zone, policy makers have neglected to address several critical questions. Specifically, what were the underlying causes of the euro's troubles? More importantly, why has the road to recovery been exceedingly strenuous? I argue it is due to a massive cultural rift that exists between the northern and southern regions. Through a cross-cultural comparative case-study of two major regional players, Germany and Spain, we will examine how national culture is gauged and to what effect cultural differences have on the long-term viability of the monetary union. In working towards a solution it is important to recognize the immense challenge of incorporating culture into economic policy due to culture's seemingly unquantifiable nature. Despite the difficulties that arise from such a complex problem, the European Monetary Union can no longer afford to make decisions based solely on the recommendations of economists but must include information from other fields of study if the euro is to have a future. The adoption of this new approach to fiscal policy would not only affect the euro-zone countries, but also has the potential to fundamentally alter how all industrialized nations view the relationship between economics and culture.



Presenters: Madeleine Dunkelberg, Aaron Honn and Hailey Chamberlain
Mentor: Vera Keller

Occupy Wall Street and the Transformation of the Public Sphere

We examined the formation and manipulation of the public sphere and that concept's relation to the current Occupy Wall Street movement. Theories of the development of the modern public sphere, particularly the work of German sociologist Jürgen Habermas, informed our work. We focused on his theory that representative publicity facilitated the creation of the public sphere and formed our own concept of inverse representative publicity, applying that to Occupy Wall Street. We compared the roles of representative publicity and the public sphere in the Occupy movement and the French Revolution. To illustrate how Occupy leaders formed an inverse representative publicity, we analyzed Occupy's use of new, virtual media such as Twitter, as well as the symbolism incorporated in their propaganda posters. Viewing Occupy Wall Street through the lens of the history of the public sphere, we found a correlation between Occupy Wall Street's goals: all could be construed as part of a movement to transform the public sphere.



Presenter: Tristan Pettigrew
Mentor: Gyoung-Ah Lee

United States Food System: Energy, Waste and Manipulation

What does a future of food security and seed sovereignty look like? Or, more importantly, how is it represented today within the borders of the United States? Since its inception, methods of agriculture have under gone many changes; however, two events in our recent history, the Industrial Revolution and the Green Revolution, have changed both the scale and effect of agriculture in unprecedented ways. Both have increased our dependence upon fossil energy as a driver for the production, transportation, and storage of our caloric necessity. Throughout this project I hope to highlight areas within the U.S. food system of unsustainable practices. Moreover, I hope to offer possible solutions to our current situation.

Panel Name
M5 Transforming Education

Location
Metolius Room

Time
11:00am - 12:00pm



Presenters: Neil Cronkrite and Ian O’Gorman
Mentor: Joe Stone

Signaling for Attention: Mobility and Student Performance in United Way’s Promise Neighborhoods

A fixed effects linear leastsquares statistical regression model was used to explore the relationship between student academic performance and student mobility in the Bethel School District in Eugene, Oregon. Our United Way of Lane County, as struggled with student mobility as the organization refines its new Promise Neighborhoods project, aimed at distressed neighborhoods in Lane County. Student mobility may limit United Way’s ability to improve the educational and developmental outcomes of students. We use voter registration data to estimate total mobility in Lane County and in the Promise N4eighborhoods. We also use Bethel School District student transfer codes and statewide state test scores as data. Due to the structure of our data, we cannot draw a definitive conclusion regarding the direction of causality between mobility and learning. However, we can say with confidence that, at a minimum, there is a significant relationship between disruption to learning and high levels of mobility – a good starting point for United Way as they continue to explore mobility and refine its Promise Neighborhood project.



Presenter: Zach Chalmers
Mentor: Chris Sinclair

Real Math: Bringing Proof into the Classroom

The study of mathematics is frequently an institutional requirement for all majors, which can drive pedagogy to focus on technical applications rather than the discipline itself. Mathematics is not exclusively the study of data manipulation; rather, it is a discipline that examines why we observe certain patterns and how to verify claims with certainty. It is this notion of mathematical rigor we suggest is currently lacking in lower-division undergraduate courses. This work intends to explore the possibility of improving proof-based mathematical learning within these undergraduate classes. We programmed interactive, web-based modules designed to introduce mathematic reasoning to first-year undergraduates. The plasticity of online media provided the ability to introduce a topic at the student’s own pace, providing exposure to proof-based mathematical ideas without requiring reorganization of curriculum. Initial testing consisted of optional participation in Calculus I modules, as well as extra-credit questions drawn from the modules on quizzes and exams. Participant and non-participant performance on exams and future courses will be recorded and used to further analyze the merit of this concept. While the small initial sample size limits broad conclusions from the existing data, results are promising, suggesting a positive correlation between participation in modules and overall scores. Future expansion to other lower-division courses and possible mandatory participation is planned.



Presenter: Zachary Taylor
Mentor: Carolyn Knox

Online Supplemental Learning

In this age of information, students and virtually anyone with access to a computer and the Internet have terabytes of valuable educational material at their fingertips. Yet, the current literature and formal educational practice has focused only on authoritative academic sources to determine the benefits of online learning. This study examines the potential of several widely used but non-academic websites as educational tools to help prepare high school and college students for coursework in various subjects. Building on Rand J. Spiro’s Cognitive Flexibility Theory of teaching ill-structured concepts in a hypermedia environment, video and text-based resources from websites such as YouTube and Wikipedia will be used to establish knowledge schema necessary for learners to assimilate new knowledge. In cooperation with the Center for the Advanced Technology in Education at the University of Oregon, this study will describe and evaluate strategies for the use of these online resources as means to establish context and assist in students’ acquisition and comprehension of knowledge.

Panel Name
M6 Messaging and Performance

Location
Rogue Room

Time
11:00am - 12:00pm



Presenter: Evan Baechler
Mentor: Whitney Wagoner

Brand and Team Sports Video Games: Is the FIFA Video Game an Antecedent to Soccer Team Loyalty

Global, brand-growth strategies have been common among the world largest soccer teams for decades. However, recently, digital media have created opportunities for teams without lavish marketing budgets to foster brand experiences outside their immediate geographic vicinities. The challenges facing soccer marketers are prioritizing between thousands of digital spaces and creating content influential enough to build loyalty among out-of-market fans. In the fight for growth, soccer video games are largely underutilized. This study will investigate the potential for video games to drive brand growth for soccer teams. Using a combined qualitative and quantitative market research survey of 50 avid gamers, the study will determine whether playing the world's most popular soccer video game, Electronic Art's FIFA soccer, is an antecedent to developing loyalty toward a foreign soccer team's brand. Loyalty is understood as a two-dimensional construct of an attitudinal bias toward a brand combine with consumption behavior involving that brand. In the realms of violence and distal relationship building, social scientists have already proven video games' ability to influence individuals' attitudes and behaviors. As a result, the author hypothesizes that the FIFA soccer video game is an antecedent to soccer team brand loyalty, meaning the game has powerful marketing implications in soccer team brand growth.



Presenter: Brianna McHorse
Mentor: Samantha Hopkins

Conformation and Performance in Event Horses

For thousands of years, conformation-the external physical shape of the body's parts-has been considered a reliable indicator of a horse's athletic ability. Despite the influence of conformation assessments on equine breeding and trade, few studies have used analytical methods to establish quantitative relationships between conformation and performance. Existing work suggests a significant relationship between judgments of quality and several conformational variables, especially shoulder and pelvis angle, which influence the reach and timing of the horse's stride. I investigate the conformation-performance correlation in eventing, an equestrian discipline that tests the horse's ability to complete three phases: dressage, cross-country, and stadium-jumping. Using statistical comparisons of performance records with geometric relationships between skeletal landmarks on the horse's body, this study ultimately aims to quantify "ideal" conformation for an eventer. Preliminary results based on photographs suggest a significant relationship between conformational variables and competition scores, especially in the dressage phase. Traits that may drive performance include back length and shoulder, hip, and pelvis angle. Future work using physical location of the skeletal landmarks may provide clearer resolution of ideal traits at each level of competition. Ultimately, this line of research may lead to a set of quantitative guidelines to be used when selecting event horses to purchase or breed.



Presenters: Mathew Beattie and Grant Aman
Mentor: Vera Keller

"Join, or Die": The Binding of a Nation through the Evolution of a Symbol

This study of the Pre-Revolutionary War symbol, Join or Die, emerged from a Honors College Seminar of the study on the history of the emergence of public sphere and its effect on media. The American symbol "Join or Die" bound the colonies together politically and rhetorically, creating a new medium of discourse in the American public sphere. "Join or Die" alluded to a long history of metaphors of the body politic, but at the same time it transformed such metaphors in a more egalitarian direction. "Join or Die" precipitated a flood of political cartoons that formed an important part of political debates leading up to and during the early Revolution. We studied the continued allusions to the "Join or Die" symbol as well as transformations and re-interpretations of it. We also noted the continued deployment and re-interpretation of "Join or Die" in contemporary Tea Party demonstrations. Our study illuminates the power of visual print media to form a sphere for debate, whether or not the interpretation of those media remains constant. We suggest that the ability of visual media to offer multiple interpretations can in fact contribute to the vibrancy of public dialogue.

PM Session Oral Presentations

Panel Name

A1 Evolutionary Trajectories

Location

Alsea Room

Time

1:15pm - 2:15pm



Presenter: Amy Atwater
Mentor: Edward Davis

Topographic and Climate Change Differentially Drive Pliocene and Pleistocene Mammalian Beta Diversity of the Great Basin and Great Plains Provinces of North America

The Great Basin region of the western United States currently has elevated beta (between-site) diversity compared to that of the past 10 million years. We test two competing hypotheses to explain this pattern: 1) Pleistocene climatic cycling, with diversity dropping during warm intervals and increasing during cooler 'Ice Age' intervals; or 2) topographic change, where tectonic expansion created a diversity of habitats, packing drastically different environments close together. To test these hypotheses, we analyzed the beta diversity of non-flying land mammals from the Late Miocene (~8 million years ago) to Recent of the Great Basin of the United States, with the central Great Plains of the United States as a control. Using mammalian faunal lists from the FAUNMAP II database, we estimated richness- and evenness-based beta diversity for 4 time-slices based on mammalian biochronology. Our results show that beta diversity, in terms of both richness and evenness, is higher in the Great Basin than in the Great Plains at all intervals from the Late Miocene to the Recent except for the Holocene. The Holocene of the Great Plains revealed surprisingly high evenness beta diversity and is the subject of continued investigation. The overall results support our hypothesis that Great Basin beta diversity has primarily been driven by tectonic change, but the Great Plains Holocene results suggest that other factors, particularly climate change, have affected beta diversity.



Presenter: Kelsey Stilson
Mentor: Samantha Hopkins

The Evolution of Rhino Arthritis in the Cenozoic

Arthritis is one of the most common skeletal pathologies, occurring in one-sixth of humans. Rhinocerotids provide a natural system for understanding the evolutionary underpinnings of arthritis. The severity and prevalence of arthritis in Rhinocerotidae increased substantially from 50 million years ago to the present. All five living species of rhinoceros develop arthritis before they reach maturity. Fossil rhinoceros relatives from 50 million years ago (Ma) show a dramatically different pattern of arthritic development. What changed from 50 Ma to today? Rhinos became graviportal, evolving from Hyrachyus, which was about the size and shape of a large dog, to the one-ton, stout-limbed animals of today. Despite this order of magnitude increase in size, rhinos also consistently display cursoriality (the habit of running) through time. These competing factors of increasing size and cursoriality provide a possible driver for the prevalence of arthritis. This study traces the history of arthritic development in the rhino lineage, finding that the distribution of arthritis is related to increasing body size, but that there are also clearly evolutionary effects determining its prevalence. This study is especially important because it examines an apparent pathology that persisted and even worsened despite millions of years of evolution that should have selected against it.



