

2015 Senior Project Abstracts

Abraham, Stephanie
Art

Project Advisor:
Flory, J.

People of Bus 57

The purpose of this photo project is to display and question the social boundaries that exist in public transit. To accomplish this, I collected images and information of passengers riding Bus 57 from Hillsboro to Forest Grove. I will also discuss the value of the different photographic techniques used in this project from the simple pinhole camera to the modern digital camera. The viewer should walk away questioning why they do not engage in conversation with unfamiliar individuals more often.

Agena, Aymie
Anthropology

Project Advisor:
Greer, A.

I Am a Woman Now:

Health Conceptualizations Within the Mexican American Community

My senior research project focuses on how Mexican-American women conceptualize health and health status through the practice of folk medicine, herbs, and religion. The methods that were used include semi-structured interviews, participant observation, and non-participant observation. I conclude that the health status of Mexican-Americans is spiritually conceptualized upon specific illnesses and formulated within the notion that good health makes you a more capable woman because you are exhibiting similar qualities to the Lady of Guadalupe. Acquiring bad health interferes with maintaining their familial obligations and relationships. My results illustrate applied implications suggesting we learn to treat our health seekers through a cultural lens. Doctors should treat patients by staying attentive toward Mexican-American barriers such as language illiteracy, immigration status, and the recognition of mental health as a disease. The interaction between health status and culture contributes to the discipline of medical anthropology because it critically thinks about our recurring social inequalities and social processes that exist within this world: gender, religious intolerance, and poverty.

Agena, Cyan
Exercise Science

Project Advisor:
Henry S.

Efficacy of Immediate, Post-Exercise Foam-Rolling for Alleviating the Severity of Delayed-Onset-Muscle-Soreness

Exercise-induced muscle damage (EIMD) is a common phenomenon resulting from stressful, unaccustomed exercise damaging the functional units of muscles. Delayed onset muscle soreness (DOMS) is one manifestation of EIMD. Manual therapy, such as massage, has been shown to reduce the symptoms of delayed-onset muscle soreness (DOMS), perhaps via myofascial release. Another related version of manual therapy, foam rolling, has become popular in recent years. Affordable and commonly available to the public, foam rollers allow, within reason, a person to self-apply the treatment. Although some effects of massage therapy on DOMS are well documented – such as decreased muscle stiffness and decreased perceived muscle pain – the impact of foam rolling on DOMS has only been investigated in one study to

date. **Purpose:** To investigate the efficacy of foam rolling for treatment of DOMS. **Methods:** Using a dolorimeter to determine muscle sensitivity via a pressure scale, participants' baseline sensitivity values (both legs) were assessed. After participants completed a DOMS-inducing regimen for both legs, a foam rolling treatment intervention was applied within 30 min to only one leg (experimental leg). Using a within-subject design, the participant's legs were randomly designated as either the control leg (non-foam rolled) or the experimental leg (foam rolled). Post testing, at the peak of DOMS, occurred at 48 +/- 6 hours after the exercise regimen. The post-test sensitivity measures were conducted identical to the pretest measures. Repeated measures two-way ANOVA compared pretest and post-test (baseline vs. DOMS), control and experimental (non-foam rolled leg vs. foam rolled leg), and interaction. **Results & Conclusions:** To be presented.

Akiyama, Paige
Biology

Project Advisor:
Searcy, B.

An Analysis of the Relationship Between Dioxin Exposure and Diabetes

Diabetes mellitus, a disease associated with abnormally elevated levels of blood glucose, is a chronic illness that is seen in many individuals worldwide. The incidence of diabetes has been rapidly increasing over recent decades, and no clear cause has been identified. In addition to examining dietary factors, researchers have begun to investigate exposure to endocrine disruptors as a potential cause as well. Over the course of history there have been many incidents of environmental dioxin release that have resulted in human exposure, most famously occurring during the Vietnam War, when dioxin was used as a component of Agent Orange, a defoliate that was widely used by the United State Military. Multiple studies have examined Vietnam War veterans to determine whether their increased exposure to dioxins, specifically tetrachlorodibenzo-p-dioxin (TCDD), elevated their risk of developing diabetes. This review will summarize these studies and evaluate the overall risk associated with TCDD exposure on diabetes incidence. Several cohort and experimental studies reported inconsistent and controversial results. A consensus about the risk of developing diabetes following TCDD continues to be elusive, and therefore more studies are needed to truly define the potential risks associated with this compound.

Anthony, Blake
Physics

Project Advisor:
Dawes, A.

Quantum State Tomography

Data rates in electronics are reaching their peak which is causing a shift towards using light to carry information in technology such as computers and televisions. The goal of my project was to develop a technique to determine the spatial frequencies present in a beam of light. One current method of storing information in light is to send it through a gas such as rubidium. To understand the effects of the rubidium gas on the information contained in the light, we modeled light going through the gas using Maxwell's equations. Then we used an array of light detectors to create an intensity graph of two light beams coming onto the detectors at an angle of 12 mrad. The first beam was a high intensity beam with one spatial frequency mode while the other beam was a low intensity beam comprised of multiple modes. From the interference of the two beams, we extracted the modes present with the Discrete Fourier Transform in order to see how the spatial frequencies were affected by the gas.

Anthony, Blake
Math

Project Advisor:
Guenther, C.

Quantum State Tomography

Data rates in electronics are reaching their maximums which is causing a shift towards using light to carry information in technology such as computers and televisions. The goal of my project was to develop a technique to determine the frequencies present in the light. The method of storing information in light is to send it through a gas such as rubidium. To understand the effects of the rubidium gas on the information contained in the light, we modeled light going through the gas using Maxwell's equations. Then we used an array of light detectors to create an intensity graph of two light beams coming onto the detectors at an angle of 12 mrad. The first beam was a high intensity beam with one frequency mode while the other beam was a low intensity beam comprised of multiple frequency modes. From the interference of the two beams, we extracted the frequency modes present with the Discrete Fourier Transform in order to see how the frequencies were affected by the gas.

Arbogast, Sean
Carrillo, Eddie
Psychology

Project Advisor:
Kleinknecht, E.

I Feel You! Effects of Temperature on Social-Cognitive Judgments

Social interactions run on the judgments we make about others which are made constantly whether we know it or not. Social Judgments are an active social perception process to evaluate a social situation. Our present study is looking to build on past research that has shown how physical temperature can affect an individual's use of concrete language, feelings on social proximity, and relational focus. In the present study we build off this premise by looking at how hot, cold, or neutral body temperatures affects an individual's perception of a new acquaintance, recollection of an autobiographical memory, and perception of themselves. Based off past research, we predict that warmer temperatures will cause participants' social-cognitive perceptions of the self, a friend, and an autobiographical memory to be more positive than colder temperatures, which will cause participants social judgments to be more negative.

Archer, Ross
Sociology

Project Advisor:
Eisen, D.

Underground Music and its Hip Consumers

This study examines how early adopters, individuals on the cutting edge of the underground music scene, understand and interact with music. Although companies and record labels are often the curators of what we listen to on the radio and in movies, much of the music that we listen to did not have its roots in the recording room of a multimillion dollar producer. Early adopters can be influential in helping artists gain popularity amongst early adopters and the general public. Data was collected through in depth interviews with early adopters in the Portland Metro area. Interviews focused on participants' views of underground music, mainstream music, and sharing music. Analyses show that early adopters are constantly searching for new music, often through online networks (e.g., blogs) that showcase a large amount of underground content. For early adopters, the knowledge and consumption of underground music operates as cultural capital, providing the individual who knows newer and less well known tracks or artists with more prestige.

LaVoie, Britta
Areta, Una
College of Education

Project Advisor:
Zijdemans B.

Scaffolding Reflective Activities to Promote Student Learning and Critical Thinking

The goal of our capstone project was to examine types of reflective activities and ways of scaffolding critical thinking in students in the elementary classroom. Through research we determined that effective reflection on learning helps students think critically as they connect and transfer their knowledge to context outside of the classroom, and increases their engagement and enjoyment in the learning process. We worked with the teachers of the 5th and 6th graders at Forest Grove Community School who showed concern in helping students become more engaged in their reflective practices. Data collected over a 5 week period included, observational field notes, teacher surveys, and a collection of past written reflections by the students. Our research resulted in two key findings: 1. Students need to be scaffolded to develop their ability to think more critically, on a deeper level, and creatively; and 2. Teachers identified that they would benefit from having a scaffold for developing reflective activities. After concretely defining our concepts of learning, creativity, and reflection, we developed a Teacher evaluation rubric and Student evaluation rubric for both the students and teachers to measure the effectiveness of the activities. The teachers can use the rubrics to create, analyze and make improvements on their reflective activities while the students can use the rubrics to understand the objective of the activity and also meet or set goals for themselves. We will conclude our study by evaluating the effectiveness of these rubrics in practice in the classroom.

Asuncion, Meddie
International Studies

Project Advisor:
Eisen, D.

Understanding the Filipino Culture through Traditional and Modern *Tinikling* Dances

Previous research has demonstrated that Filipino youth often develop pride in being Filipino through participation that enable one to assert a Filipino identity. For some individuals this cultural activity is dance—watching, learning, or participating in *Tinikling*. Through observation and interview data, this study compares the experiences of individuals who participate in Pacific University’s Luau segment on Tinikling and individuals from Hawaii Pacific University and the University of Hawaii from a group called Tekniqlingz, who also perform the dance. Both groups include people from Hawaii, yet perform the dance in different environments. This comparison provided insights about the need for people to learn about their Filipino identity in Hawaii and in Oregon. Both groups viewed the dance as a medium to learning about Filipino culture and identity and the way that both groups reconstructed the dance with popular music expressed a want for modernity and contemporary iterations of the dance. Ultimately, by focusing on the notion of invented tradition, reclaiming identity, ethnic self-realization and fostering a cultural identity through performance, this study provides insight into the experience of Tekniqlingz and Pacific University Luau participants.

Avila, Zanny
Biology Department

Project Advisor:
Baughner, P.

Heat Shock Proteins as Adjuvants for Dendritic Cancer Cell Vaccines

Cancer treatments have evolved from conventional therapies to treatments such as immunotherapy. Immunotherapy is the use of the body’s own immune system to fight off cancer. The key is to evoke a strong enough immune response so that the body will recognize cancer cells and eliminate them. Dendritic cells (DCs) are the best Antigen Presenting Cells (APCs) of the immune system and activators of T cells. Research shows that targeted dendritic vaccines have effectively reduced tumor size and increased survival rate of treated mice, because more T cells are activated and attack cells that present that antigen. DCs are targeted by exposure to tumor antigen before vaccination. Evidence suggests that these vaccines have been improved by the use of Heat Shock Proteins (HSPs), which bind to tumor antigens and aid in their transport to

dendritic cells. Evidence shows a significant difference in tumor size and survival rate between treatment of targeted DC vaccines with and without HSPs. The use of HSPs in immunotherapy has been shown to be successful in mice models, and thus opens doors for exploration in human models.