Presenter: Ariana White
Mentor: Daniel Gavin

A 10,500 Year Paleoecological Record of the Interior Rainforest of Eastern British Columbia

Although there have been multiple investigations into the coast range and island ecosystems of British Columbia, the climate and forest history of the interior is less well studied. The interior of British Columbia houses one of the largest temperate rain forests in North America due to its location along the wet westernmost portion of the Rocky Mountains. In our investigation, we posit that this biome has shifted in location in accordance with changes to the climate system through the centuries. Morkill Lake, British Columbia, is located at the northern terminus of the inland wet belt zone in the Fraser River valley. The ecotone in which the lake is located represents the very edge of this unusual biome at the place where the rainforest gives way to drier and colder boreal forest. We present a pollen record from Morkill Lake which extends back 10,500 years BCE and illustrates the biological dynamism and basic climatological characteristics of this area through millennia of transition.

Panel Name
A2 Lost Voices

Location
Maple Room

Time
1:15pm - 2:15pm



Presenter: Maneesh Arora
Mentor: Matthew Dennis

The Declining Effectiveness of Environmental Politics since the 1970s

Over the last several decades a large percentage of the American public has realized that our world faces unprecedented environmental problems, and is working to fix these problems. The growing public concern led to monumental pieces of environmental legislation being passed in the 1970s to fix environmental problems but, since then, nothing to that magnitude has been done at a political level. I have done an analysis of the effectiveness of environmental legislation and environmental regulations that have been passed since 1969, and the level of public concern around environmental issues in order to determine if there has been a decline in effectiveness of environmental politics and if so, what the reasons for it are. My research has shown that even in the face of growing public concern and strong activism, there has been a decline in effectiveness of environmental work at a political level. I also found that there are a variety of reasons for the decline including; the corporate backlash against environmentalism, deregulation of industry, and a shift from a “stick” approach to regulation to a “carrot” approach. By uncovering the reasons for the decreasing effectiveness in environmental politics, we can better understand how to improve the effectiveness of environmental politics in the future.



Presenter: Megan Gaffney
Mentor: Joseph Fracchia

Corporate Liability and Human Rights: A Historical Perspective

Kiobel v Royal Dutch Petroleum is a current United States Supreme Court case in which a group of Nigerian environmental protesters are suing Royal Dutch Petroleum for aiding and abetting the Nigerian governments crackdown on environmental protesters from 1992-1995. The Nigerian plaintiffs are suing under the American Tort Statute, a controversial US law that allows non-citizens to press charges for violations of international norms committed on foreign soil. This paper will take a historical account of human rights development at the international level since World War II to better understand both the origins and definition of human rights. It will also look at the parallel development of US human rights law, specifically the Alien Tort Statute, to determine the relationship that US law has with international law. Finally it will take a critical look at the Kiobel case to determine the legal and moral issues that are intrinsically tied to corporate liability in human rights cases. The research will involve court cases from the United States and international treaties and conferences. Ultimately it hopes to prove that corporations have a legal liability to uphold human rights.



Presenters: Jordan Pratt and Daniel Shaver
Mentor: Vera Keller

Revolutionary War Ads and the Public Sphere

In the Revolutionary War era, the public sphere was not only represented by the articles written in the newspapers but also in the advertisements surrounding them. Elizabeth L. Eisenstein’s writings about the print revolution and its effect on the way people interact with each other create a fascinating dialogue about the history of the book and the role advertisements play. Our study proves that the history of the book is not only relevant to the way in which we conceptualize famous authors and great works but also to the smaller microcosms of everyday individuals within the Revolutionary War society. To draw these connections, we read through the Revolutionary War era newspapers in the UO Special Collections room. Through careful analysis we discovered patterns within the popular advertisements. These advertisements support Eisenstein’s points surrounding public celebrity as well as Jürgen Habermas’ definition of a public sphere.



Presenter: Jessie Erikson
Mentor: Jessie Erikson

An Introduction to Nominalizations in the Wapishana Language

Wapishana is an Arawakan language spoken by approximately 7,000 people in northern Brazil and southern Guayana. During July of 2010, Adrian, a speaker of Wapishana traveled to the University of Oregon to participate in an intensive linguistic field methods course during the biennial Institute for Field Linguistics and Language. During this month, Adrian provided speech data for research on nominalizations, nouns formed from other word classes (primarily verbs), in the Wapishana languages. My research is the result of the description and analysis of eleven nominalizing suffixes which occurred at the ends of words in elicitation and longer spoken texts recorded during this time. While the primary purpose was to describe the form and characteristics of each nominalizer, I also demonstrate that nominalizations in Wapishana are able to function as relative clauses, a phenomenon that is a common pattern in languages around the world.

Panel Name
A3 Trends in Restoration

Location
Metolius Room

Time
1:15pm - 2:15pm



Presenters: Lauren Ward, Chelsea Johnson and Aaron Poplack
Mentor: RajVable

Increasing Native Pollinator Services through Research, Restoration, and Education

As the global demand for food increases, so does global food production. Approximately thirty percent of human food crops need to be pollinated by insects, but these insects must be diverse in species in order for global pollination to be effective and efficient. Unfortunately, pollinator diversity is on the decline due to habitat loss and fragmentation, pollution, pesticides, invasive species, and climate change around the globe. This decline in abundance and diversity of native pollinators has brought awareness to the fact that there is a great need for more native pollinator habitat. The Sustainable Farms team, in conjunction with the Environmental Leadership Program (ELP), creates a conservation plan that includes an educational pollinator garden and a pollinator hedgerow for our partners at the Berggren Demonstration Farm. The Sustainable Farms team provides recommendations for the farm; identifying plants, shrubs, and habitats that encourage native pollinators to forage and nest in the area. In addition, the Sustainable Farms Team conducts research at local blueberry farms; analyzing the pollination services that native bumblebees provide for blueberry bushes. Research done at the Berggren Demonstration farm, as well as the local blueberry farms, provides information about native pollinator behavior, as well as how to increase pollination services in a specific area.



Presenter: Sierra Predovich
Mentor: Peg Boulay

Stomata Density of Orchids and Cloud Forest Humidity in Monteverde, Costa Rica

This experiment explored stomata densities of the epiphytic *Pleurothallis aristata* and *Maxillaria* sp. orchids under experimental conditions of dry and humid environments. *Pleurothallis aristata* is in the sub-tribe Pleurothallidinae and lacks pseudobulbs, while *Maxillaria* sp. has pseudobulbs. The purpose of the experiment was to test if there was a difference in stomata densities between the two species, and if there was a difference in mean percent stomata open in humid and dry environments. Stomata impressions were taken from the leaves of twenty individuals of each species using clear nail polish peels that were examined under a compound microscope. The results show that there is a significant difference in stomata density between the *Pleurothallis aristata* and the *Maxillaria* sp. (Rank Sum Test, $t=55$, $n1=10$, $n2=10$, $p<0.05$). The results also show that both species had a higher percentage of open stomata in humid environments than in dry environments (Wilcoxon sign rank test). An explanation for these results is that *Maxillaria* sp. has a pseudobulb for water storage, has a larger leaf surface area, and therefore has higher stomata density. Both species would also close their stomata in drier conditions in order to reduce water loss and desiccation. This research is significant because it relates to problems such as climate change and shifting of biomes, as some species may be more likely to succeed in periods of prolonged drought or less humidity.



Presenter: Thomas Van Hevelingen
Mentor: Peg Boulay

McKenzie River Side Channel Restoration: The Enhancement of Salmon Spawning Habitat and Riparian Ecosystems

The 2012 Environmental Leadership Program (ELP) is divided into six teams. The Stream Stewardship Team has devoted our efforts to the restoration and enhancement of McKenzie River side-channel ecosystems. In recent years, declining salmon populations have peaked both political and social interests in the Pacific Northwest. Our restoration efforts have been focused on the rejuvenation of Coho salmon spawning grounds and surrounding habitats in the McKenzie River side channels. Habitat enhancement methods included the placement of large woody debris, propagation of native plant species, and removal of invasive vegetation. We have monitored previous ELP management in order to assess the effectiveness of riparian restoration at this site. Our results indicate a significant decrease in invasive vegetation and a high survival rate of planted native species. Furthermore, in-stream restoration efforts have proven successful in creating pools and sediment gradients beneficial to salmon spawning habitat. Management of the McKenzie side channel site has proven largely successful and could potentially be adapted to other locations in future restoration projects.

Panel Name
A4 Identity and Progress

Location
Rogue Room

Time
1:15pm - 2:15pm



Presenter: Eryn Block
Mentor: Josh Snodgrass

When Reaching for the Stars is Not Enough: Addressing the Misalignment of Postsecondary Expectations and Preparation of High School Students from Low-Socioeconomic Backgrounds

The vast majority of US high school seniors expect to graduate from college but only a small portion of these students will meet this expectation. Thus, there is a significant misalignment between students' postsecondary preparation, expectations and attainment. Further, the expectations of low socioeconomic status (SES) students and high SES students are almost identical, but low SES students are much less likely to attain a college degree. This thesis describes a qualitative study of semi-structured interviews with low SES high school students in Eugene, Oregon that examines the underlying reasons for this misalignment. The study identifies examples of cultural and social capital that are linked with college preparedness. These examples include a student's ability to identify barriers to postsecondary education, quality information, and college culture and vocabulary. Using case studies, this thesis illustrates that a mentor-like figure may help students overcome obstacles. As a result, Cross-age Peer Mentor Programs, in which a college-going mentor is matched with a high school mentee, may act as a partial solution to the postsecondary expectation-preparation misalignment. College students have valuable, first-hand perspectives of the college experience and can share cultural and social capital with their mentees. In conclusion, few students are likely to attend a traditional university, but all students should be prepared for success in their postsecondary endeavors.



Presenter: Phoebe Petersen
Mentor: Glenn May

No Man's Land: The Herstory of Lesbian Intentional Communities as a Manifestation of the Pastoral Dream

Although not a well-known part of Oregon's past, intentional communities, also called communes, have a long history in Oregon dating back over one hundred and fifty years. Oregon communalism reached its peak in the 1970s when there was a huge growth in lesbian intentional communities, particularly in Southern Oregon. These communities developed as a result of the back-to-the-land movement of the 1960s and the radical wing of the women's movement. However, there was another factor at play. Besides thinking about communalism and women's liberation, the women were also harkening back to a long-held component of American cultural mythology: the pastoral ideal. Pastoral idealism, or the idea that a better, more egalitarian, and spiritually pure life is possible in the countryside, has been a driving force in the writings of authors such as Thoreau, Frost, and Jefferson and in cultural movements such as the migration to the suburbs. Although the members of communities such as OWL Farm and Cabbage Lane were attempting to isolate themselves from the patriarchy that was American culture, their writings demonstrate continued engagement with the idea that in the countryside, it was possible for them to create a simpler, more spiritually pure, and egalitarian life. In other words, even while advocating a separatist lifestyle, they engaged with American culture. In doing so, these women inextricably linked themselves to the past and future of America and must be seen as part of America's history of idealism, communalism and activism.