Baba, Patrice
Chemistry

Project Advisor:
Chan, J.

Characterization of Copper I Binding in NosL

Denitrification is the process of reducing nitrate to gaseous nitrogen. Nitrous oxide reductase (N₂OR), a copper containing protein, is a critical enzyme in this process. NosL is an accessory protein of N₂OR, and is known to bind one copper(I) ion by ligation to three NosL amino acid side chains, two of which are proposed to be sulfur ligands. While NosL's function remains undetermined, it is known that it is not involved in electron transport in the reduction of nitrous oxide. It is suspected that NosL may be a metallochaperone that is essential to N₂OR active site formation under conditions of low copper availability. In order to identify the NosL ligands to copper(I), site-directed mutagenesis was used. The codon for cysteine-24 was mutated to the codon for alanine in both the gene for wild type NosL, and the gene for NosL with methionine-26 changed to leucine. Optimization of the polymerase chain reaction utilized to achieve site-directed mutagenesis required the addition of 0.6 – 0.9 mM MgCl₂.

Bailey, Katelyn
Biology

Project Advisor:
Halpern, S.

The effect of drug policy on the evolution of chloroquine resistance in *Plasmodium falciparum* malaria

Malaria is a blood-borne disease caused by parasites in the genus *Plasmodium*, the most deadly of which is *P. falciparum*. The most efficient and cheapest drug to fight malaria is chloroquine. Chloroquine works by entering the digestive vacuole of the parasite in high enough concentrations to inhibit the breakdown of heme, which is toxic to the parasite. Unfortunately, *P. falciparum* has evolved resistance to chloroquine in many geographic locations. Chloroquine resistance can arise from a mutation in the genetic sequence for a specific transporter protein that occurs in the membrane of the vacuole resulting in transport of the chloroquine out of the vacuole. The mutation is caused by a single nucleotide polymorphism of a lysine (K) to a threonine (T) at position 76. This mutation is believed to come at a cost for the parasite in the absence of chloroquine, meaning that if the drug is withdrawn from a country, there is a good likelihood that the wild-type will reemerge. Malawi was the first African nation to withdraw chloroquine from use in 1993; six years later Kenya followed suit. In both countries there have been studies of how resistance was affected in *P. falciparum*, which found that that chloroquine sensitivity was reemerging in the population. If we can determine the mechanisms contributing to the reemergence of the sensitivity trait then it could be used in the fight against malaria.

Battaglia, Francesca
English Literature

Project Advisor:
Thompson, T.

Art Spiegelman and the Power of the Graphic Novel

The contemporary graphic novel can be just as compelling and profound as the purely literary, even when it comes to exploring tragic historical events. In Art Spiegelman's famous works *MAUS* (addressing the holocaust) and *In the Shadow of No Towers* (addressing 9/11), he endows the category of graphic novels/comics a whole new level of significance in the literary world. And along with other graphic writers, Spiegelman is contributing to the

development of literacy among readers of all ages.

Battaglia, Giancarlo
Proctor, Coby
Qualls-Thomas, Martin
Sherwood, Ian
Business

Project Advisor:
Ramaya, K.

FOCAL INC

We are Focal Inc. a digital camera company that is in competition for global market leadership. Our goal is to make Focal Inc. the leading digital camera company in the industry making great products for our customers while meeting ever increasing investor expectations with meticulous attention to all aspects of strategy implementation. We hope to become the unrivalled impossible to beat market leader.

Bax, Sterling
Media Arts (General Media)

Project advisor:
Cassady, D.

The Art of Keeping Radio Alive

In a world with new technological advances every day, society is told that radio is a dying media. Stations are fighting an uphill battle against fast technological changes. People don't listen to radio like they used to, the same way they don't read books and literary magazines as they did in the past. Despite these progressions, it's important to preserve the art of radio against the changing times. This two-year project of reinventing the Boxer Radio Station at Pacific University has shown that radio is still a viable art and communication form. In a social 21st century world, life is communication driven. Radio has an important place as an engaging, creative, and accessible vehicle for people to communicate. This project will discuss the changes that have worked and have not for modern radio on a college campus. Boxer Radio has endured to show the importance and the art of keeping radio alive, giving students a better opportunity to engage and create culture in society.

Baxter, Ryan
Chemistry

Project Advisor:
Gohdes, J.

Aryl Substituted Phosphine Metal Templated Polymers

The Iron(II) complex, $\text{Fe}(\text{1,2-bis}(\text{di-4-vinylbenzylphosphino})\text{ethane})_2\text{HCl}$ (DVBPE), was explored with the goal of quantifying the functional reversible N_2 binding seen in compounds of similar structure. Potential applications of the product lie in its use as an adsorbent material for nitrogen selective pressure swing adsorption (PSA) systems. Current exploration into the use of similar iron(II) complexes as a PSA adsorbent is fairly limited. The DVBPE product was synthesized and characterized by ^{31}P -NMR and ^1H -NMR spectroscopy. After characterization, the iron-DVBPE complex was incorporated into a polymer matrix using ethylene glycol dimethylacrylate and methyl methacrylate. The resulting polymer complex was characterized using IR spectroscopy.

Beck, Mellissa
English

Project Advisor:
Johnson, B.

Lies My Parents Told Me

This creative nonfiction thesis tells the story of a young woman who discovers a family secret about her father and endures all of the pain and hardships that come along with it. Her perception of the life that she once knew shattered as she realized she was living nothing more than a façade

her parents created. The Easter Bunny, Santa Claus, and the Tooth fairy all fall short to the lies her parents told her when growing up into the strong young woman she later becomes. This coming of age story introduces us to a woman's search for closure in the midst of secrecy and deceit, all while trying to find herself in the chaos of it all.

Bedell, Haley
English Literature

Project Advisor:
Pagán, D.

Frodo Baggins:
The Modern Parallel to Christ in Literature

There are many speculations on J.R.R Tolkien's *The Lord of the Rings* trilogy as a work of religious allegory or on Gandalf and Aragorn as the central Christ Figures; however, this thesis explicitly analyzes the parallels between Frodo Baggins in Tolkien's trilogy and Christ's journey in *The Bible*, arguing that Frodo is the ultimate and only Christ Figure in *The Lord of the Rings*. This literature thesis begins by analyzing critics' interpretations of religion and Christ Figures in the trilogy. After discussing the work of Peter J. Kreeft, Joseph Pearce, and Emily McAvan, the thesis compares Frodo Baggins' journey in the trilogy and Christ's journey in *The Bible*, exposing parallels from the beginning to the end of each figure's journey. In the end, Frodo is established as the modern parallel to Christ in literature and exploring what this knowledge changes for the reader of Tolkien.

Beh, Alexandra
Biology

Project Advisor:
Schnorr, J.

Re-evaluating the innate immune response to *Mycobacterium tuberculosis*

There is an urgent need to treat and prevent the transmission of *Mycobacterium tuberculosis* (*Mtb*), a type of bacteria causing a neglected disease that infects approximately one third of the global population. The spread of increasingly drug-resistant forms of *Mtb* necessitates a better understanding of the innate immune response upon first exposure to the disease. Recent studies have shown that apoptotic polymorphonuclear neutrophils (PMNs) may play a more significant role than previously thought. Here I examine evidence that some aggressive *Mtb* strains are interacting differently with PMN than less aggressive strains. Strain M, a multi-drug-resistant form of *Mtb* prevalent in Argentina, was found to evade the innate immune response of PMN after phagocytosis by blocking the production of reactive oxygen species (ROS) and preventing the coalescence of lipid rafts. In doing so, strain M reduces the activation of the immune response and replicates more successfully in the host. If other drug-resistant *Mtb* strains show this ability to modulate the innate immune response, we might be able to exploit this insight and develop new, more effective treatments that combat the spread of drug-resistant tuberculosis.

Bellwood, Kori
Williams, Teresa
Exercise Science

Project Advisor:
Alstot, A.

The Effects of Immediate Video Feedback Using a Pico Pocket Projector to Enhance the Accuracy of Volleyball Skills

The National Association for Sport and Physical Education (NASPE) suggests integrating technology within sports and physical education to aide in the instruction of athletes and students. One such technology, the Pico pocket projector, is a small video projector that can connect to a handheld device (such as a smartphone or an iPad); coaches can video their athletes' performance using their device and immediately display the video using the projector to provide immediate feedback for the athletes. The purpose of this study was to examine the effects of the

Pico Projector as a form of augmented video feedback on the performance of two volleyball skills (passing & setting) performed by 6th-8th grade volleyball players. Six healthy volleyball players participated in this study and completed 10 sessions of 10 trials each for two volleyball skills (passing & setting) and alternated between baseline, where no video feedback was given, and video phases, where the iPad and Coach's Eye application were used to provide feedback to the performers. Researchers gave verbal feedback to the participants while they both viewed the video feedback after every third trial. Results indicated that augmented video feedback showed a slight positive effect on the performance and accuracy of passing and setting volleyball skills.

Bennett, James
English, Creative Writing

Project Advisor:
Walls, D.

Sonnets by James Bennett

My thesis is a collection of sonnets that conveys my search for something more in the world—a look at what is before me and just how much, or little, is there. I focus on topics from Stoic philosophers to John Wayne, from a woman with a name very dear to me to nameless bars, and the emptiness of a world so full. Ronald Wallace wrote this of his time writing one sonnet a day for a year: “It was as if the sonnet form itself was smarter than I was; that it, in fact, helped me to write better than I could have written alone.” I agree. The discipline of writing a sonnet has helped me do battle with emotionally complicated situations; it has given me a form through which to speak about the trials faced in striving to become a better person. The rigor of the form never inhibited flexibility in my content; in fact, it allowed me to face moments involving loss, disappointment, pain, and triumph, in a way free verse had not done for me before. In his poem “To the Stone-Cutters,” Robinson Jeffers summarizes what we, as poets, aspire to do: to create something that lasts, to challenge oblivion. For this task, I found the traditional form of the sonnet liberating.

Bethke, Jesse
Department of Exercise Science

Project Advisor:
Schot, P.