Presenter: Rachelle DiGregorio
Mentor: Deborah Morrison

Quantifying the Self

"Self knowledge through numbers." This is the driving philosophy behind the Quantified Self (QS) community, a group of people who collect and reflect on their personal information. This practice is called self-tracking and is increasingly facilitated by digital tools like pedometers, mobile applications, and websites. My research explores the question: What leads to the widespread acceptance of digital self-tracking tools? I approach this question by measuring people's awareness and perceptions of the technology as well as by deconstructing the success of popular tracking tools. I focus on tools that track fitness data because they are the most widely accepted. My investigations are supported by a thorough review of literature about technology acceptance, personal informatics systems, and behavior change. There is often a disassociation between popular tracking tools and the concept of self-tracking. Whether it is referred to as self-tracking or not, the practice is growing steadily. This is due to the ubiquity of personal data collection in our current digital environment. It is integrated into so many digital services and devices; it is more or less unavoidable. Leaders of the QS movement frame what they do as a new context for knowledge-making. It is more than just a few people's hobby, it is a lens through which we see and create the world around us. An understanding of self-tracking is vital to our assessment of society's digital evolution, especially as the practice continues to grow in popularity and influence.

Panel Name
A5 Perceptions of Cultural Change

Location
Oak Room

Time
1:15pm - 2:15pm



Presenter: Lauren Boucher
Mentor: Ronald Mitchell

The Mekong River Commission: Indicators of Successful Regime Strengthening

International environmental regimes seek to create a sense of interdependence and community in order to solve transboundary issues of resource use and pollution. Regimes are a natural fit for transboundary water management and development. Water is a classic example of how states are forced to cooperate with each other. Shlomi Dinar argues, "When rivers and other bodies of water traverse or divide countries, transboundary externalities often produce conflict" (Dinar, 2008 1). Waterbodies respect no political boundaries and international water law and policy has emerged over hundreds of years to address the issues of water governance and transboundary conflict (Hilderling, 2004 44). This conflict provides a medium for cooperation, a cooperation that almost always takes form in a treaty or regime (Dinar, 2008 1). The Mekong River Commission (MRC) is an international environmental regime that promotes regional cooperation and sustainable development in the Mekong River Basin (MRB) of Southeast Asia. My research asks what have been the effects of the organization over its 17-year history and analyzes the political and environmental impacts of those effects. My analysis uses the logic model, created by the Canadian International Development Agency (CIDA), to track the growth and development of the MRC over time. Using the framework of the logic model, my research argues that though effects of the MRC appear marginal and information-based, the organization is following a positive trajectory toward ultimate goal realization.



Presenters: Kathryn Carpenter and Eva Bertoglio
Mentor: Vera Keller

Violence and Graphic Symbols in the Arab Spring

Our research was based on ideas of the public sphere in the last five hundred years that were discussed in HC 232, "Multiple Modernities, Ottoman and Early Modern Europe 1450-present". We chose to focus on revolutions in the Arab Spring, and the body politic concept. We decided to discuss violence in relation to the body politic, and the way violence and violent symbols were employed in the Arab Spring. Drawing upon the ideas of the German sociologist Jurgen Habermas and historian Nina Berman, we analyzed the role of the body politic since the 16th century. We used photos, diagrams, and videos to represent different aspects of the revolutions and violence within them. We found that violence was brought into play by both the governing bodies and the general public, and symbolic violence and physical violence were both used to further the platforms of both parties.



Presenters: Zeph Schafer and Mark Plumlee
Mentor: Vera Keller

Wael Ghonim: Symbolic Figure vs. Representative Publicity

This study emerged from an honors college seminar examining how public spheres began to form throughout the premodern era. Our research was informed by works such as German sociologist, Jurgen Habermas. Habermas proposed the idea of representative publicity to discuss the relationship between symbolic individuals and an emerging publicity. Informed by Habermas's theories, we discussed the symbolic personhood of Wael Ghonim on the Egyptian revolution. As a symbolic figure who gave a face to the revolution, his release from jail played a pivotal role in the ouster of Hosni Mubarak. We looked at news articles and videos of the Revolution, and contrasted Ghonim's role as a symbolic figure with the role of pre-modern monarchs in public displays of their body. Ghonim's role in the revolution showed the role of a physical body in modern democratic revolutions.



Presenter: Matt Villeneuve
Mentor: Glenn May

The Terminator: The Forgotten Role of Thomas B. Watters in Klamath Termination, 1953-1958

In 1953, the Klamath Indian tribe of Southern Oregon was controversially selected for termination by the US congress as a part of a new program to end the "special treatment" of Native Americans by the federal government. To carry out the details of this process, a man named Thomas B. Watters, former mayor of Klamath Falls, was tapped to serve as the middle man between congress and the Klamath as a private "management specialist." After his arrival on the reservation and demographic research, Watters came to oppose the law he was hired to execute as he felt it was not in the best interest of the Klamath. Three years later, Watters was criticized for his stance by a contingent of the Klamath, Republican members of congress, and former Bureau of Indian Affairs officials, and eventually fired. Using materials from SCUA and the National Archives in Seattle, we will attempt to better understand Watters' role in the process of termination and what his experience suggests concerning the nature of the federal program.

AM Poster Presentations

See the Venue Map (Page 1) for the location of each numbered poster presentation.



1) Presenter: Elena Absalon
Mentor: Li-Shan Chou

Fall Risk in the Elderly and Joint Moments of the Supporting Lower Limb during Sit-to-Walk

Elderly adults suffer a high incidence of falls during daily activity. It is well documented that dynamic balance and muscle strength deteriorate with age. The goal of this study is to compare total support moment and joint moment distribution of the supporting lower limb during the sit-to-walk transition in groups of young, elderly faller and elderly non-faller subjects (≥ 70 years). Force plate and three-dimensional motion analysis data were collected during several trials of the Timed Up and Go test (TUG) to calculate total support moment and joint moments at the hip, knee, and ankle during sit-to-walk. Significant differences between the groups were found in the amount of ankle joint moment produced at seat-off and swing-off events. There were not significant differences in total support moment, hip, or knee moments at these events. However, there seems to be variation in the patterns of the total support moment graphs between the groups. The variation in the ankle moment between the groups identifies the correlation between the torque produced around the ankle and balance performance. The differences in total support moment patterns found between faller, non-faller, and young groups indicate different strategies used to perform the sit-to-walk motion that may compensate for impaired balance. The relevance of this study is that it provides a correlation found between balance performance and joint moment contribution, which would be useful in creating a fall prevention and balance treatment plan.



3) Presenter: Ryan Boileau
Mentor: Hans Dreyer

Ischemia Induced ER Stress in Skeletal Muscle Cells during Total Knee Arthroplasty Upregulates Proteins Involved with the Unfolded Protein Response

Estimated to be performed 3.48 million times annually by 2030, Total Knee Arthroplasty (TKA) is the most common surgery to remediate chronic osteoarthritis in older adults. During surgery, blood flow is occluded to the operative leg resulting in anoxic conditions within the distal tissues. We have previously shown that proteins regulating cap-dependent translation initiation and elongation are downregulated and components of the catabolic and cell stress pathways are upregulated during ischemia and reperfusion. The purpose of this study was to further characterize the effects of anoxia in muscle cells on proteins controlling components of the ER stress pathway, i.e., the unfolded protein response (UPR). Muscle biopsies were obtained at baseline (before TKA surgery), maximal ischemia (before tourniquet release), and reperfusion. Preliminary results suggest an increase in cytoplasmic levels of downstream targets of the UPR (ATF4, CHOP, JNK, and Bcl-2). Further research will elucidate protein targets for preconditioning therapies that may ameliorate the UPR in an attempt to mitigate the substantial muscle atrophy following this increasingly common procedure performed in older adults.



5) Presenter: Megan Brogan
Mentor: Ronald Mitchell

An Environmental Anthropology: The Effects of the Yacyretá Dam on Communities in Misiones, Argentina in Comparison to the Economic and Environmental Well-being of the Pilcomayo River Basin

Do large dam projects create a “sustainable improvement of human welfare” for those directly affected by a dam (WCD 2000, 2)? Scholars have failed to address whether a community suffering from economic hardship would benefit from the construction of a dam, or if there are better means of human welfare development. To determine whether a dam should be built, one must consider the counterfactual: what the community would be like in terms of economic stability, social equality, and environmental sustainability without a dam. This thesis argues that although there may be benefits of leaving a river to run its natural course, the economic gains associated with the implementation of a large hydropower dam bring a greater “sustainable improvement of human welfare” to the community in question (WCD 2000, 2). Despite environmental changes and economic obstacles associated with the Yacyretá Dam, over time, the people that depend on the Paraná River have experienced sustainable development. The initial benefits of allowing a river to run its natural course are the forgone opportunity costs that would be associated with the construction of a dam, such as dam-related downstream and upstream flooding, environmental changes due to the impoundment of the river, construction-induced human displacement, and the overall financial burden of constructing a large dam and funding its operation. However, economic benefits such as job growth and access to electricity have the potential to outweigh these environmental costs.



7) Presenter: Susan Capoccia
Mentor: Jeffrey Gilbert

Effects of Metformin on pro- and anti-angiogenic factor secretion by placental trophoblast cells

Maternal endothelial dysfunction, a primary characteristic of hypertension during preeclampsia is thought to arise from excess production of anti-angiogenic factors such as soluble fms-like tyrosine-1 (sFlt-1) and soluble endoglin (sEng), by the ischemic placenta. We and others have reported increased levels of sFlt-1 and sEng in rats with reduced uteroplacental perfusion pressure (RUPP)-induced hypertension and in preeclampsia. While our lab has recently found administration of an adenosine monophosphate kinase (AMPK) pathway agonist restores VEGF levels in the RUPP rats and attenuates angiogenic imbalance, the exact mechanism underlying this observation remains unclear. We hypothesize that stimulating the AMPK pathway via metformin (MET) will attenuate hypoxia-induced increases in sEng and sFlt-1 and promote VEGF secretion. Placental cells were incubated at 20% O₂, physiological normoxic 8% O₂ and hypoxic 1.5% O₂, and treated with MET at 0mM, 50mM and 500mM for 12 and 24 hour periods. Our findings show MET increased VEGF and sEng in JEG cells at all O₂ concentrations. sEng levels increased in the hypoxic JAR cells compared to 20% O₂ and 8% O₂ and MET decreased these levels. Further studies will determine if the placental MET induced AMPK signaling pathways are similar to those in skeletal muscle. Although MET had differential effects on placental cells, the overall ratio of angiogenic factors may be restored, leading to angiogenic balance and relief of endothelial dysfunction via stimulation of the AMPK pathway.



9) Presenter: Matthew Crocker
Mentor: Li-Shan Chou

An Analysis of Temporal Distance, Executive Function, and Reaction Time Following Concussion

The purpose of this study was to investigate how the gait of high school concussed subjects changes from the time of injury to 2 months post-concussion as well as assessing their reaction times to a Stroop reaction task in static and dynamic conditions. During the auditory Stroop task, the participant was required to listen to a computer generated word (“high” or “low”) that was spoken in either a high or low pitch. The goal for the participant was to answer the pitch of the word rather than the actual word produced by the computer. Twelve concussed subjects were identified by an athletic trainer and then matched by age, height, and weight with 12 controls. They performed 3 tasks: single task walking (walking in a straight line as normal as possible), dual task walking (walking in a straight line while performing an auditory Stroop task), and an auditory Stroop task while seated. Temporal distance parameters (stride length, stride width, and gait velocity) were calculated using a 10 camera motion analysis system. It was hypothesized that concussed subjects would prioritize when performing a dual-task; their gait would become more conservative in order to respond to the Stroop task. When the concussion subjects responded to the Stroop task, their gait velocity and stride length decreased and stride width increased in relation to single-task walking trails. This study is significant in that people of ages 15-19 years old are more prone to suffering a concussion than any other age group.



11) Presenter: Haley Gillham
Mentor: Jeffrey Gilbert

Pravastatin Attenuates Preeclamptic-like Symptoms in Rat Model of Pregnancy-Induced Hypertension

Preeclampsia is a pregnancy-specific condition characterized by an imbalance of circulating angiogenic factors and new onset hypertension. Although current treatment options are limited, recent studies suggest pravastatin may improve the angiogenic profile and reduce blood pressure in preeclampsia. We hypothesized pravastatin administration would increase VEGF and reduce arterial pressure (AP) in rats with reduced utero-placental perfusion pressure (RUPP)-induced hypertension. On day 14 of pregnancy (21-day term), silver clips were placed on the inferior abdominal aorta and ovarian arteries to generate RUPP-hypertension. Pravastatin (RUPP+P) was administered i.p. (1 mg/kg/day) through day 19. On day 19 AP was measured via catheter and conceptus data recorded. Blood pressure was increased ($P < 0.05$) in RUPP compared to normal pregnant (NP) dams and pravastatin ameliorated this difference (118 ± 3 vs 91 ± 2 vs 109 ± 2 mmHg). RUPP decreased plasma VEGF when compared to NP dams and this was attenuated by pravastatin (759.8 ± 52.3 vs 924.1 ± 43.6 vs 969.5 ± 85.3 pg/mL; $P < 0.05$). To identify the exact role of pravastatin in restoring angiogenic balance in placental ischemia we will perform further experiments in placental cell lines JAR, JEG-3, and BeWo. These cells will be treated with physiological hypoxic, normoxic, and supraoxygen concentrations of 1.5%, 8%, and 20% respectively. Cells will be treated with pravastatin (0, 10, 20 μ mol/L) and samples of conditioned media and cells will be taken at 0 hours, 6 hours, and 12 hours.



13) Presenter: Alexandra K. Hartman
Mentor: Michael S. Wehr

Sound-evoked Response Properties of Parvalbumin-expressing Interneurons in Mouse Auditory Cortex: Implications for Inhibitory Gain Control

In auditory cortex, sounds are encoded by neurons 'tuned' to specific acoustic features. The sound-evoked response properties of these cells are powerfully shaped by inhibitory synaptic input. All cortical inhibition is provided by local interneurons, which comprise <20% of the cortical population. In contrast to excitatory neurons, inhibitory interneurons can be separated into numerous morphologically and neurochemically distinct subclasses. Little is known about the sound-evoked response properties of different types of inhibitory interneurons, as conventional in vivo recording techniques provide limited information about the identity of recorded neurons. Here, we identified neurons as members of the Parvalbumin (PV) expressing inhibitory subclass through light-activation of an optogenetic 'tag' (channelrhodopsin-2), and measured their receptive field properties. In mouse visual cortex, PV neurons are found to be broadly tuned for orientation and respond more gradually to increasing stimulus intensity than principal neurons. In contrast, our preliminary results indicate that auditory PV neurons are well-tuned for sound frequency and have significantly steeper intensity-response functions than principal neurons. Recent studies have shown that PV interneurons in both cortices function to modulate the gain of principle cells without affecting their tuning. The differences we observe in their response properties may allow them to scale tuned responses in auditory and visual cortex, in identical ways.



15) Presenter: Tayson Heward

Mentor: Andy Karduna

Movement Direction and Shoulder Orientation Alter Elbow Joint Position Sense

Proprioception is the body's ability to sense its position and movement without visual input. Proprioception of the elbow and shoulder has been shown to be most accurate when elevation or flexion angles are at 90 degrees. Investigations in shoulder orientation and movement direction may lead to a better understanding of what is playing the largest role in this heightened sense at 90 degrees. This study looks at the effects of shoulder orientation and movement direction on elbow joint position sense (JPS). With an aim to look at what is increasing proprioceptive acuity as you increase flexion angle to 90 degrees, we predicted that an increase in shoulder orientation would increase elbow JPS, but movement direction would have little effect on JPS. Subjects had the same 3 target angles; 50, 70, and 90 degrees, that the subjects would memorize their elbow position then actively mimic the position. There were two different 2-way interactions found; one between angle and orientation, and another between movement direction and shoulder orientation. This indicates that elevating your shoulder to 90 degrees increases elbow JPS. Also, extension at the elbow may be lead to better elbow JPS than flexion, yet shoulder orientation possibly negates this effect. Analysis is ongoing and further conclusions are in development for this study.



17) Presenters: Jessica Jang, Sophie Tomczyk and Hayley Standage

Mentor: Bruce Bowerman

The Genetics of Cell Division in *C. elegans*

Cell division plays a crucial role in the development of life. The Bowerman lab focuses on the cytoskeletal development and regulation in *C. elegans* embryos. We use genetic screening for *lin-2* and temperature sensitivity to select a viable set of mutants suitable for phenotypic analyses. DIC video microscopy documents time-lapse videos of mitosis in these mutant embryos. Strains with consistent mutant phenotypes, referred to as high penetrance, are submitted for further study. Mutants are categorized into phenotypic classes including osmotic sensitivity, PI delays, meiotic mutants, and specific cell division defects. Following categorization of mutants, we will perform tests for dominance and complementation to verify if the allele already exists in our database. Complementation tests are not necessary for mutant strains with multiple phenotypic defects. However, if complementation test are performed and show that the allele does not already exist, DNA from the strain is isolated and sequenced in order to identify a new gene in the *C. elegans* genome. Ultimately, we are looking for the genes necessary for cell division. The study of this species can help reveal valuable information about the genetics of cell division in other organisms, particularly in humans.



19) Presenter: Michael Kado

Mentor: Li-Shan Chou

Gait Performance While Performing Cognitive Tasks Continuously in Concussed High School Athletes

Approximately 136,000 sports related concussions or mild traumatic brain injuries occur in the high school population annually. This study aims to further understand the initial deficits exhibited in the first 72 hours post injury. We hypothesized that the concussed individuals would walk with slower gait velocities and produce slower reaction times when compared to the control subjects during static and dynamic continuous Stroop testing. Motion data was collected using 29 reflective markers and a 10-camera motion analysis setup. The auditory Stroop task consisted of a computer that presented the word, high or low either in high or low pitch. The subject was then asked to declare which pitch the word was presented in, while ignoring the actual word announced. Each trial was presented in increments of four continuous presentations. For concussed subjects significant differences were detected in the gait velocity between level walking and walking while performing concurrent auditory Stroop tasks. This may be due to injury to a region of the brain that is susceptible to injury within 72 hours post concussion. We observed that tests that include divided attention and walking

may give an indication of cognitive disturbances experienced post concussion. In the future this finding may be used to assist clinicians with the diagnosis of concussion.



21) Presenter: Jennifer Klein
Mentor: Kim Sheehan

A Look into the Growing Trend of Experiential Marketing and an Evaluation of Measurement Metrics to Determine a Campaigns Success

With the changing media landscape and proliferation of advertising and marketing messages comes a rising need for marketers to reach consumers in new and interesting ways. The growing practice of experiential marketing offers a way for consumers to experience a product in hopes of developing an emotional connection or positive opinion of the product or brand. This thesis concretely defines the practice of experiential marketing and then proposes a metrics system that will measure the success of campaigns in this growing discipline. Through case study analysis, this thesis presents a concrete set of components that are essential to the experiential genre. The need to measure the success of experiential campaigns relative to other media outlets is a rising concern for marketers. However, there are no widely used metrics systems currently in place. This thesis utilizes qualitative interviews with industry professionals and proposes a two-step metrics approach to determine the success of experiential campaigns.



23) Presenter: Tyler Lantz
Mentor: Helen Southworth

Woolf and Tolkien: The Significance of Literary Illustration

British essayist and novelist Virginia Woolf (1882-1941) was a notable literary presence in the Modernist literary movement of the early 20th century. In her 1919 short story *Kew Gardens*, Woolf's texts are accompanied by her sister and acclaimed artist Vanessa Bell's illustrations. Bell was a critically acclaimed painter of the time, and was often compared to male artists of her time, such as to the painter William Blake by critic Diane Gillespie in her 1988 essay "The Sister's Arts". The importance of illustration to Woolf's writing can be compared to J.R.R. Tolkien's self-illustrated 1937 fantasy novel *The Hobbit*. There are some notable similarities between Tolkien and Woolf's motivation for including illustrations in their works. First, both Tolkien and Bell's simple ink drawings provide a subtle guidance to the stories without compromising the imagination of the reader. Second, both sets of illustrations provide a distinctive accompaniment to the tone and intentions of the works. Woolf's friend and colleague Roger Fry addresses the significance of literary illustration in his 1926 "Transformations: Critical and Speculative Essays on Art".



25) Presenter: Braden Larson
Mentor: Charles Kimmel

Shaping the Face: Genetic Interactions in Zebrafish Jaw Development

Development of the jaw skeleton can be divided into three stages: (1) migration of neural crest cells, precursors of jaw skeletal cells, (2) aggregation of neural crest cells into pharyngeal arches, and (3) differentiation of pharyngeal arch cells into skeletal cells. Signaling between cells is instrumental in all three stages. One signal, Endothelin-1 (*edn1*), is known to be required for lower jaw development in zebrafish. Work in mice has shown that the signaling molecule Fibroblast growth factor-8 (*fgf8*) is required for proper *edn1* expression, motivating the following hypothesis: *edn1* and *fgf8a* genetically interact in zebrafish jaw development. / We tested this hypothesis by generating fish that carry mutations in both *edn1* and *fgf8a*. These fish are missing cartilage cells from their upper jaw, a phenotype not present in either single mutant. To investigate the cause of this phenotype we examined cells of the pharyngeal arches. We found that the first arch, which is the precursor to the lower and upper jaw, to be dysmorphic. We then examined neural crest cell migration. While migration appeared normal, neural crest cells failed to aggregate into the intermediate region of the first arch in double mutant fish, placing the manifestation of the double mutant phenotype in stage two of jaw skeleton development. Our findings suggest a novel genetic interaction or synergy between *edn1* and *fgf8a* in which they function to promote aggregation of neural crest cells into the intermediate region of the first pharyngeal arch.



27) Presenters: Tyler Mavichien and Regan Greenhill
Mentor: Matt Hogan

Hold the Door! Preventing Mildew in a Shower Room

When a sign stating to leave the door open after showers to prevent mildew was placed on the door to the shower room in a campus residence hall, residents wondered why it was necessary especially because of the multiple air vents located in the shower room. The question formed from this observation and the basis of our case study was: would leaving the door to the shower room open lower the rate of humidity more than leaving the door closed? We tested the intake rate of the vents and measured the humidity the

showers created with Hobo U12 Datalogger. After surveys of the residents were conducted to find the average length of the shower, 12.5 minutes, three scenarios were tested. First, running the shower for 12.5 minutes with the door closed the entire time and leaving the door closed 30 minutes after water has stopped. Second, running the shower for 12.5 minutes with the door closed the entire time then opening the door for 30 minutes after water has stopped. Third, a worst-case scenario of running all three shower heads at the hottest setting for 15 minutes with the door closed the entire time and leaving the door closed 40 minutes after water had stopped. Finally, a long term test was conducted over five days measuring regular usage. Our results showed that humidity levels did not stay above 60% for more than an hour, the level at which mildew starts to grow. Our case study proved the intake vents are effective in preventing mildew from growing and the added sign is unnecessary.