Effects of Added Mass and Velocity Combinations on Landing Kinetics

It is essential that the training stimulus intensity is progressively increased over the course of an exercise program. Plyometric exercises have become very popular and typically involve a landing and jumping cycle. Training intensity is increased by adding weight or elevated platform levels, but this also raises stress levels and so heightens the risk of injury. Our movement strategy responses to such changes may have significant consequences. **Purpose:** To evaluate the effects of various combinations of mass and velocity additions on leg stiffness during terminal landings. **Methods:** Twenty-four volunteers (14 women and 10 men, 20.9±1.2yrs, 67.1±12.8kg, 171.4±10.1cm) performed 8 trials in each of 5 conditions (control, 15% mass increase, 15% velocity increase, 7.5% velocity increase, and 7.5% increases in both). These 5 conditions gave rise to 3 unique momentum levels and 4 unique kinetic energy levels at contact. Participants began the task by dropping from a raised platform and landing onto a force plate system using their preferred bipedal strategy. Before testing and after completion of each condition, participants completed the Subjective Units of Distress Scale. **Analysis:** The effect of the various mass and velocity manipulations on leg stiffness and SUDS scores were analyzed via repeated measures ANOVA ($\alpha=0.05$). **Results:** Findings will be shared at the presentation.

Bierly, Jessica
Exercise Science

Project Advisor:
Dolphin, K.

The effect of a walking and exercise group on pain associated with performing activities of daily living in residents of an assisted living facility

In older adults, aerobic fitness (walking) helps maintain and increase the function of the cardiovascular system, while resistance exercise makes the muscles strong by increasing muscle mass and bone density. Thus, exercise improves the quality of life and independence of the elderly and reduces healthcare costs. **Purpose:** To provide the Beehive Assisted Living community with a routine, low-intensity walking and exercise program. **Methods:** All members of the Beehive Assisted Living Facility ($n = 50$) were invited to participate in a walking and exercise program. Participants filled out questionnaires before and after participating in the program to assess pain while performing activities of daily living (ADLs) including: walking, personal care, sleeping, sitting, and getting out of a chair. Data were analyzed using a repeated measures analysis of variance for each of the ADL variables. **Results:** Findings will be presented on Senior Projects Day.

Bjordahl, Kelly
Psychology

Project Advisor:
Salgado, D.
Island, H.

Man Enough To Ask: Homophobia and Attitudes Towards Help Seeking

Research on gender differences in health-related attitudes and behaviors has indicated that men are less likely to use preventative health care, more likely to utilize emergency services, and have more negative attitudes of seeking mental health services. In past research attaining hegemonic masculinity has been associated with avoiding femininity, but current research recognizes that homophobia, men's fear of being perceived as gay, is also strongly associated with the achievement of hegemonic masculinity. Furthermore, the attitudes and behaviors associated with homophobia and achieving hegemonic masculinity become the causes of men's future physical, psychological, and relational issues. While previous research has examined norms of masculinity and their effects on mental health help-seeking in men, no study has examined the role of homophobia and its effect on attitudes towards psychological help-seeking. We hypothesized that men who report more concern for being perceived as heterosexual will report more negative attitudes towards seeking psychotherapy. The current study includes 376 men between the ages of 18 and 25 ($M_{age} = 20.80$, $SD = 2.06$) who participated in an online research study on gender and health-related attitudes and behaviors. Participants completed items assessing demographics, masculinity, and attitudes towards seeking mental health services. The current study examined the effects of homophobia on willingness to recognize that a problem exists, likelihood of seeking professional help, and concern about stigma associated with seeking mental health services. Results of these analyses will be discussed within the context of removing barriers towards psychological help-seeking among men, identifying specific subgroups of men who may be less likely to seek psychological help when in need, and supporting more alternative forms of masculinity that value positive health and well-being.

Black, Stephen
Chemistry

Project Advisors:
Chan, J.
Harrelson, J.

Ketoconazole Activates CYP 3A4-Mediated Metabolism of Letrozole

Letrozole is an aromatase enzyme inhibitor prescribed to post-menopausal women with estrogen-receptor sensitive breast cancer. It is mainly metabolized by Cytochrome P450 3A4 and 2A6.

Ketoconazole is a well-known inhibitor of CYP 3A4. In this study, we investigated the interaction between ketoconazole and letrozole using steady state kinetic assays and HPLC-fluorescence to quantitate the letrozole metabolite compared to standard curves of commercially available standard, 4,4'-hydroxymethylene-dibenzonitrile. In human liver microsomes, which contain a high concentration of Cytochrome P450 enzymes, the metabolism of letrozole increased in the presence of ketoconazole. This effect was observed across multiple human liver microsome sources, and with recombinant CYP 3A4. Increasing the concentration of ketoconazole increased the degree of activation, indicating this is a concentration-dependent effect: 11.29% and 23.28% activation at 1.11 μM ($p < 0.02$) and 10 μM ($p < 0.01$) ketoconazole, respectively. The effect was also dependent on substrate concentration. Increasing the letrozole concentration from 0.5 μM to 10 μM reduced activation from 17.41% to 1.51%. These results give an *in vitro* example of heterotropic cooperativity in CYP 3A4. In addition, the results show that ketoconazole can lead to heterotropic activation, and does not act solely as an inhibitor.

Blackmore, Olin
Chemistry

Project Advisor:
Whiteley, R.

The study of an alternative method for quantitative Ni(III) determination

Determining the capacity of nickel cathodes is useful in characterizing and determining failure in Nickel-Hydrogen and Nickel-Cadmium batteries. From this lab, a new procedure has been developed that can determine this capacity more accurately than the current NASA method, even with the complications of the reaction matrix. The NASA procedure utilizes Fe(II) and KMnO_4 to determine the Ni(III) content, while our new method uses N_2H_4 and IO_3^- . While this new method is faster and more precise, there is evidence that having Ni^0 present in the matrix affects the titrations in an unexpected manner. The interaction of Ni^0 with hydrazine is explored by chemical and instrumental methods.

Braukman, Olivia
Psychology

Project Advisor:
Burns-Glover, A.

DARING to Rethink ATODs Education: Drug Expectancies, Motivations for Education, and Changes in Understanding After PSY 208.

I conducted a participant-observation course evaluation of the Addictions and Society class. My goal was to identify how students' previous experience with drug education, motives for taking the course, and previous drug education experiences affected their a) perception of increased knowledge; b) evaluation of their overall course experience; and c) performance in the course overall. Previous exposure to drug education had no effect on students' scores on measures of Alcohol or Marijuana effect expectancies. Students CEOA (comprehensive effects of alcohol scale) evaluation scores and MEEQ (marijuana effect expectancy questionnaire) were similar, meaning their evaluations about the use of alcohol and marijuana did not differ. CEOA scores also showed that DARE had no effect on students' perceptions about whether alcohol use is good or bad. Exit survey responses indicated that students "strongly agreed" (1-5 Likert-type scale) that they now had a better understanding of the science of substance use; evidence-based policies; effective drug interventions, and how to help someone who had an ATOD use problem. When asked about changes in confidence in understanding key features of the course, 50-90% indicated they were "much more confident" in identifying effective prevention programs; finding resources about drug use, and what motivated drug use. About 60% of the class found the readings about the psychosocial model "Very Useful" to their understanding. Students reported a) increased knowledge in the areas social policy, harm reduction strategies and interventions, and how drugs affect the brain and body and b) 76.9% of the students rated the course experience as "A" or "A-" and the average grade in the course on 4.0-0 scale was $\underline{M}=3.0$; $\underline{SD}=0.60$. Previous drug education (e.g., "DARE") courses had no effect on one's grade in this course, but

those who had taken “DARE” reported significant increase in understanding of the motivational model of drug use as compared to those who had not been in DARE. The implications of these results for campus wide substance use programming will be discussed.

Breen, Lukas
World Languages & Literatures

Project Advisor
French, L

A Refuge in Days of Affliction:

An Analysis of Jewish Immigration to Argentina Preceding the Great Jewish Genocide

From the latter part of the 19th Century through the years preceding the Great Jewish Genocide carried out by the National Socialists of the Third Reich, Argentina provided an indispensable sanctuary for Jews fleeing ethno-religious persecution throughout Europe and the Mediterranean. I will explore the reasons behind this immigration, as well as the place the Jews held in Argentine society prior to the creation of the Modern State of Israel.

Brooks, Simon
English, Creative Writing

Project Advisor:
Pagan, D.

Poetic License

This creative thesis contains a critical reflection on the long experimental poem by William Carlos Williams called “Paterson,” which is a semi-autobiographical work about the subjects of life, beauty, and the many complications that arise from those things. The poem’s style is as erratically dispersed as its subject matter. The narrative diverges widely in its innovative use of prose sections, line breaks, white space, and transition. Following the critical reflection is an original creative work titled “Escape From the Hive-Mind.” It is a long narrative poem in metered verse that contains science fiction and dystopian themes such as future society and collective consciousness.

Brown, Austin
History

Project Advisor:
Szefel, L.

Prohibition in Portland, Oregon: Alcohol, Corruption, and No Compromise

The enactment of the national Prohibition law in 1920 affected the city of Portland, Oregon in unexpected ways. Instead of leading to a more peaceful and harmonious community, the law's enforcement led to rampant vice in the city's police department and criminal acts from local citizens. Outraged opponents along with surprised supporters vented their opinions in letters to the editor of local newspapers, including *The Oregonian* and the *Daily Journal*. An investigation of this correspondence reveals how party politics and purist convictions prevented the opposing groups from finding a consensus. Prohibitionists did win a battle of moral reform in the United States and got rid of the saloon culture, but their resistance to compromise led to unforeseen consequences, which ultimately worked to end the Eighteenth Amendment. As a moderate-sized city, Portland has been overlooked in the story of Prohibition in favor of massive metropolitan areas like New York and Chicago. This thesis offers to fill out the narrative of Prohibition.

Cabral, Ben
Economics

Project Advisor:
Haag, J.

Is there Correlation Between Minimum Wage and Unemployment?

This research examines the relationship between state minimum wage laws and unemployment rates between the years of 1993-2013. The purpose of the research is to provide a better understanding of how minimum wage laws impact labor markets. Using state-level wage and

unemployment data from the Bureau of Labor Statistics the analysis empirically tests the hypothesis that an increase in the minimum wage leads to higher rates of unemployment.

Campos, Pablo
Exercise Science

Project Advisor:
Bhalla, J.

An Examination of Socioeconomic Status on Return to Play After an injury

Injuries are a common problem in the world of competitive and recreational sports. As the number of participants in organized sports increases, so do the amount of injuries. A particular group of athletes that has been overlooked when it comes to information about the impact of injury is young athletes from lower socioeconomic statuses (i.e., lower and lower-middle class). The purpose of this study is to gain information about the effect that socioeconomic status has on the return to play from an injury. Specifically, this study will examine the experiences of young athletes and the impact of injury, through their recollection as adults. Individuals will be interviewed about their experiences regarding their injury and SES. It is important to gain insight about these individuals to be able to further deepen our understanding behind the role that socioeconomic status has on a young athlete's ability to return to play after an injury. Results will be presented on Senior Projects Day. This information will allow coaches to educate their athletes too about different means of getting help when injured, as well as the importance of getting the proper medical attention when needed. Results can also be helpful in being able to help prevent potential long-term damaging effects that untreated athletic injuries may have on an athlete.

Cantwell-Doblado, Augustine
Exercise Science

Project Advisor:
Dolphin, K.

The effect of manipulated performance feedback on affect and stress reactivity in competitive swimmers

Over 80 million Americans are affected by cardiovascular diseases such as hypertension, coronary artery disease, and atherosclerosis. A heightened physiological reaction to stress increases the risk of developing cardiovascular disease. Thus, identifying the factors that influence our stress reactivity could help reduce the prevalence of cardiovascular diseases. Physical activity has been shown to attenuate stress reactivity, potentially due to a sense of mastery from successfully completing a demanding exercise task. **Purpose:** The purpose of this study is twofold: (1) to reexamine the stress-buffering effect of aerobic exercise in competitive athletes; and (2) to determine if perceived performance moderates the ability of exercise to buffer cardiovascular reactivity. **Methods:** Collegiate swimmers ($n = 15$) were randomly assigned to one of four conditions: (1) high performance feedback; (2) low performance feedback; (3) accurate performance feedback; and (4) control. All four groups went through a series of cognitive and social tasks to induce stress while heart rate and blood pressure reactivity were measured. Data were analyzed using a repeated measures analysis of variance for each of the reactivity variables. **Results:** Findings will be presented Senior Projects day.

Arbogast, Sean
Carrillo, Eddie
Psychology

Project Advisor:
Kleinknecht, E

I Feel You! Effects of Temperature on Social-Cognitive Judgments

Social interactions run on the judgments we make about others which are made constantly whether we know it or not. Social Judgments are an active social perception process to evaluate a social situation. Our present study is looking to build on past research that has shown how physical temperature can affect an individual's use of concrete language, feelings on social proximity, and relational focus. In the present study we build off this premise by looking at how

hot, cold, or neutral body temperatures affects an individual's perception of a new acquaintance, recollection of an autobiographical memory, and perception of themselves. Based off past research, we predict that warmer temperatures will cause participants' social-cognitive perceptions of the self, a friend, and an autobiographical memory to be more positive than colder temperatures, which will cause participants social judgments to be more negative.

Carter, Stephanie
Mathematics

Project Advisor:
Besse, I.

Nonlinear Model for Combined Radiopharmaceutical Therapy

This is an extension of a linear model for combined radiopharmaceutical therapy in treating neuroendocrine tumors using ^{131}I -metaiodobenzylguanidine and ^{90}Y -DOTA-D-Phe¹-Tyr³-octreotide. Like the original linear model, this model attempts to optimize the amount of radiation delivered to the tumor without exceeding the critical dose absorbed by other organs. However, in this nonlinear model, we are modeling the effects of not just one, but two treatments of combined radiopharmaceutical therapy. The second treatment is based upon the amounts of each radiopharmaceutical used in the first treatment, and the diameter of the tumor before and after the radiation is delivered. The result is an optimization problem in four variables that will provide additional information and treatment options that the linear model was unable to predict.

Chandler, Spencer
Mathematics & Computer Science

Project Advisor:
Boardman, M.

Patterns in the (a,b)-Pascal Triangle modulo a prime

The Fibonacci sequence, an important sequence of integers, is generated under the recursion $F_n = F_{n-1} + F_{n-2}$. It is well known that the Fibonacci sequence can be found as backward diagonal sums in Pascal's triangle. In this talk, we consider a generalization of Fibonacci numbers called the (a,b)-Fibonacci numbers. We construct a modified Pascal's triangle in which the (a,b)-Fibonacci numbers can be found and investigate patterns in this triangle modulo a prime.

Chase, Amber
Daimon, Kerry
Wilson, Spencer
College of Education

Project Advisor:
Zijdemans Boudreau, A.

Implementing iPads in Education: Examining Usage, Motivation and Quality of Work

The intent of our capstone project was to address the broader question of the ways in which iPads are implemented in classrooms and schools in the Forest Grove School District (FGSD). We researched the effects that iPads have on student motivation and quality of work. We were also interested in examining how these devices are being used across other schools within the district. Data was collected from a variety of sites including the Forest Grove Community School, Neil Armstrong Middle School, and Tom McCall Upper Elementary School over the period of October through March. We collected: observational field notes, reading and writing samples, student surveys, and interviews with teachers and other stakeholders. The SAMR model and Blooms' Taxonomy were also used to review and explore the question of how apps support student learning. Analysis involved comparing our data with the themes of motivation, quality of work, and usage to address questions such as, "How do iPads affect motivation and quality of work in classrooms?" and "How are iPads being implemented in schools across the district?" Through this process, we learned about the ways in which teachers and schools are adopting iPads in educational practice. Our presentation will discuss the outcomes of our research.

Chavez, Erika
Eppinger, Marc
Faagau, Justin
Kester, Michelle
Business

Project Advisor:
Ramaya, K.

JAUNTY

At Jaunty, we aim to provide every individual with a quality camera that they can feel proud to own and at an affordable price. All of our stakeholders can walk with a jaunty step. Our customers will feel proud knowing that their camera is produced by a company that holds social responsibility as paramount while our investors can be at peace knowing that we are also focused on the bottom-line and will continue to find ways to add value for all stakeholders.

Cheek, Benjamin
History

Project Advisor:
Yang, T.

The United Nations, Yugoslavia, and Private Military Companies

In the past few decades, the use of military force has become a private and legal industry, as firms like Blackwater and Halliburton have become household names. Private military companies have intervened in global conflicts, taking over what was once the exclusive right of nation-states and international organizations: the right to wage war. How and when did this happen? This paper attempts to answer this question by focusing on the use of private military companies during the Yugoslav Wars in the 1990s. By examining first-hand accounts, newspaper articles, legal documents, and recently declassified government documents, I argue that amid the transition from a Cold War to post-Cold War world order, private military companies arose due to the failure of the United Nations to maintain order and to the United States' shift towards a more non-interventionist foreign policy.

Choquette, Nathan
Public Health

Project Advisor:
McGrath, M.M.

Subsurface drip irrigation (SDI) systems for greener agriculture in the Willamette Valley

Soil degradation due to over-watering increases crops' susceptibility to disease and decreases their nutritional value, which increases volatility and cost in the agricultural sector. The use of subsurface drip irrigation (SDI) systems reduces over-watering and decreases farmers' water bills. Despite extensive acreage dedicated to farming, Washington County and Clackamas County, Oregon have few farmers using SDI systems because of the equipment cost and time required to set up the systems. There are public incentives for adopting sustainable farming practices, but none provide technical assistance or training on how to transition to new farming practices. The present program will install SDI at no cost to farmers and will teach them about the benefits of SDI compared to overhead sprinklers, as well as how to maintain the equipment. Increased SDI use in the Willamette Valley will reduce water usage for irrigation and result in healthier crops, more nutrient-dense produce, and increased standard of living and overall health for farmers due to the money they save.

Cook, Olivia
Exercise Science

Project Advisor:
Bhalla, J.

The Influence of Peer-Coaching Among NCAA Division III Athletes

Upon fulfilling the allowed years of eligibility for competing in collegiate sports, some athletes decide to fill the void (of not competing anymore) by becoming a coach. Many programs at Pacific University, as well as other NWC athletic programs, have implemented the use of *peer coaches*. A peer coach is defined as an individual who has competed on the same team with an individual in the past, and has returned to the program, upon completion of their years of

eligibility, as a coach. The purpose of this study is to explore the perceptions of NCAA Division III collegiate athletes regarding young-peer coaches. Participants in this study will take a survey aimed at uncovering how beneficial an athlete feels peer-coaches are to their program's success and what type of influence these coaches have on the athletes they have played with in past seasons. Results will be presented on Senior Projects Day. This study is aimed at gaining a better understanding of how athletes view their connections with young coaches compared to those of older coaches. Athletic departments may use findings to structure their coaching staffs in a way that assists their program in reaching its full potential. Finally, results may give coaches an educated understanding of the benefits and hindrances to using peer-coaches.

Cooper, Catherine Z.
Studio Art

Project Advisor:
Flory, J.

White Cloud

Originally the opportunity to photograph a fire interested me, but my project grew deeper than that. In my experience, the general perception of firefighters is that they spend most of their days fighting fires, which is a somewhat rare occasion for the firefighters in the city of Forest Grove. Much of their time is spent attending medical calls, filing reports, and training. This body of work is meant to show contrast between two concepts: the public perception of a firefighter's career versus what the job truly entails. It also shows the clean-cut presentation of a firefighter is somewhat necessary because they are placed in the public eye. However, this does not always tell a person's entire story. In order to create this juxtaposition visually, I have mounted clean black and white images representing the clean-cut appearance of the firefighters onto worn fire hose representing their true job. To help tell a more complete story, I juxtapose each black and white portrait of a clean-cut firefighter onto sections of worn fire hose. In addition, placed alongside of each portrait is a display of smaller, candid images of the firefighters performing daily tasks.

Cooper, Scott
Watters, Matt
Zhong, Lin
Business

Project Advisor:
Ramaya, K.

BELOVED CAMERAS

Our Beloved Cameras is competing with other rival companies in the digital camera industry for global market leadership. Our company assembles all of the cameras in Taiwan and ships them directly to camera retailers all over the world. Beloved Cameras specializes in both high-end digital cameras as well, carrying several smaller cameras for different price points. Our strategy will make us a leader in the global marketplace without compromising our values as a socially responsible organization.

Cramer, Megan
Creative Writing

Project Advisor:
Postma, K.

As The Sun Travels: Rewriting Mythology into Modern Settings

My thesis consists of both a creative and a critical portion. For the creative section, I wrote four short stories that are part of a collection titled *As the Sun Travels*. Each of the short pieces is a recreation of a myth: the fall of Icarus, the death of Enkidu from the *Epic of Gilgamesh*, the death of Baldur from Norse mythology, and "How the Raven Stole the Sun" from Tlingit tales. I transformed each myth into contemporary settings and characters, though the central issue of each piece remains true to the original. For inspiration and technical expertise, I looked at Neil Gaiman's *American Gods*, James Joyce's *The Portrait of an Artist as a Young Man*, and Albert Camus' *The Myth of Sisyphus*. In my critical portion, I show how I studied these authors'

methods and my discoveries. Their approaches can help modern writers approach ancient mythology without directly copying the original stories. My goal for my senior project was to write myths infused with current conflicts and assist writers in finding their own paths to rewriting mythology.