29) Presenter: Jordan Millar
Mentor: Jason Germany

Culinary Study Developing Luxury Kitchen Appliance for the Middle Class

We focused on creating food related products. I chose a method of cooking called sous vide which enables molecular gastronomy style cooking. A sous vide is a style of cooking food in a water bath inside of vacuum sealed bags which helps maintain nutrients while cooking food perfectly. The sous vide is currently limited to high-end restaurants and the wealthy, and is not affordable for the average consumer. I designed an affordable sous vide for the middle class and created a fully functional model. The benefits of the sous vide include that it slow cooks food to perfection, it is easy to use, is safer than other cooking methods and it brings families together to prepare restaurant quality food in the home. I created the model using a laser cutter, vacuum former, foam modeling, glass grinding, 3D printing, CNC and silicone molding, and wiring components. Using simple parts and a compact construction, I was able to create a functional sous vide that is affordable for home use that is easy to use and aesthetically pleasing, while enabling the highest quality cooking results.



31) Presenter: Kyle Morgan
Mentor: Don Tucker

Mapping the Human Primary Somatosensory Cortex Using Dense-array EEG: An Analysis of the Somatosensory Evoked Potential

In principle, dense-array EEG (dEEG) technology has the ability to localize cortical brain activity with adequate spatial resolution such that anatomically and functionally distinct regions can be studied. The present study employs dEEG to map activity of the primary somatosensory cortex (SI), which is functionally and anatomically defined. EEG recordings were acquired from 10 participants as their thumbs were stimulated by a custom-made piezoelectric stimulator. Early components of the somatosensory evoked potential (SEP), which reflect activity from SI, were evaluated in individual participants to assess topographic distribution at the scalp. In a subset of participants, we build high-resolution electric head models that describe how current propagates from the cortex to the scalp surface, where the SEP is measured, and we use this model to localize the early SEP components. We report on the localization accuracy relative to the expected location (SI).



33) Presenter: Emma Newman, Gritz Kuhn, and Kate Vannelli
Mentor: Kathryn Lynch

Environmental Leadership Program Canopy Connections Environmental Education Program 2012

Canopy Connections is a project of the Environmental Leadership Program (ELP), which is a service learning program housed within the Environmental Studies Program at the University of Oregon. Eight undergraduates worked with faculty and community partners to create environmental education programs for middle school students from eight different classes from around Lane County. Canopy Connections is a partnership between the ELP, the H.J. Andrews Experimental Forest, and the Pacific Tree Climbing Institute. The Canopy Connections program was set up to give the undergraduate team an opportunity to develop day long field trips based on the theme of people and plants to teach environmental education to middle school students. The goal for this project was to educate middle school students on the fundamentals of ethnobotany through immersion in the Willamette National Forest. Undergraduate students developed their skills as educators by gaining first-hand experience with environmental education curriculum development and implementation, while also improving their collaboration, communication and leadership skills. This report highlights aspects of the Canopy Connections 2012 program. The field trip was set up as four "quests," which are a type of scavenger hunt that together formed a comprehensive environmental education program. The undergraduates facilitated the quests at the HJA Experimental Forest by working alongside middle school students to answer questions about flora.



35) Presenter: Jennifer Paternostro
Mentor: Dare Baldwin

A Look at the Development of Action Segmentation in Children and Adults

In order to process and understand events as they unfold, adults break down events into smaller parts. For example, the process of making a sandwich would include big, medium, and small events. A big event would be completing making the sandwich, a medium event would be finishing putting the condiments onto the sandwich, and a fine event would be placing one slice of turkey onto the bread. Adults are readily able to predict the next step in a sequence of actions, such as predicting that the cheese will go on top of the meat in the sandwich example. The present research investigates developmental differences in how humans predict action. We hypothesize that when adults are processing an action sequence, they tend to look longer at the end of that sequence as they actively make predictions about the next step. Children, however, may be slower to predict what will happen next and therefore will have longer looking times at the beginning of each additional sequence. Specifically, this study explores the differences in action segmentation between 3-year old children, 5-year old children, and adults. Participants advanced through a self-paced slideshow of an actor making an ice cream sundae while the computer recorded their looking times to each individual slide. Our findings point to the differences in how children and adults segment and predict action.



37) Presenter: Irina Rapoport
Mentor: Andy Berglund

X-Ray Crystallography of CUG-Containing RNA Constructs with and Without Small Molecules Could Help Develop Therapeutic Agents to Alleviate Myotonic Dystrophy Symptoms at a Molecular Level

Myotonic dystrophy is the most common form of adult-onset muscular dystrophy. DM type 1 is caused by aberrantly expanded CTG repeats in the 3' untranslated region of the DMPK gene. Upon transcription, toxic RNA CUG repeats are formed, which sequester Mbn1 proteins, causing abnormal splicing in cells. Some of these abnormal splicing events have been shown to lead to the disease symptoms. Small molecules that release Mbn1 sequestration from the toxic RNA could alleviate disease symptoms. I am crystallizing CUG-containing RNA constructs with and without small molecules. Crystal structures would provide direct evidence of where and how the small molecules bind the toxic RNA. Before crystallography, the RNA is deprotected, purified by HPLC, resuspended in buffer and annealed. Using Natrix crystallization screens, I test a wide array of conditions for crystal formations. Then, I scale up and vary the most favorable conditions to obtain bigger crystals. Two different RNA constructs, containing three CUG repeats, have crystallized well without small molecules under several conditions. A third RNA construct, with two CUG repeats, formed crystals with a small molecule called JFA12046. To screen for additional small molecules with the ability to disrupt the MBNL-CUG complex, we are running competitive electrophoretic mobility shift assays. Long-term, efficiently designed small molecules could be used as therapeutic agents to treat myotonic dystrophy and other diseases with similar molecular mechanisms.



39) Presenter: Alexander Robinson
Mentor: Hans Dreyer

Dietary Intake and its Effect on Muscle Atrophy Post Total Knee Arthroplasty

Post-operative muscle loss has been singled out as the greatest contributor to long-term strength deficits, explaining 77% of muscle weakness 1-3 years after total knee arthroplasty (TKA). One possible factor contributing to significant and rapid loss of muscle occurring within two weeks of surgery is reduced dietary intake during which our body breaks down skeletal muscle protein in order to liberate amino acids for use as gluconeogenic precursors in the liver. Therefore, inadequate dietary intake may exacerbate muscle loss following surgery. I hypothesize that subjects who maintain a protein intake $\geq .8\text{g/kg}$ or ≥ 2000 calories a day will experience less muscle atrophy following surgery. For this study, subjects completed a total of three 3-day food logs at baseline, 2 and 6 weeks post-TKA. Furthermore, at these same time points bilateral quadriceps muscle volume was determined using MRI. Also baseline and 6-week whole body DEXA scans were performed to determine changes in lean tissue and fat mass. Our preliminary data show at two weeks following surgery caloric and protein ingestion has decreased. Also there is a 16% decrease in lean muscle mass of the quadriceps two weeks after surgery, and this decrease may be partially explained by insufficient dietary intake.



41) Presenter: Samantha Ross
Mentor: Marjorie Woollacott

Inaccurate Grip Predictions for Congenital Amputees' Absent Hand: Evidence of Sensory-dependent Construction of Accurate Internal Models for Motor Planning

To what extent does accurate internal model construction, for motor planning, depend on sensory experience? A previous study showed preserved accuracy of models for traumatic amputees' absent hand (Philip & Frey, 2011). We investigated whether accurate internal models depend on initial limb presence. Five congenital upper limb amputees and matched controls performed two grip selection tasks: overt grip selection (OGS), where participants explicitly grasped a presented stimulus with their intact hand; and prospective grip selection (PGS), where judgments were made for either hand while remaining stationary. Predictive accuracy was

calculated by comparing PGS directly to OGS for intact hand, and to the inversed OGS for absent hand. Amputees did not significantly differ in overall accuracy from controls [$F(1,4)=4.49, p=0.10$], or between hands [$F(1,4)=0.13, p=0.74$]. However, a significant accuracy-orientation pattern for amputees' absent hand, [$F(1,4)=7.908, p=0.048$] was found. This suggests amputee's directly use their intact hand for decisions about absent hand, supporting sensory-dependent construction of internal hand models for motor planning.



43) Presenter: Maithri Sarangam
Mentor: Kryn Stankunas

The Role of Chromatin Remodeling Complex in Valve Development

Congenital heart diseases are one of the most common types of birth defects. Studying the development of this complex organ may provide insight into the causes of such defects. It has been shown that chromatin remodeling complexes play a role in directing developmental processes. They affect expression of genes by modifying chromatin, the DNA-protein complex in the nucleus. One particular chromatin remodeling complex, the BAF complex, has been shown to be important in heart development. We believe the BAF complex is required during the remodeling and elongation phase of aortic valve development. The aortic valve controls blood flow from the heart through the aorta. We used mouse models and complex genetic techniques to study the role of the BAF complex in mammalian heart valve development. Using a cre-lox system, we induced a loss of function of the BAF complex in endocardial cells, which make up the lining the heart, by knocking out *Brg1*, the key ATP-ase required for the complex to function. We then used various histological and immunofluorescence stains to study the resulting phenotype at different time points during the elongation and remodeling phase. The aortic valve phenotypes in the mutant embryos deviated from that of their wild type litter-mates, suggesting that the BAF complex does have a role in this phase of valve development.



45) Presenter: Mirjam Staeb
Mentor: Marjorie Taylor

The Angry Cookie: Adults' and Children's Attribution of Human-like Facial and Emotional Characteristics to Inanimate Objects

Anthropomorphism is the tendency to describe inanimate objects with human-like characteristics. In this study we investigated individual differences in the perception of faces and emotional expressions in inanimate objects (e.g. a piece of toast with a pattern in the placement of raisins that made it look like a crying face). First, we investigated adults' tendency to recognize faces in inanimate objects ($N=32$). The participants were shown pictures of human faces expressing different emotions, objects with features that could be interpreted as resembling human faces, and objects without such features and were asked to describe what they saw in each picture. We hypothesized that the degree to which adults characterized the pictures with human-like attributes would correlate with their scores on the Individual Differences in Anthropomorphism Questionnaire. The results of the adults' study were used to develop a study with children in which they are shown a subset of the pictures and asked "What do you see in this picture?". We were interested whether the ability to see faces in objects could be related to the children's theory of mind, pretend play abilities and individual differences in other aspects of anthropomorphism. There were individual differences in the extent that adults described the pictures in anthropomorphic terms; the children's data are currently being collected.



47) Presenter: Anna Streitz
Mentor: Hui Zong

Analyzing Time of Chromosomal Rearrangement in Glioblastoma

Glioblastoma is the most common and aggressive type of malignant brain tumor. Due to the tumor cell's ability to disperse throughout the brain, their resistance to traditional chemotherapy and high rate of tumor relapse, current research is focusing on determining and designing therapies against the tumor cell-of-origin. In order to determine the cell of origin in these tumors, labeled mutant cells were generated through the use of mosaic analysis with double markers (MADM) allowing our lab to track the entire tumorigenic process in vivo and determine which cell types were giving rise to tumors. It was found that oligodendrocyte precursor cells (OPCs) were the primary cell type to show overexpansion and eventually give rise to a malignant tumor. It was hypothesized that by ablating the OPC cell population, using a genetic tool, one could prevent tumor formation or slow tumor growth. OPC specific thymidine kinase (TK) in conjunction with the drug Ganciclovir (GCV) was used in the hopes of causing OPC death. However, when end stage tumors were analyzed it was found that TK expression had been lost within the tumor cells, but not mutant OPCs outside of the tumor region. DNA analysis showed that the loss of the TK transgene had occurred on a genomic level, suggesting that a region of genomic DNA had been lost. The goal of this study is to characterize when the loss of TK occurs. Analysis of small tumors will reveal if TK loss is necessary for tumor growth or if it is lost as a function of tumor growth.