Craviotto, Amber
Biology

Project Advisor:
McCormick, L.

Targeted therapy for chronic myelogenous leukemia: A genetic mechanism for CML and tyrosine kinase inhibitors

Cancer is a sought-out area of scientific research as the number of cancer cases continues to escalate over time. Different types of treatments are specifically used for chronic myeloid leukemia, and the most effective treatment thus far has been tyrosine kinase inhibitors. Tyrosine kinase inhibitors (TKIs) are drugs used as a targeted therapy for CML; in targeted therapy, only cancer cells are killed while normal cells are unharmed, which makes TKIs an effective treatment option. The primary TKI discovered was imatinib, which is an overall effective treatment, but there have been numerous cases of resistance and intolerance built up to the drug. Due to the intolerance and/or resistance of patients to imatinib, second generation TKIs, such as nilotinib and dasatinib, have been discovered and show signs of having higher potency. Complex genetic and molecular processes are at work with primary and secondary TKIs as treatment for CML. A mutation that occurs in some CML patients causes a hindrance so TKIs are ineffective. Further research is being executed to find third generation TKIs and other drugs that overcome this mutation and TKI intolerance/resistance.

Crippen, Britanie
History

Project Advisor
Green, J.

Gay-Bashing in the Oregon Voting Booth and the Transition to Equality

This research examines Oregon's political history and ideology between 1970 and 1995, focusing on the balance and tension between conservatism and progressivism. The focus is on Oregon anti-gay ballot measures advocating for discrimination against homosexuals as compared to other states. The primary sources encompass the texts of proposals, including Ballot Measures, and newspapers, such as the *Oregonian*, which provide public opinions about the measures and reactions to the election results. Political propaganda for and against measures illuminate both sides of the issue. The ideological transition that took place during 1970 and 1995 in Oregon has received little acknowledgement. Thus this research draws new conclusions as to why political opinions on gay rights changed in Oregon during this time period. This analysis of the increasing presence of the progressive political tradition, seen in the rejection of anti-homosexual ballot measures of the early to mid-1990s, fills a void in the understanding of Oregon's political history. Oregon's historical transition to homosexual acceptance, a huge victory for Oregonians is something to be celebrated and studied.

Cronk, Lisa
Quist, Kari
College of Education

Project Advisor:
Zijdemans Boudreau, A.

Examining the Role of Constructive Feedback and Environment in Socio-Emotional Development for Preschool-Aged Children
Captain McFinn: Swim and Play

This ethnographic study shares a journey that began with a meeting with Flying Rhino, an animation company in Portland OR, and evolved into an exploration of factors involved in supporting socio-emotional development and learning in preschool-aged children across face-to-face and virtual environments. Captain McFinn: Swim and Play is a new interactive iPad

application that features a live moderator. Based on our initial meeting with Flying Rhino, our ultimate goal was to help them address their mission statement of providing children with an enriching online environment in which they learn pro-social life lessons. Through our research, we conducted interviews, observed in a variety of settings, and researched academic articles in order to understand integrative media and the role of feedback and environment on social and emotional development. This information led us to develop an educational ethnography that includes how the Swim and Play app has evolved, what specific changes they have made along with why they were made. This experience helped us learn the importance for educational media developers to collaborate with experts in the field of learning and development.

Cruz, Aurelia
Public Health

Project Advisor
McGrath, M.M.

***Adelante Mujeres* marketing campaign to increase usage of nutrition benefits at the Forest Grove Farmers Market**

In the last 10 years there has been an increase of Latinos in Forest Grove, especially among the youth population. If children eat healthy when they are young, it will help their health in adulthood. The marketing campaign, conducted by *Adelante Mujeres*, will target the low-income Latino population in Forest Grove to increase awareness that the nutrition assistance benefits (SNAP, WIC, Senior Farmers' Market Nutrition Program) can be used to purchase fresh fruits and vegetables Forest Grove Farmers Market. *Adelante Mujeres* has seen success with their short-term marketing, but a body of research that suggests that these efforts will need to be constant. The program seeks to reduce the current false perception of high prices at the market, and will entail collaboration with other organizations that serve low-income Latinos. These factors will help to encourage low-income Latinos to come and purchase produce at the Farmers Market. We can expect an increase in low-income Latinos using their government vouchers at the Forest Grove Farmers Market.

Davenport, Julie
Mathematics

Project Advisor:
Besse, I.

Radionuclide Therapy: Optimization of a Dosing Schedule

In this paper, we propose a mathematical model that minimizes the size of a tumor after two radionuclide treatments. In this investigation, we will show that the way to treat a neuroendocrine tumor with dual-agent therapy is by giving the second dose as a fraction of the maximum dose before the tumor has recovered from the effect of the first dose. The amount of this second dose is determined by patient-specific parameters and the rebound rates of the affected critical organs. Our method use mathematical computation software to optimize the effect of the therapy. Our results give an optimal schedule for two treatment therapies.

de Leon, Madeline
Sociology

Project Advisor:
Eisen, D.

Physician Perceptions on treating Patients of Color in End-of-life Care

Previous studies have found that end-of-life care in a Westernized health care system is often under utilized by people of color, in fact, in 2012, approximately 85.1% of hospice patients in the U.S. identified as Caucasian and the remaining identified as patients of color or other (NHPCO, 2012). This project employs Critical Race Theory and other sociological theories to examine (a) how colorblind racism allow providers to miss cultural cues and engage in non-culturally competent practices? and (b) how providers talk about race without implicitly talking about race. Through semi-structured in-depth interviews, physicians working in hospice and palliative care settings in the Portland Metro Area were asked to describe accounts when working with

culturally diverse populations and patients. This provided insight into their conceptualization of personal treatment methods and demonstrated how physicians subconsciously engage in culturally insensitive practices and microaggressions that marginalize patients of color. This suggests an urgency to develop an individualized approach to end-of-life care where physicians are well equipped to effectively communicate and treat patients of color with respect and dignity. Ultimately, improving the cultural competency of providers and encouraging them to acknowledge self-bias will increase the utilization of services by patients of color.

de Leon, Madeline M.
Public Health

Project Advisor:
McGrath, M.

Care Partners cultural competency training program

In 2012, approximately 85.1% of hospice patients in the U.S. identified as Caucasian with the remaining identified as patients of color or “other” (NHPCO, 2012). The underutilization of hospice services by patients of color is an ongoing trend partially caused by lack of cultural competency by providers in a Westernized health care system. As the U.S. continues to experience demographic changes, the likelihood of U.S. physicians caring for patients from cultural backgrounds different from their own will increase (Crawley, Marshall, & Koenig, 2002). Although Hospice and Palliative Care Partners strives to provide compassionate care, they lack a developed cultural competency program, which may contribute to underutilization of services by minorities. Successful cultural competency programs emphasize educational training for providers, patient-provider consultations, and employment of identifiable personnel. The proposed program applies this multi-faceted approach and ensures providers are prepared to treat patients of color and acknowledge that treatment preferences are shaped by a lifetime of cultural experiences. By increasing the cultural sensitivity of providers, Care Partners will experience an increased service utilization by patients of color. The program will ultimately improve quality of life, increase patient satisfaction, and reduce racial health care disparities within end-of-life care.

Djitowibowo, Adinda
Media Arts: Film/Video

Project Advisors:
Hardacker, J.
Vaisburd, E.

The Falcon Cannot Hear the Falconer

The falcon cannot hear the falconer is a 2D animated film exploring the use of visual metaphors and their influence on the constructed narrative. In the film, a boy—stripped of his essence—stands alone in a void before an enigmatic, gift-bearing host approaches him. The gift restores the boy’s essence, but at what cost? The symbiotic relationship between seemingly opposing concepts—the instinctual and cerebral, and the infusing of humanity in the inhumane—creates an interesting dynamic where such distinctions blur. 2D animation is the chosen medium for this surreal piece as it allows for freedom from reality in constructing the images.

Dolores, Angel
Biology

Project Advisor:
Sardinia, L.

Our Microbiota Manipulates our Behavior: An Insight on Autism

This research analysis was conducted to find abnormalities in the microbial composition of individuals with Autism Spectrum Disorder (ASD), and analyze how the composition may affect an individual’s physiology and behavior. Many articles regarding autism (AD), Asperger’s (atypical autism), and pervasive developmental disorder not otherwise specified (PDD-NOS) were compiled and evaluated. It was found that individuals with ASD that have gastrointestinal dysfunction (GI+) have significantly lower levels of gamma-glutamyl amino acids in urine than patients with ASD who have no gastrointestinal dysfunction (GI-) and are healthy (leucine, P=

7.03×10^{-4} ; tyrosine, $P = 2.55 \times 10^{-3}$; threonine, $P = 1.43 \times 10^{-3}$). Suggesting there could be a correlation between a decrease in key metabolite(s) and symptoms of ASD (Ming et al., 2012). Analysis of the bacterial composition conducted by De Angelis et al. (2013) was done by sequencing DNA of bacteria found in fecal matter, and Firmicutes, gram-positive cell wall bacteria, were found to become metabolically active in PPD-NOS and in AD individuals. They remained less metabolically active in healthy individuals. In addition, Fusobacteria and Verrucomicrobia were significantly lower in PDD-NOS and in AD children than in healthy children ($P < 0.05$), clearly showing that bacterial composition is distinct between individuals with ASD and healthy individuals. Intracerebroventricular (ICV) infusions of propionic acid (PPA) were conducted by MacFabe (2012) to induce ASD-like symptoms in rats. The reason PPA was infused in rats is because prior studies found elevated levels of PPA in individuals with ASD relative to healthy individuals because higher levels of *Clostridia* and *Desulfovibrio* (PPA producing bacteria) have also been found in individuals with ASD. He was able to successfully re-create minor ASD-like behavior in rats, and it suggests that PPA could be a key metabolite that could help explain ASD symptoms.

Dopps, Kevin
McCammon, Haley
Simmons, Rachel
Business

Project Advisor:
Ramaya, K.

KISMET CAMERAS

We are Kismet Cameras. We are in a head-to-head competition with formidable competitors in the digital camera industry. At Kismet we focus on our performance and quality ratings which we hope will positively impact our image and the bottom line. Our customers will know that we are quality focused and offer reasonably priced cameras. We aspire to become the leader in the camera industry.

Downey, Austin
Psychology

Project Advisor:
Island, H.

The Social Dynamics of Three Captive Southern Sea Otters

As a keystone species, sea otters' health and behavior have a disproportionately large environment effect relative to their density. Their predatory behavior balance benthic organism populations like sea urchins, that can, if overabundant, destroy near-shore kelp ecosystems. These kelp forests capture carbon and moderate atmospheric carbon dioxide. Worldwide, it is estimated that there are only 100,000 of the three species of sea otters left, with an estimated 3,000 of the Southern (California) Sea Otter (*Enhydra lutris nereis*). This longitudinal behavioral project is of three captive Southern Sea Otters. For the last fourteen years, The Oregon Zoo has nurtured and housed the two seventeen-year-old adults, Thelma (female) and Eddie (male). In May of this year, a third southern sea otter, Juno (female) joined the Oregon Zoo from the Monterey Bay Aquarium. Juno was born in December of 2013 and given her young age, was introduced to Thelma in September followed by Eddie in October. Despite the fact that sea otters are featured in over 40 aquaria and zoos, there are only a handful of peer-reviewed articles covering captive sea otter behavior and no published investigations of how introductions of new animals affect existing captive, sea otter social dynamics. Over the course of the academic year with weekly, two-hour focal, naturalistic observations, we attempted to: 1.) provide a comprehensive behavioral library of the sea otters' activity budgets; 2.) establish a behavioral library for comparison, following the introduction of a new otter into an established, captive community; 3.) clarify the question of stereotypy in captive sea otters (e.g., do they engage in stereotyped behaviors and if so under what conditions do these emerge?).

Dudley, Jasmine
Exercise Science

Project Advisor:
Bhalla, J.

The Effects of Media on Body Image Satisfaction in University Students: Exercisers vs. Non-exercisers

Body image dissatisfaction is an ongoing issue in today's society. New forms of media combined with traditional forms of media constantly permeate society with messages of what an ideal body image should look like. The purpose of this study was to investigate whether exercisers had an enhanced body image satisfaction in comparison to non-exercisers, and how media may be a contributing factor to participants' body image perceptions. Participants (n=20; 11 female, 9 male) were current university students that were categorized as either an exerciser or non-exerciser. Each participant completed a demographic questionnaire followed by a 30-60 minute interview. All interviews were audio-taped and transcribed verbatim. Two researchers independently coded the transcriptions using primarily inductive data analysis. Lower-order and higher-order themes were identified and will be presented on Senior Projects Day. From the systematic data analysis, recommendations will be made to help inform individuals about the effects of media and how it may influence one's body-image satisfaction in university students.

Dung, Ethan
Theatre

Project Advisor:
Margolis, E

Iphigenia in Orem: A Solo Show

Over the past four years in the theatre department, I've accomplished more than I've ever thought imaginable. Through Lunchbox productions and main-stage shows, I have been able to step out of my comfort zone and perform in front of people. For my capstone, I am challenging myself even further. *Iphigenia in Orem* by Neil LaBute finds a man in a Las Vegas hotel room, confessing an unspeakable crime to an unknown entity. LaBute's work can be described as raw and coarse. His characters seem like people you could strike up a conversation with if you met them on the street, until they reveal dark urges most of us would rather ignore. Again and again, this playwright takes familiar words and manipulates them in the most complex of ways.

Most of my work in the theatre department has been comedic, so working on this play has been a refreshing, yet challenging experience. In doing a solo show, one must take into account that they themselves *are* the show. I can no longer play off of anyone else. I am accountable for everything that happens. I have to drive the play forward. All these things could potentially be problematic, but through the rehearsal process, I've been able to create a cohesive production. Having delved into a more serious genre of theatre, I've learned that taking such a leap from what I'm comfortable with has allowed me to grow both as a performer, as well as a person.

Durbin, Jonica
Social Work

Project Advisor:
Ritter, J.

**Youth Transition Conferences for Oregon's Foster Youth:
Nothing About Me Without Me**

Foster youth who age out of the foster care system have faced numerous obstacles historically. Annually there are approximately 400,000 children in foster care in the U.S. each year. In 2012, 23,439 children in foster care turned 18 and "aged out" of the foster care system. State child welfare systems have been accused of not promoting the self-determination of foster youth or the ability to make important life decisions on their own. Most states operate "Independent Living Programs," however at their core these programs are not youth-centered, or youth driven, where youth are allowed to voice what they need to be successful adults. This senior capstone project will provide an overview of interventions that are currently in place to serve youth aging out of state foster care and describe the implementation of a promising new youth-driven program at

the Hillsboro Department of Human Services that seeks to empower foster youth as they prepare for living independently as adults.

Echeverria, Patricia
Biology

Project Advisor:
Ruppell, J.

Chimpanzees in Biomedical Research: Is the Benefit Worth the Cost?

Since the early 1700s, the use of animals for experimentation has been a staple in biomedical research. Typical animals used for biomedical research (a process known as animal modeling) range from zebrafish to non-human primates. In conjunction with the demand for animal modeling in biomedical research is the increasing resistance for such research from animal ethics organizations, federal laws, and conservationists. The chimpanzee, being our closest living relative, is an active animal model for HIV/AIDS, cancer, and vaccine research. The advances made using models such as the chimpanzee have been substantial to the medical community and include vaccines for hepatitis A and B, identification of hepatitis C, and the development of monoclonal antibodies. Despite these impressive advances, deep ethical and financial burdens exist. This problem is most apparent when considering the highly cognitive nature of the chimpanzee, the cost of maintenance, and their endangered status. All countries except for the United States have banned biomedical research on chimpanzees, and federal funding for such testing is limited if not cut completely. Alternative models may be necessary to secure the future of biomedical research given the increasing restrictions and demands on chimpanzee use. Currently, transgenic rodents used for cell-based *in vitro* and *in vivo* methods are the leaders in innovation, cost, and versatility as animal models. Thus, they may provide the answer to the debate between biomedical discovery and ethics. Replacement of the chimpanzee with a transgenic model should be assessed as a firm alternative in biomedical research in the United States.

Eppinger, Marc
Chavez, Erika
Faagau, Justin
Kester, Michelle
Business

Project Advisor:
Ramaya, K.

JAUNTY

At Jaunty, we aim to provide every individual with a quality camera that they can feel proud to own and at an affordable price. All of our stakeholders can walk with a jaunty step. Our customers will feel proud knowing that their camera is produced by a company that holds social responsibility as paramount while our investors can be at peace knowing that we are also focused on the bottom-line and will continue to find ways to add value for all stakeholders.

Esparza, Carlos
Spanish (World Languages)

Project Advisor:
Christoph, N.

An Analysis of the Codification of Popular Spanish in the United States

North of the border, the Spanish spoken by the Latino immigrants has diverged from that spoken by the rest of Latin America. In Hispanic neighborhoods in many U.S. cities thrives a new way of speaking Spanish. It is the de-facto dialect in cities such as Los Angeles, San Antonio, Las Vegas, New York, or wherever the 50.2 million documented Hispanics live. My project analyzes the popular variety of Spanish in the United States, demonstrating the technical and cultural features (such a code switching), and the adoption of lexical units from one language to another on a phonological, morphological, morpho-phonological, and semantic level that is required to codify a new dialect. Further, I argue that the Spanish of the United States is not a hybrid language, but rather is a variety of Spanish influenced by its Anglo-Saxon neighbor. I will

examine this linguistic experiment (U.S. Spanish) that was brought forth not by academics, but rather by Hispanic immigrants to the United States.

Esping, Kai
Computer Science

Project Advisor:
Khoja, S.

Pawful Pets

Pets have been shown to have many positive social and emotional benefits for humans. However, there are many challenges involved with caring for a pet that may prevent a person from owning one. Having real living pets may not always be a viable option, but there is an alternative to real pets: virtual pets. Using Blender and Objective-C, I developed Pawful Pets is an iPhone application that is based around caring for an animated 3D dog. In the virtual reality environment, the dog appears to be moving naturally and life-like. The user is able to interact with the dog by pressing buttons in the menu options that each represents a certain task (e.g. having the dog eat, run, or walk). This application simulates owning a dog in real life through caring for it and giving it affection on a mobile device.

Faagau, Justin
Chavez, Erika
Eppinger, Marc
Kester, Michelle
Business

Project Advisor:
Ramaya, K.

JAUNTY

At Jaunty, we aim to provide every individual with a quality camera that they can feel proud to own and at an affordable price. All of our stakeholders can walk with a jaunty step. Our customers will feel proud knowing that their camera is produced by a company that holds social responsibility as paramount while our investors can be at peace knowing that we are also focused on the bottom-line and will continue to find ways to add value for all stakeholders.

Faith, Brennan
Oshiro-Atabay, Trey
Reed-Dustin, Charles
Business

Project Advisor:
Ramaya, K.

GRADUATE GRAPHICS

We at Graduate Graphics plan to take digital photography to the next level. Our company provides state of the art cameras with cutting edge technology aimed to enhance customer experience. We plan to take advantage of markets in Asia-Pacific and Latin America. Our goal is to continue to push profit and revenue margins up while keeping an above average credit and image rating. Our investors are important to us, so we will strive to raise firm earnings and stock price.

Farley, Ian
Chemistry

Project Advisor:
Ciochina, R.

Fluorescence of N-Substituted Curcumin

Curcumin derivatives were synthesized for the purpose of determining their optical properties. Curcumin is the main biologically active component of the plant Turmeric, found in Southeast Asia and traditionally used in herbal remedies. Curcumin has been found to have anticancer and antioxidant properties that make it a good candidate as a fluorescent biomarker. Curcumin is only weakly fluorescent however, so the synthesis of derivatives with different substituents on the benzene rings has the potential to greatly improve its efficacy as a biomarker. 1,7-diphenyl-1,6-heptadiene-3,5-dione and 1,7-bis (4-diphenylamino)-1,6-heptadiene-3,5-dione were

synthesized from acetylacetone and substituted aldehyde and characterized by H NMR and IR spectroscopy. Future work will include fluorescence studies to determine the optical properties of the derivatives and compare them to curcumin.

Ferrer, Orlando
Social Work

Project Advisor:
Ritter, J.

How To Stop a Bully: The Bullying Triangle

Bullying is a serious social issue that affects people around the world. The detrimental effects caused by this behavior include physical injuries, mental health difficulties, decreased academic achievement, criminality, substance abuse, and there is a strong association between bullying and suicidal-related behaviors. Nearly 1 in 3 students report being bullied during the school year (National Center for Educational Statistics, 2013). Responding to this growing issue, social workers and school personnel have made efforts to decrease bullying in our schools. The Bullying Triangle is a school-based prevention program for the victim, bully, and bystander and is designed to directly intervene in bullying situations in order to deter future incidents. This Senior Capstone project will examine this prevention model and provide an assessment of the feasibility of implementing a program utilizing this model in K-6 public schools in Washington County, Oregon.

Fiddler, Katherine
Public Health

Project Advisor:
McGrath, M.M.