49) Presenters: Cassidy Ventura, Mason Trinca and Rick Gurule
Mentor: Peg Boulay

MyMcKenzie: Creating a Portrait of the McKenzie River

Through photography and interpretation, as a group of Environmental Studies students in the Environmental Leadership Program, we created a portrait of the McKenzie River. As we have discovered the river and its people, we sought to reflect the river's colors and motion, as well as the many relationships people have with this remarkable place. Our mission is to connect people to the McKenzie River, showing its beauty and how it influences people lives in numerous ways. We accomplished this by allowing people to follow our journey through our website, photo essays and photo exhibit to contemplate their own relationship to this majestic river. The themes represented in our poster and photographs include 'Interaction' showcasing the important roles this river plays in so many of our lives; 'The Changing Colors' devoted to all the colors of the McKenzie River that we experienced; and 'Motion' following the McKenzie River from the rapid falls of Sahalie to the steady waters of its confluence as it is in constant motion.



51) Presenter: Alex Whitebirch
Mentor: Tory Herman

Tramtrack69 Restricts Axon Growth through the Activin Signaling Pathway

Connections between nerve cells are established by the outgrowth of long projections called "axons." The motile end of a growing axon is the growth cone, a dynamic structure of actin filaments and microtubules. We are interested in how neurons downregulate the motility of their growth cones once the latter have reached their final targets. Studying this process may improve our understanding of how neurons control growth cone motility during regeneration after injury. In the *Drosophila* eye, R7 photoreceptor neurons are born in the retina of the fly and project their axons into the optic lobe. The Herman lab has found that the transcription factor Tramtrack69 (Ttk69) is required to prevent R7 axons from continuing to grow even after they reach their targets. Ttk69 is absent from R7s during axon outgrowth but present in R7s as their axons approach their targets. Early misexpression of Ttk69 causes premature termination of R7 axons. We conclude that Ttk69 is both necessary and sufficient to restrict axonal growth. We have found that Ttk69 does so by promoting signaling through the conserved TGF/Activin pathway. Because Ttk69 is known to be a transcriptional repressor, we hypothesize that Ttk69 represses an antagonist of the Activin pathway. Using RNA interference, I will disrupt expression of genes known to antagonize Activin signaling, including follistatin and cripto-like, in R7 cells lacking Ttk69. Suppression of the *ttk69* mutant phenotype would indicate that the gene in question might be a target of Ttk69 repression.

PM Poster Presentations



2) Presenters: Elisabeth Barrar, J.C. Miner, and J.A. Miner
Mentor: Christopher Minson

Impact of Estradiol and Progesterone on Muscle Sympathetic Nerve Activity in Young, Healthy Women

Alterations in muscular sympathetic nerve activity (MSNA) in healthy, young women (<40 years of age) have been seen during the early follicular phase of the menstrual cycle. Furthermore, oral contraceptives have also shown alterations in MSNA in active weeks versus placebo weeks. However, the independent effects of the hormones are unclear. **PURPOSE:** To investigate the independent effects of exogenous estradiol and progesterone on MSNA in young, healthy women. We hypothesized that administration of estradiol would increase MSNA burst incidence and burst frequency and that MSNA would not change with administration of progesterone in young, healthy women. **METHODS:** 18 young, healthy women subjects (BMI 18-25kg/m²) were studied under hormone suppression (with gonadotropin-releasing hormone antagonist). Subjects were studied a second time following 2-3 days of either 0.2mg/day of transdermal estradiol supplementation (n=10) or 200mg/day of oral progesterone supplementation (n=8). On each study day, baseline MSNA in the peroneal nerve was recorded via microneurography for 10 minutes, and burst frequency and burst incidence were calculated. **RESULTS:** Estradiol decreased MSNA burst frequency from 8.39 to 5.40 bursts/min ($p=0.02$) and burst incidence from 14.51 to 9.18 bursts/100 heart beats ($p=0.01$). However, there were no significant differences following progesterone administration. **CONCLUSIONS:** Estradiol, but not progesterone, administration in young healthy women decreases resting baseline sympathetic activity.



4) Presenters: Aaron Boothby and Arman Ameripour
Mentor: Hans Dreyer

Histological Characterization of Changes in Skeletal Muscle during Tourniquet Induced Ischemia and Reperfusion

Orthopedic surgeons often utilize a tourniquet during surgical procedures to minimize blood loss and to maintain a clear surgical field. Current clinical dogma is that tourniquet use for up to two hours has no lasting negative impact on muscle tissue. However, our lab has recently shown that tourniquet use downregulates proteins regulating components of the cap-dependent translation initiation and elongation complex and upregulates proteins regulating catabolic pathways (MuRF1 and MAFbx) as well as stress activated protein kinases (SAPK/JNK). Tourniquet induced-anoxia reduces the rate of muscle cell metabolism. Studies have shown that the resultant ATP deficit leads to failure of the sodium potassium pump and subsequently to the building up of intracellular sodium and chloride ions. This change in ionic concentration causes water uptake and cell swelling. In this study, we used immunohistochemistry to analyze morphological changes in muscle cells resulting from tourniquet-induced ischemia and subsequent reperfusion. We hypothesize that tourniquet use will result in muscle cell swelling. Preliminary data supports our hypothesis. Further research is needed to examine the role that cell swelling may play in post-surgical atrophy.



6) Presenters: Samantha Buckley and Sarah Walker
Mentor: Frances White

Pace of Early Epiphyseal Fusion in Captive Macaca

Epiphyseal fusion is an important developmental indicator in all mammals. Among cercopithecids, the sequence of epiphyseal fusion is known but the pacing of these fusions is uncertain. The pace at which the fusion occurs is a window into the growth of an animal that the fusion sequence alone cannot provide. The pace and sequence of epiphyseal fusion in long bones are reported here from a sample of 23 *Macaca mulatta* from the UO Grand collection, consisting of captive juveniles of known age. We scored 33 epiphyses on 25 bones, including all major long bones, the pelvis, and metapodials. We scored the epiphyses as “0” if there was no fusion, “1” if the joint is fusing, and “2” if the epiphysis has completely fused to the diaphysis. All specimens were scored by two coders to ensure intercoder reliability. Only scores with full agreement were included. Because we scored epiphyses in the process of fusing, we are able to comment on the pace of fusion within *M. mulatta* more than previous studies. Results indicate that metapodial fusion has begun by birth, but continues to fuse until 60 months. Our only explanation for their typical exclusion from fusion charts is because metapodials fuse so early. Additionally, by twelve months, five other epiphyses have begun to fuse: proximal and distal humeral epiphyses, proximal tibia, femoral head, and the greater trochanter. Our results agree with those previously reported by Cheverud (1981). Our sample is younger, allowing us to add new data especially on metapodial fusion.



8) Presenters: Patricia Choi, Naoto Fuji and Vienna Brunt
Mentor: Christopher Minson

A New Model for Cutaneous Thermal Hyperemia

Currently, assessment of cutaneous thermal hyperemia is done by locally heating the skin from a baseline of 33 to 42°C at a rate of 0.1°C/1 s. The purpose of this study was to characterize the hyperemic response using different rates of heating from the traditional protocol, specifically 0.1°C/1s, 0.1°C/10s, 0.1°C/60s, and three target temperatures, 36, 39, 42 °C. Six subjects (3 males and 3 females) within the age group of 22-25 participated in all six protocols. Skin sites were locally heated on the forearm from a baseline of 33°C to three target temperatures at each of the three rates. After an hour of maintaining the target temperature, the three sites were heated to 43.5 °C to attain maximal skin blood flow (SkBF). SkBF was measured with Laser Doppler flowmetry. Data are presented as % maximal cutaneous vascular conductance (CVC), which equals blood flow divided by mean arterial pressure. The new protocol attenuated plateau CVC from 95.3 ± 3.22% of the standard protocol to 33.8 ± 2.69% with 36 C at 0.1C/1s (p < 0.01), 53.7 ± 1.3% with 39C at 0.1C/s (p < 0.01), 29.6 ± 1.5% with 36C at 0.1C/10s (p < 0.01), 45.9 ± 1.7% with 39C at 0.1C/10s (p < 0.01), 25.47 ± 1.3% with 36C at 0.1C/60s (p < 0.01). We suggest that heating at different rates and to target temperatures from the standard heating protocol exhibit different hyperemic profiles.



10) Presenter: Melissa Dollar
Mentor: Paul Dassonville

Autistic Tendencies and Visual Processing: A Local Bias versus a Global Deficit

Past research suggests that individuals with autism spectrum disorders (ASD) exhibit an enhanced locally-oriented processing bias, but have an attenuated tendency to use global contextual cues. In addition, the autistic trait of systemizing has recently been found to predict sensitivity to global contextual cues, where high systemizing tendencies are associated with a decreased tendency to process misleading global context (e.g., visual illusions.) It is currently unclear, however, whether individuals with heightened systemizing drives, such as those with autism, display the same decreased tendency to process context when it provides information beneficial to performance. The current study examined the extent to which systemizing tendencies were predictive of whether individuals could use beneficial global-contextual information in two perceptual tasks. For two different visual tasks we found a significant benefit of the presence of an upright frame (compared to no frame), and no correlation with the autism and systemizing quotients and the extent to which participants benefited from the global context of the frame. These results suggest that individuals with heightened systemizing drives, such as those with autism, can still utilize global information when it is beneficial to performance.



12) Presenter: Jonathan Haller
Mentor: David Hulse

Oregon Health and Science University: A foundation to build upon. “Envisioning a multifunctional urban campus oriented around pedestrian experience and context connections

This is a final comprehensive project for the BLA program, focusing on the design of a medical school campus. The design explores the campus from an urban scale down to detailed focus areas where elements are explored at a fine grain. The methods used break down the design into simple diagrams and build it up to a more complex level of understanding. The project looks at the design from multiple lenses and approaches. The result is a comprehensive look at how a campus is designed and presented in a way for people to understand the design intent. This project is successful in that it has a significant amount of resolution in the time frame of the project. OHSU is a critical part of Portland’s South Waterfront district and this design communicates how the city can benefit from this design as a model for how urban spaces can function.



14) Presenter: Nick Hayman
Mentor: Craig Young

Invertebrate Species Richness on Deep Cobble and Gravel Bottoms off Cape Arago, Oregon

Although conservation of marine diversity is a major goal of an ongoing process to establish marine reserves in the Oregon Territorial Sea, virtually all subtidal studies off Oregon have considered only fishes and the largest invertebrates. Using dredge samples, we assembled comprehensive species lists of sessile and motile invertebrates on cobble and gravel substrata between 50 and 70m depths off Cape Arago, Oregon. The species richness on cobble substratum (112 species) was much higher than species richness on gravel substratum (31 species). Species accumulation curves suggest that we found most of the species on the cobble substratum but that more samples would be required to fully assess the cobble community. Sessile invertebrates were more common than mobile invertebrates. The data also showed significant patchiness, as indicated by between-sample differences. This study shows that sea-floor mapping that does not resolve substratum particle size cannot be used to predict richness of the rocky-bottom community.