Spanish-language support in western Washington County for people with chronic obstructive pulmonary disorder

Chronic obstructive pulmonary disease (COPD) affects over 24 million people across the U.S. Living with COPD presents many obstacles that have the potential to decrease progress and quality of life. The emotional toll of this disease is evident in the high rate of depression within the COPD community. A linguistically isolated person could feel even more alone living with this disease. Social support is recommended by The American Lung Association as a tool to cope with COPD. Washington County, Oregon has a large Latino/Hispanic population (15%) compared to the nation overall (11.7%) (Population Reference Bureau, 2014), so a support group that serves the Spanish-speaking population would help the community. However, there are presently no trained Spanish-speaking facilitators available to lead such a group. This program meets the need by training facilitators and launching groups. The resulting groups would increase patients' understanding of how COPD works, help reduce risk, and teach ways to better manage COPD in those who previously have been lost in dealing with their disease.

Fiddler, Katherine
Public Health

Project Advisor:
McGrath, M.M.

Spanish-language support in western Washington County for people with chronic obstructive pulmonary disorder

Chronic obstructive pulmonary disease (COPD) affects over 24 million people across the U.S. Living with COPD presents many obstacles that have the potential to decrease progress and quality of life. The emotional toll of this disease is evident in the high rate of depression within the COPD community. A linguistically isolated person could feel even more alone living with this disease. Social support is recommended by The American Lung Association as a tool to cope with COPD. Washington County, Oregon has a large Latino/Hispanic population (15%) compared to the nation overall (11.7%) (Population Reference Bureau, 2014), so a support group that serves the Spanish-speaking population would help the community. However, there are presently no trained Spanish-speaking facilitators available to lead such a group. This program

meets the need by training facilitators and launching groups. The resulting groups would increase patients' understanding of how COPD works, help reduce risk, and teach ways to better manage COPD in those who previously have been lost in dealing with their disease.

Flores, Mabel
Environmental Science: Biology

Project Advisor:
Van Buskirk

Assistance Animal Policy

Eleven percent of college and university students across the country have a disability and/or are physically or mentally impaired. Though assistance for students with mobility or sensory limitations is widely accepted, some special needs students require assistance in the form of emotional support or therapy animals. Until recently assistance animals were commonly viewed as “pets” and were not allowed on campus residential housing. However in 2013 the Fair Housing Act was extended to address assistance animals kept in public housing or institutions that receive federal funding by calling for “reasonable accommodations” to be made for people receiving assistance from these animals. For my project I created an Assistance Animal Policy for Pacific University that complies with federal and state guidelines and that provides a safe university housing environment for assistance animals and their student owners. I created this Policy by reviewing multiple assistance animal policies from universities across the country, collaborating with Learning Support Services and University Housing, consulting with Pacific University faculty and staff, and interviewing officials from other universities to review problems they may have had with their policies. The new policy will provide reasonable accommodations for students living in university housing with assistance animals and provide helpful guidelines that will assist in the care of the animals and provide the maximum benefits to the students. Adoption of this policy would establish Pacific University as an innovator in addressing benefits for students with disabilities and also provide a model that other institutions and facilities can use for their own university housing policies.

Ford, Michele
English

Project Advisor:
Mitra, K.

The Stray Prince

My capstone project consists of two parts: my critical introduction and a short story, “The Stray Prince.” My story is set in a high fantasy world and follows two hours in the life of Finnegan Arkae, the titular prince. Finn’s older sister, Maeve, is the future queen of Cordelais, and Finn himself is his father’s choice successor for ruling the city of Bosra. But Finn bears a dangerous and hidden magic—one that could give his family cause to exile him. He is a Strayblood: a person who comes from a nonmagical family and yet, by some unknown cause, has magic. “The Stray Prince” explores the intersection of one’s obligation to his/her country and one’s obligation to family. The critical portion of my thesis develops this theme and analyzes the Young Adult (YA) genre and how my story both works within the genre and beyond it. The audience for “The Stray Prince” is not limited to young readers; instead, my story better fits in the broader realm of fantasy in that it resists the limitations of audience-based genre. Ursula K. Le Guin, Patrick Rothfuss, Brandon Sanderson, and Jim Butcher wrote young characters in mature worlds, and my goal in “The Stray Prince” was to follow their lead and continue to deconstruct the Young Adult genre.

Fox, Elizabeth
Art History

Project Advisor:
Twist, R.

Sexualization of Female Characters in Final Fantasy VII: An Art-Historical Analysis

Video games as an art medium are able to be analyzed critically, like any other type of art. There are levels of understanding that can be reached, messages that can be conveyed, and conclusions

players or viewers are able to draw. This research project aims to analyze the female characters of one game, Squaresoft's *Final Fantasy VII*, and to form certain feminist and cultural conclusions based on this analysis. In particular, I study the iconography of the female characters in this game, considering their appearance of form, race and culture, costume design, and roles. This study reveals that the female characters of the game are sexualized according to the male gaze, from their rendering as archetypes of feminine beauty, including Orientalism, to their functions and stereotyped personalities. As such, they become caricatures that are damaging to a player's view of women.

Frazier, Grayson
Gini, Meghann
Exercise Science

Project Advisor:
Jackson, B.

The Effects of Stroboscopic Vision Training on a Task Performance and Retention

The SPARQ Vapor Strobes by Nike are self-proclaimed to be “a revolutionary, scientifically-proven vision training tool to help athletes see clearer, think quicker, and move faster”. By using battery-powered liquid crystal lenses alternating between transparent and opaque states, the strobes provide varying lengths of occlusion making the eyes and brain adjust to the limited frequency of information that the visual system has access to (Holliday, 2013). By limiting the frequency of information that the visual system has access to, it forces individuals to reduce their reliance on feedback, causing them to react and make decisions quicker (Appelbaum et al., 2011). There is a variety of visual training programs to enhance performance, from assessing anticipatory timing to dynamic visual acuity to improving visual cognition; however the research is still limited as to the effectiveness, particularly the prolonged effectiveness of stroboscopic training in enhancing sports vision. **Purpose:** To provide further evidence within the expanding field of sports vision by examining the effects of stroboscopic visual training on a variety of motor tasks. Furthermore, if the stroboscopic visual training does produce enhanced task performance, the proposed study will examine whether those effects persist over an extended period of time. **Methods:** Participants were randomly assigned to one of four visual conditions based on the level of strobe frequency: Level 2, Level 4, Level 7, Control (non-occlusion goggles). Training was provided on dynamic balance, card sorting, and ball catching tasks utilizing the assigned visual condition. Participants were tested before, after, and two days following the training session to determine both short and long-term effects. **Data Analysis:** 4x3 (Condition x Time) Repeated Measure ANOVA's were performed to determine whether visual training condition had an effect on participants' performance across time (pre-, post, retention). In addition, correlations were used to determine the relationship between training effects and sport experience. **Results and Conclusion:** Will be presented as to the generalizable aspects of stroboscopic vision training using the Nike SPARQ Vapor Strobes, and their effects on task performance and retention. The results will enhance athletes' and coaches' knowledge about the pros and cons of stroboscopic training.

French, Douglas
Public Health

Project Advisor:
McGrath, M.M.

Educating Willamette Valley vineyard owners about Latinos

Oregon is home to 545 wineries, 325 of them located in the North Willamette Valley. Though 95% of vineyard workers are Latino, the overwhelming majority of vineyards are owned by non-Latinos (Cole, 2013; National Economic Development and Law Center, 2006). Latino day laborers suffer from greater amount of acculturation stress than Latinos in other employment, and acculturation stress has been linked to depression (Finch, Frank, & Vega, 2004; Salgado, Castañeda, Talevera, & Lindsay, 2012; Hovey, & Magana, 2002), yet vineyard owners may have

limited understanding of these issues. Hanover and Cellar (1998) found that educating managers in diversity programs led managers to support more culturally competent policies in the work site. The present program will work in tandem with ¡Salud! Services, a nonprofit that provides mobile clinics at vineyards. It will educate vineyard owners about their workforce through sessions about Latino history in Oregon, challenges created by immigration policy, and the cultures of Mexican states represented in the local workforce. The program will reduce acculturation stress by creating a more culturally sensitive work environment.

Frischia, Stacy
Biology

Project Advisor:
Halpern, S.

Plant Gossip:

Communication between ramets of *Solanum dulcamara* during a herbivore attack

When plants are under attack by herbivores, an induced response may occur, in which a plant raises the production of defensive chemicals, thus minimizing damage. A plant may communicate induction to neighboring plants via airborne volatile signals. In species with clonal architecture, ramets also can send communication signals via phloem in rhizomes. We conducted a study on *Solanum dulcamara* to determine how distance between ramets affects the way a clonal network communicates. We conducted two separate experiments: the first to determine the role of volatiles in a clonal network, and the second to determine how distance between ramets affects magnitude of induction in the neighbors of damaged ramets. We used *Spodoptera exigua* larvae in choice and no-choice bioassays to determine magnitude of induction. The no-choice bioassay detected no induced responses in either experiment. Though we detected an induced response in the choice bioassay, there was no sign in either experiment of the damaged plants communicating to their neighbors. The lack of communication may be due to inter-ramet competition.

Fujita, Hayato
Biology

Project Advisor:
Sardinia, L

To Control or to be Controlled:

The Level of Behavior Manipulation by the Human Gut Microbiota

Bacteria living in the intestinal organs of host animals are capable of interacting with the host brain activity through accessing the vagus nerve. Research with mice provides evidence that the gut microbes can cause significant behavioral alterations associated with depression and stress. Although studies have successfully isolated the various influences the gut bacterial composition can have on the host brain, it is not yet clear how the intestinal bacteria can affect the human mind. Surgical approaches on the vagus nerve or the stomach to treat obesity have been focused on a microbiological perspective to assess whether the suppression of hunger was achieved from the alteration in the gut microbial composition or its capability to control the host organism's eating habits. This paper explores the mechanisms of host manipulation by the gut microbiota and analyzes the effectiveness of several surgical treatments for obesity in terms of controlling the gut microbes to benefit the host's health conditions.

Gallagher, Austin
Lukose, Namitha
Van, Evangeline
Business

Project Advisor:
Ramaya, K.

IMAGENIE INC.

Imagenie Inc. strives to foster relationships with consumers and communities through the launch of innovative products with an emphasis on profitable solutions and services. We aspire to

become a leader in the global camera industry by creating products that enrich lifestyles while fulfilling our social responsibility as good citizens.

Gardner, Susan
Public Health

Project Advisor:
McGrath, M.M.