16) Presenter: Bennett Hubbard
Mentor: Yvonne Braun

Legislating Identity - Saami Development and Self-Determination in Sweden

The Saami, an ethnic group indigenous to a large portion of land that stretches from Norway into Sweden, Finland, and Russia, have persevered under harsh assimilation regulations enforced by the nation-states in which they have resided in for centuries. While significant improvements have been made, Saami communities within northern Sweden, where some research was conducted, have suffered under legislation that has been deemed “progressive” by the Swedish Riksdag, in which the Saami have no representation. This legislation is both an improvement of previous policies maintained by the Swedish government and yet is still limited in their understanding of Saami identity and culture and presupposes that all Saami communities have the same needs and values. Examples of such legislation include the Reindeer Act of 1971, which recently has served as a catalyst for towns in northern Sweden and the Swedish Supreme Court to forbid Saami reindeer herding in several areas. Industrial growth in northern Sweden has also impacted Saami livelihood and has influenced legal perceptions regarding Saami identity, as shown with Sweden’s reluctance to sign on to ILO Convention 169, which recognizes the rights that indigenous peoples have regarding land use. As such, this legislation of identity has caused much distress for Saami communities, many of which are rural and underdeveloped. This raises questions regarding the role that indigenous peoples have in a democratic society and how legislation can inform those roles.



18) Presenter: Nathan Johnson
Mentor: April DeLaurier

Runx2b Transgene Expressing the Peb2A2 Isoform Shows Spatially Restricted Expression in the Developing Zebrafish Craniofacial Skeleton

Transgenic techniques have revolutionized the study of cellular, developmental, and molecular biology by allowing researchers to visualize the proteins they study in vivo. When expressed in skeletal elements of the zebrafish (*Danio rerio*), transgenes allow us to explore cell behavior and the genetic pathways involved in craniofacial morphogenesis. Here we discuss a *runx2b* transgenic line generated with BAC mediated recombination that expresses 1 of 3 *runx2b* isoforms, *pebp2A2*. As an early gene in specifying skeletal cell identity, *pebp2A2* expression predicts pre-osteoblasts and pre-chondrocytes. *pebp2A2* expression in progenitor cell populations pre-specifies osteoblasts and chondrocytes prior to expression of other known markers in the skeletogenic pathway, such as *sp7*, the earliest marker of osteoblast identity. Through the use of spinning disc confocal microscopy, we describe *pebp2A2*’s spatial and temporal expression in specifying osteoblasts and chondrocytes. Understanding the early specification of osteoblasts will allow us to interpret mutants such as the *mef2ca* mutant – a mutant with ectopic and mis-patterned craniofacial bones. Subsequent research with the *runx2b* transgenic line will help us to elucidate the role of the *runx2b* signaling pathway in ossification and patterning the skeleton.



20) Presenter: Daniel Klee
Mentor: Edward Awh

Does Spatial Attention Influence the Severity of Visual Crowding?

The identification of a target in peripheral vision is severely impaired in the presence of nearby distracting information. This phenomenon is referred to as visual crowding, and it constrains important visual processes, such as object recognition and reading. Although a popular model of crowding attributes perceptual degradation to the compulsory averaging of target and distractor feature values, recent work by Ester, Klee, & Awh (in prep.) suggests that crowding is the result of feature mislocalization and a subsequent “swapping” of target and distractor feature information. Decades of research have shown that when an observer directs attention to the location of a stimulus, perceptual processing of that item is enhanced. Here, we examined the consequences of spatial attention on visual crowding. Our findings show that spatial attention attenuates crowding effects by reducing confusions between target and distractor values. The critical spacing distance for crowding – defined by the largest distance between targets and distractors where crowding is observed – was unaffected by spatial attention. These findings shed light on the basic mechanisms by which visual attention can ameliorate the harmful effects of nearby distractor stimuli.



22) Presenter: Hannah Lakehomer
Mentor: Chris Minson

Characteristics of Menstrual Cycle Manipulation with Combined Hormonal Contraception in a University Student Population

The purpose of this study was to assess the frequency and characteristics of menstrual cycle manipulation with combined hormonal contraception (CHC) among a population of college-age women. A self-administered email survey on menstrual cycle practices and beliefs was distributed to all female students at the U of O. Assessment of participant characteristics, menstrual cycle manipulation

features, and attitudes/knowledge toward CHC was analyzed using standard statistical methods and probit models. Of respondents, 79.9% reported using CHC currently or recently and 20% of these women reported altering their menstrual cycle pattern or using extended cycle regimens to delay/skip their menstrual periods. Of cycle manipulators, 47% indicated that they learned this practice from healthcare professionals, while about 30% indicated their source of information was from family or friends. Women taking CHC for period regulation, of Asian race, on a regular exercise program, and who preferred to menstruate monthly were less likely to manipulate their menstrual cycle. The likelihood of menstrual cycle manipulation increased as female age increased. Women who used the pill, who preferred to menstruate less than monthly, and who felt fairly knowledgeable about their CHC were more likely to manipulate their menstrual cycle. In conclusion, a significant percentage of university-aged women who use CHC choose to manipulate their menstrual cycle and the characteristics of these women may predict probability of this choice.



24) Presenters: Ashlin Larsen, Tyler R. Huycke and Charles B. Kimmel
Mentor: Charles Kimmel

Interactions Between *ihha* and *mef2ca* in Bone Development

Bones form through the differentiation of mesenchymal cells into bone-forming osteoblasts, and multiple genes regulate this process in order to ensure proper bone size and shape. Myocyte enhancer factor 2ca (*mef2ca*) encodes a transcription factor that negatively regulates development of the opercle (*Op*), a craniofacial bone of the zebrafish. Loss of *mef2ca* can lead to ectopic bone growth along the antero-ventral edge of the *Op*, yet the developmental mechanism underlying this process is unclear. We tested whether indian hedgehog (*ihha*), a positive regulator of *Op* development acting in the same region of bone that *mef2ca* negatively regulates, is required for the complete ectopic bone growth seen in *mef2ca* mutants. With fluorescent in situ hybridization we show that expression of *ihha* and *ptch1*, a downstream target of active Hedgehog signaling, is present in ectopic bone growth of *mef2ca* mutants, suggesting that *mef2ca* may regulate *Ihha* signaling to pattern bone. Furthermore, analysis of *mef2ca*; *ihha* double mutant larvae reveals many ventrally reduced bones that resemble *ihha* single mutants; however, many also display the *mef2ca* mutant phenotype. Therefore, although *Ihha* is required for certain *mef2ca* mutant phenotypes, it is not imperative to induce expansion of bone in *mef2ca* mutants, and thus *mef2ca* must impose its negative regulation of bone development by acting through distinct gene networks in addition to the Hedgehog pathway.



26) Presenter: Kirsten Lopez
Mentor: Diane Baxter

Archaeology from Behind the Curtain: The Discovery, Research, and Conservation of Human Remains in Gozo, Malta

“Box 1” and “Box 2”--that was it. That is all that was written on the outside of the boxes that ultimately contained the contents of my research project. In the fall of 2011 I undertook an opportunity to experience museum collections and curation in Gozo, Malta, during an internship offered by IE3 through the University of Oregon. While I had experience working with collections here on campus, the ability to learn cross-cultural differences in storage, display, and perceptions of the past could not be passed up. As I went through my internship assisting with cataloguing of the contents of a storage facility, I stumbled upon these two boxes. With the encouragement of Heritage Malta and the Museum of Archaeology, Gozo, I developed a small project that addressed three questions: where did the remains come from, who were they, and how can we best preserve them for future research? Through an interview with a prior museum administrator, sorting, documenting, and obtaining professional verification on the dating of a diagnostic pot, I was able to discern the location of recovery during 1980/1986, the remains as Tarxien Temple Period (3000 - 2500 BC), the minimum number of individuals (MNI), notable signs of pathology, and a complete rehousing and storage culminating in a written preliminary report. After considering nearby sites and the landscape involved, these remains may also prove to be key in a turning point for prehistoric Maltese archaeology as one of two skeletal collections of the Temple Period.



28) Presenter: Natasha Michalowsky
Mentor: Jason Germany

Interactive Children's Pet Care System

The *vov.vov* system leverages technology and social media to enhance, elevate and expand dog ownership for children. Children are not great dog owners because they lack knowledge about how to train and care for a dog and require assistance from parents to remember to care for their pet. This product empowers children to learn how to be great dog owners through an informational social network and interactive watch. The slap watch is inherently adjustable to any size wrist. There are no sharp edges to cut oneself on or loose parts that could cause a choking risk. Although it is designed with a focus on children ages 7-10, the system will work for a far wider array of ages. The interface is simple and has both images and words to allow children without developed reading skills to use the system. The touch screen interface is intuitive to any age and simple to use. The social network allows the watch to teach more complex skills over time as the data about the child's age is factored into the tasks and information in the watch. Consumers are comfortable with the interaction of the analog and digital worlds, which makes the timing ideal for creating a product to help children with their analog tasks using the technology and interaction they enjoy. Technology has successfully made positive changes in adult lifestyles with products like

the Nike+ watch and this is the opportunity to expand the market to children.



30) Presenter: Hannah Miller
Mentor: Li Shan Chou

The Effect of Muscle Strength on Performance during the Sit-to-Walk Task in Elderly Subjects

Aging results in declines in many physiological functions, which can negatively affect the performance of everyday activities such as moving from a sitting position to walking. This study was intended to determine how decreases in lower extremity strength can negatively influence elderly performance during Sit-to-Walk, putting them at risk for falling. Forty eight subjects above the age of 70 were recruited to perform the Timed-Up-and-Go (TUG) as well as strength tests targeting hip abductors, knee extensors and ankle dorsiflexors. Lower strength subjects took longer to complete the TUG test. Smaller GRFs were correlated with longer duration of TUG, which indicates a decrease in overall performance and a higher probability of falling as a result of poor muscle strength. This study provides an explanation to how muscle strength correlates with performance in terms of GRFs and time.



32) Presenter: Alexander Muhr
Mentor: Stephen Gregory

Pulse Laser Physics: Constructing a Stretched Pulse Fiber Laser and Autocorrelator

Creation of laser pulses in the sub picosecond range has become increasingly important over the past couple of decades as the number of applications for ultrashort laser pulses has expanded. There are a number of ways to create sub picosecond laser pulses; one such method is to use a stretched pulse fiber laser. This method is advantageous because stretched pulse fiber lasers are relatively inexpensive to build, compact, and operate efficiently. For practical purposes, it is also important to be able to characterize and measure sub picosecond pulses, especially their temporal duration. Due to the incredibly short duration of such pulses standard detection methods will not work. A solution to this problem is to use techniques which marginalize the slow response of the detector, one such technique being autocorrelation. This study has identified a number of important features essential to producing both a stretched pulse fiber laser and autocorrelator. At this point in time, we have created a stable stretched pulse fiber laser but have not been able to produce an autocorrelation of the laser pulses. Consequently, we do not exactly know the temporal duration of the laser pulses produced by the stretched pulse fiber laser.



34) Presenters: Colin Oliveira, Daniel Vermillion and Lauren Moore
Mentor: Frances White

Variation of Dental Calculus in Captive Macaques

Dental calculus in nonhuman primates varies with diet, ecology, and immune health. As in humans, monkeys with excessive dietary carbohydrates can accumulate calculus buildup over time, although there is little information on variation of this dental pathology within nonhuman primates. Focusing on the variance between sexes and species, we scored the presence and severity of dental calculus in 91 skeletal specimens of captive adult *Macaca mulatta* (N=33) and *Macaca fascicularis* (N=58). An adult only sample was established to partially control for variance in calculus due to age, adult defined as erupted M3. Calculus was scored on each tooth from 0 to 3, with 0 as "none present" and 3 indicating "over 50% of surface affected". Each side was scored independently. Missing teeth were evaluated for apparent causation of tooth loss. Most teeth exhibited some degree of dental calculus, but all four incisors were the most heavily calcified in both species. The anterior labial surfaces were the most impacted. The frequency of premortem canine removal in our sample prevented us from examining this trait in neighboring dentition. The least calcified were the M3s, probably due to the difference in eruption time between the incisors and the molars. We performed a one-way ANOVA on the total sample, and found no significant difference in calculus buildup between females and males for either species. We did find differences between the two species ($F = 27.63$, $p < 0.0001$) with *M. fascicularis* exhibiting significantly more calculus.



36) Presenters: Tatiana Piazza, Rachel Lytton, Willis Logsdon and Claire Reed-Dustin
Mentor: Peg Boulay

Assessing Relationships between Topography and Species Diversity in Restored and Remnant Wet Prairies

Wetland prairies provide numerous ecosystem services and habitat for native plant species. Our research project examines the relationship between microtopographic variation and native species diversity in six restored and remnant wet prairies in the West Eugene Wetlands. We predict that microtopography is influential in determining plant community composition. Along transects within each previously-established macroplot, we used an autolevel to measure soil surface elevation and water depth. We used a 1m x 1m quadrat frame to determine the percent cover of grasses, forbs, and non-forbs. To measure vegetation and litter height, we used the point intercept method. If the data currently being collected and our primary results support our hypothesis, then reestablishing microtopography

will be essential in promoting native plant diversity and cover in restored wet prairies.



38) Presenter: Howey Richard
Mentor: Li-Shan Chou

Effect of Loading Rates on Metatarsal Stress Fractures

Metatarsal stress fractures (MSF) are some of the most common, most debilitating injuries that athletes experience. Most previous studies have focused on calculating the loading rates using the vertical ground reaction force (vGRF), with inconclusive results. The purpose of this study was to compare metatarsal loading rates in runners with retrospective history MSF and runners who have never sustained this kind of injury. This was done with ten runners, five with a history of MSF and five without. Plantar pressure measurements were collected using the FScan VersaTek wireless system. The runner ran on a treadmill at a self-selected speed that approximated their easy training pace. Thirty steps on each foot were recorded. The data was analyzed using the FScan Research software, then run through a custom LabView program that calculated the maximal force (MF), average vertical loading rate (AVLR), and instantaneous vertical loading rate (VILR). There were no differences in any of the dependent variables between the injured and non-injured feet of the MSF subjects and the matching feet of the control subjects. However, three of the five subjects did show significantly higher values for MF, AVLR, and VILR in the injured foot compared to the non-injured foot. Subject 5 also showed a significant difference between feet, but in the opposite way. These individualized responses, in combination with the small sample size, partially explain the lack of significance in the group analysis.



40) Presenters: Tabatha Rood, Klaree Boose and Frances White
Mentor: Frances White

Left Handedness in a Captive bonobo Group

Handedness in great apes is related to laterality and cognitive development. Previous studies report a right-handed bias in 9 ape studies. This study observed a group of 16 captive bonobos (*Pan paniscus*) at the Columbus zoo that was presented with an artificial, baited termite mound. Data was collected from narrated video tapes taken June 29, 2011 - August 31, 2011. Handedness was recorded for 592 fishing and poking bouts by 14 bonobos. Following prior studies, handedness was defined from the percentage of bouts that were done with only the left hand, with 60% or more being left-handed and 40% or less being right-handed. This study group showed a left hand bias among individuals; 9 with left-handed bias (66.7% to 100% of tasks) and 6 with right-handed bias (39.4% to 0% of tasks). The group showed more left-handed ($n=311$) than right-handed ($n=281$) bouts, with 93 bouts involving both hands. Right-handed bouts were longer in duration, averaging 113 seconds, with left-handed bouts averaging 79 seconds. The frequency of left and right-handed bouts by individuals was compared to an expectation calculated from the 60% right-handed and 40% left-handed criteria from previous studies using a Replicated Goodness of Fit test and found to be significantly different ($G=37.743, p<0.001$) with significant heterogeneity ($G=171.649, p < 0.001$). We conclude that this group of bonobos is predominantly left-handed.



42) Presenter: Max Ryan
Mentor: Patrick Phillips

The Genetics of Speciation in *C. remanei*: Post-Zygotic Isolation and Genetic Incompatibilities

Earth is home to an amazing amount of diversity, but the mechanisms through which new species arise are not well understood. Speciation, the study of these mechanisms, is a relatively young field, with significant research only conducted within the past 30 years. Since the start of this research, a large number of reproductive isolating barriers have been identified that inhibit gene flow between species. One such barrier is known as genetic incompatibility, wherein genes of different species, when mixed together in hybrid offspring, interact negatively. These negative interactions hinder the development of offspring, thus ensuring the two species remain isolated. In this study, we research genetic incompatibilities between two different populations of the soil nematode *Caenorhabditis remanei*. Initial research suggested that genetic incompatibilities arise in the second generation of inbreeding between the two populations, when the process of recombination introduces genes from both genetic backgrounds onto the same chromosome. This result led to further research into genetic incompatibilities between the two populations, focusing on the egg-to-adult viability of ten different combinations of mating crosses. The results of these assays confirm the existence of genetic incompatibilities between these two populations, with the genes likely involved in the incompatibilities located on the X-chromosome. Genome mapping is being conducted to identify possible genes. Through research like this, earth's diversity may be understood.



44) Presenter: Dorothy Siemens
Mentor: Alisa Freedman

Decorated Youth: The Street Fashion Revolution in Japan and the Reordering of Form, Aesthetic, and Identity through Dress

Emerging street fashion trends in 1990s Japan changed fashion and clothing systems not only domestically, but around the world. These rebellious urban youth, and their eccentric styles, have landed Tokyo on the map as a legitimate city of fashion production; challenging the long established European hegemony of sartorial power. Of these styles 'decora' (which literally means to be decorated) stood out with its bright colors, extreme ornamentation, and command of all things cute. This thesis seeks to explore the iconic 'decora' style as a representation of how street fashion in Japan is used as a tool to reorder aesthetics, identity, fashion systems, and the meanings associated with dress. The research of Amelia Groom, Yuniya Kawamura, and Toby Slade are used widely in this study, and the 'decora' style is placed into their theories to better understand fashion and clothing systems, identity, innovation and imitation in a post-modern Japanese context.



46) Presenter: Elizabeth Streeter
Mentor: James Josh Snodgrass

The Indigenous Siberian Health and Adaptation Project: Adiponectin, Body Composition, and Cardiovascular Health among the Yakut (Sakha) of Siberia

Adiponectin is a hormone secreted by adipocytes that is involved in a number of metabolic processes. A decreased production of adiponectin is an important risk factor linking obesity with other cardiovascular risk factors. However, few population-based studies have been conducted on this emerging biomarker, and virtually all existing data come from Western clinical settings. This study, part of a long-term research project focused on the indigenous Yakut (Sakha) of northeastern Siberia, examines potential sex differences in adiponectin and investigates relationships with body composition and blood pressure. The data were collected in 2009 from 255 healthy Yakut adults (≥ 18 years old; 137 females, 118 males) and used to test two hypotheses: 1) adiponectin levels will be higher in females compared to males; and 2) adiponectin will be inversely related to body composition and blood pressure measures. Results indicate a significant sex difference, with greater concentrations in females compared to males ($P < 0.01$). Adiponectin was negatively correlated with several anthropometric parameters, including body mass index (BMI), waist circumference, and percent body fat (all measures $P < 0.01$) among males, and BMI ($P < 0.05$), WC ($P < 0.01$), and percent body fat ($P < 0.01$) among females. However, adiponectin among the Yakut was not significantly correlated with blood pressure in either sex, which raises questions about its utility as a cardiovascular risk marker in this population.



48) Presenter: Jack Thomas
Mentor: Hajo Neis

(Re)generative Process and the Edible City: Ecological Urbanism in Portland, Oregon

The modern city archetype is undergoing drastic change as urbanists and laypeople alike begin pulling the landscape into the world's urban areas, which have in essence, become "edible". Agriculture has undoubtedly shaped the city of Portland, Oregon as the landscape beyond its UGB trickles into the city fabric. Urban farms, sidewalk gardens, and everything in between have popped up throughout the city, offering plant education, social rehabilitation, community interaction, food security, and personal health, among other benefits. With different goals and values, Portland's urban agriculture movement is varied in its intent, yet equal in its significance to a changing urban morphology derived from patterns and occurrences happening within the city limits. In better understanding Portland as a model for how notions of ecological urbanism have been applied both top-down and bottom-up, these discoveries can potentially be applied throughout the world, guiding urban growth and community development that is environmentally sustainable and conducive to both social and physical well-being. Through interviews, precedents, visual analysis, and a theoretical long-term plan for urban agriculture in Portland, a holistic understanding of the city as a complex structure of linked urban patterns can be made. The "Edible City" of Portland can be presented as a model of (re)generative process and ecological urbanism which might have the potential to catalyze in other urban scenarios.



50) Presenter: Kelsey Wahl
Mentor: Hui Zong

Investigation of Supportive Cues in Early Stages of Pediatric Brain Cancer

Medulloblastoma is the most common type of malignant brain tumor in children. During cerebellar development, granule neuron precursor cells (GNPs) proliferate along the external germinal layer in response to the sonic hedgehog signaling pathway. Mutations in the sonic hedgehog signaling receptor patched (Ptc) lead to tumors in the cerebellum through over-proliferation of GNPs. Over 50% of mice with the mutation develop foci of ectopic cells on the surface of the cerebellum between 3-6 weeks. Observations suggest that the ectopic cells may represent a pre-neoplastic stage of medulloblastoma. Although GNPs are unipotent progenitors that only give rise to granule neurons, lineage tracing studies in our lab have indicated that tumorigenic GNPs can also differentiate into glial cells. To further understand this fate switch and determine if it occurs prior to tumor formation, we looked for glia presence in Ptc pre-neoplastic lesions (PNLs). The appearance of glia cells in the earliest stages of tumor formation could provide insight into their potential supporting role in the tumor and in tumor cell transformation.



52) Presenters: Rebecca Winard and John Rogers
Mentor: Peg Boulay

Monitoring and Ranking Western Pond Turtle Habitat throughout the Bureau of Land Management's Eugene District

The 2011 Turtle Conservation Team ranked sites that were likely to have existing turtle populations, as well as some previously unevaluated ponds. We evaluated sites in the Eugene district of the Bureau of Land Management (BLM). The goal of the project is to gain a better understanding about where western pond turtles occur in the southern Willamette Valley, and the locations of suitable habitat, so that the species can be protected from the variety of threats they face. The team scored the overall quality of the sites visited and reported the findings to the BLM. The team also conducted basking surveys to monitor the populations of western pond turtles on selected suitable habitat sites. Turtles were only observed at Mosby Pond. Man-made sites like this have high potential for restoration work to create suitable habitat for western pond turtles.

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