Salud Mental: Mental health for migrant and seasonal vineyard workers

Migrant and seasonal farmworkers (MSFWs) are at an elevated risk for developing mental illness or poor mental health due to their dangerous working conditions, their unique lifestyle, and lack of access to mental health care. As a result, one in five migrant farmworkers will experience one or more episodes of a psychiatric disorder in their lifetime (Grzywacz et al, 2008). *Salud Mental* aims to improve this problem for MSFWs working in Oregon vineyards by adding a mental health care component to an existing program known as ¡*Salud!* Services. *Salud Mental* consists of two main activities: cognitive behavioral therapy (CBT) weekly group sessions and CBT phone sessions, which have been shown to be effective in the MSFW community (Hovey, Hurtado, & Seligman, 2014; Dwight-Johnson, Aisenberg, Golinelli, Hong, O'Brien, & Ludman, 2011). The program will also be culturally sensitive, because it is community-based and includes community health workers, which have been shown to be culturally appropriate to the MSFW community (Hovey, Hurtado, & Seligman, 2014; Añez, Silva, Paris, & Bedregal, 2008). Through these tailored activities, *Salud Mental* aims to improve the overall well-being and increase the utilization of mental health care services by MSFWs in Oregon.

Gates, Jessica
Anthropology, French

Project Advisors:
Greer, A.
Hardin, J.
Purdy, J.

À L'Aise (At Ease)

Ethnomusicology study of a young urban music group in Senegal

This thesis in ethnomusicology features a group of musicians that I encountered during my studies abroad in Dakar, Senegal. I conducted ethnographic fieldwork based on the subculture that the group created. In my project, I focus on how the group preserves the cultural values of a wider community in Senegal. Through video recording and interviews I created a visual anthropology film that illustrates the ways in which this group rejects capitalistic ideas concerning money and individualism and embraces an ideal of sharing and community. Anthropologically this project contributes to an understanding of time and productivity as culturally constructed concepts, which this group defines through an ethos of always being at peace.

Gillespie, Taylor
Sociology

Project Advisor:
Eisen, D.

How do the Structures of Race and Racialization Influence a Multiracial individual's Racial Identity at a Predominantly White University?

This project examines how the structures of race and racialization influence the racial identity of multiracial individuals on a predominately white university. There are many factors that influence an individuals' racially identity and being multiracial often complicates one's understanding and perception of the self. More specifically in a college setting and how the university impacts, caters to, or recognizes different cultures. Data for this study were collected through seven interviews with current Pacific students, who identify as multiracial. Inductive coding was used to identify reoccurring themes related to how participants' experiences on campus has influenced their racial identity. I found that friend groups, social situations, previous

experiences with race, and others' assumptions of their race are all factors that influence a multiracial student's racial identity. Other aspects that influence one's racial identity are the overall current perceived diversity and the number of people who share a similar racial make-up as them on the Pacific University campus.

Gini, Meghann

Project Advisor:

Frazier, Grayson

Jackson, B.

Exercise Science

The Effects of Stroboscopic Vision Training on a Task Performance and Retention

The SPARQ Vapor Strobes by Nike are self-proclaimed to be “a revolutionary, scientifically-proven vision training tool to help athletes see clearer, think quicker, and move faster”. By using battery-powered liquid crystal lenses alternating between transparent and opaque states, the strobes provide varying lengths of occlusion making the eyes and brain adjust to the limited frequency of information that the visual system has access to (Holliday, 2013). By limiting the frequency of information that the visual system has access to, it forces individuals to reduce their reliance on feedback, causing them to react and make decisions quicker (Appelbaum et al., 2011). There is a variety of visual training programs to enhance performance, from assessing anticipatory timing to dynamic visual acuity to improving visual cognition; however the research is still limited as to the effectiveness, particularly the prolonged effectiveness of stroboscopic training in enhancing sports vision. **Purpose:** To provide further evidence within the expanding field of sports vision by examining the effects of stroboscopic visual training on a variety of motor tasks. Furthermore, if the stroboscopic visual training does produce enhanced task performance, the proposed study will examine whether those effects persist over an extended period of time. **Methods:** Participants were randomly assigned to one of four visual conditions based on the level of strobe frequency: Level 2, Level 4, Level 7, Control (non-occlusion goggles). Training was provided on dynamic balance, card sorting, and ball catching tasks utilizing the assigned visual condition. Participants were tested before, after, and two days following the training session to determine both short and long-term effects. **Data Analysis:** 4x3 (Condition x Time) Repeated Measure ANOVA's were performed to determine whether visual training condition had an effect on participants' performance across time (pre-, post, retention). In addition, correlations were used to determine the relationship between training effects and sport experience. **Results and Conclusion:** Will be presented as to the generalizable aspects of stroboscopic vision training using the Nike SPARQ Vapor Strobes, and their effects on task performance and retention. The results will enhance athletes' and coaches' knowledge about the pros and cons of stroboscopic training.

Gonzalez, Velen

Project Advisor:

Public Health

McGrath, M.M.

Partnering for sexual health in Latino families:

An intergenerational intervention in Washington County, Oregon

Washington County has been growing overall and now has a large population of Latino residents. The main contributor to the Latino population growth is birth rates: in 2010 the Latino birth rate was 1.6 times higher than the general population's (County Health Rankings, 2014). These rates are driven by a lack of contraception and contraceptive misuse (U.S. Department of Health and Human Services, 2010). These behaviors also result in higher rates of sexually transmitted infections: Latinos are 1.5 times more likely than their White counterparts to contract chlamydia (Healthy Columbia Willamette, 2014). Proven methods of combating these issues are comprehensive sex education and parent involvement (Kirby, 2008; Center for Latino

Adolescent and Family Health, 2014). By implementing a dual parent and youth program that is culturally specific, birth and STI rates will be reduced. People who receive more information on contraception become more receptive and in turn can increase proper contraception use. Additionally, parental involvement will increase familial communication and therefore increase adolescents' receptiveness to the information presented. Parental involvement can also delay sexual debut. By reformulating evidence-based interventions to tailor them to Latinos in Washington County, the program will increase familial communication and decrease disparities in sexual health.

**Goshi, Kimilyn
Johnson, Jordan
McDougall, Kindra
Business**

**Project Advisor:
Ramaya, K.**

EVOLUTION IMAGING

At Evolution Imaging we manufacture the most advanced cameras at attractive prices. We strive to create the most evolved cameras in the industry to satisfy the growing technological demands of our customers. To do this we are setting ourselves apart with high Performance and Quality Ratings, advanced technology in both our entry-level and multi-featured cameras at moderate costs relative to our competitors. We provide great value for the dollar. We develop brand loyalty with our customers and the communities that we serve.

**Grandinetti, Riley
Lawrence, Jakob
Torii, Kaela
Business**

**Project Advisor:
Ramaya, K.**

HIJACK CAMERAS

We at Hijack Cameras sell our products in North America, Europe-Africa, Asia-Pacific, and Latin America. At Hijack Cameras we offer a variety of cameras that are both multi-featured and entry-level. We pride ourselves in being a good corporate citizenship and won the gold star award for our efforts. We continue to search for new ways to grow and add value for our customers with our exciting products.

**Greenwood, Nicholas
Biology**

**Project Advisor:
Scholnick, D.**

Genetic and physiologic immune response mechanisms used by Atlantic, pink, and chum salmon in defense of the sea louse, *Lepeophtheirus salmonis*

Lepeophtheirus salmonis, sea louse, are common fish macroparasites that feed on mucus, scales, and blood. In large numbers, sea louse can cause emaciation, imbalances in osmotic pressure, skin erosion, bleeding, increased susceptibility to other diseases, and ultimately death for the host fish. For my capstone project, I examined the ability of salmon to fight parasitic sea louse infections. There appears to be a large disparity in the ability of different salmon species to mount an immune response to sea louse infections. Research shows that pink salmon are significantly more resistant to parasitic infection of *L. salmonis* than both chum and Atlantic salmon. Resistance is due to upregulation of key innate immune genes that are responsible for inflammation. In fish susceptible to sea louse infection, such as Atlantic salmon, immune genes such as C/EBP β , IL-10, and TGF β were down-regulated when the fish were exposed to *L. salmonis*. Pink salmon have also been shown to have significantly more macrophage cells producing oxygen radicals, a key step in the innate immune response necessary for removing parasites, than chum and Atlantic salmon. Further, parasite excretions have been shown to have an inhibitory effect on immune gene expression in Atlantic and chum salmon but not in pink

salmon. Together, these findings suggest that the interactions between sea louse and host at the genetic and cellular levels are species specific. These findings could help salmon farming industries by influencing what types of salmon are raised or where farms could be located to have minimal impacts on wild salmon populations. In addition, a better understanding of the origins of salmon susceptibility to sea louse infection could help protect farm raised salmon from sea louse infestations.

Gundle, Michael
Rincon, Edgar
Exercise Science

Project Advisor:
Alstot, A.

Validity, Reliability, and Effectiveness of a Physical Activity Monitoring Device

In American society, the obesity rates have climbed over the last few decades because of poor diet and a lack of physical activity (PA). It is recommended that U.S. adults engage in moderate to vigorous intensity PA for a minimum of 150 minutes on a weekly basis. Physical activity monitors, such as the Nike Fuelband, can help provide feedback to users regarding intensity and amounts of PA; this feedback may also help to encourage an increase daily PA. However, it is unknown if these devices provide accurate feedback to their users or if they positively impact the amount or intensity of PA. Therefore, the purpose of this study was to examine the accuracy of the Nike Fuelband during PA as well as its impact on exercise intensity. Participants alternated between a series of workouts where they wore a Nike Fuelband and workouts where they did not. During these sessions, they were also asked to wear a heart rate monitor to measure exercise intensity. Exercise intensity data were then plotted on a line graph to examine for response differentiation between sessions where the Fuelband was worn and sessions where it was not. Data were also analyzed examining the validity and reliability of the device. Results and conclusions will be discussed on Senior Projects Day.

Gustafson, Deja
Dance

Project Advisor:
Camp, J.

Tapping through Time

Tapping through Time was a six-week tap course that was designed and taught from January 10th through February 14, 2015. It was created with the goal to increase young dancers interest in tap dancing by combining both a tap dance class with an overview of American tap dance history. The course took place from Saturday afternoons at New Vision Dance Center in Beaverton, Oregon to ten dancers from seven to ten years old. The students learned about dance legends such as Shirley Temple, Gene Kelly, and Eleanor Powell. As a class, the students explored the varying technical strengths of each performer discussed from history, and then applied those qualities to their own set of dance skills. Tapping through Time gave each dancer an opportunity to find their own potential both through tap dancing and through a greater understanding of tap history. This course attempted to combine both informational material and physical movement within a dance studio setting. This course also demonstrates how a teacher can incorporate basic dance history into a dance studio setting in order to cultivate a greater interest within a specific style of dance. It is hoped that Tapping through Time may be used as a reference tool for future teachers to inspire young dancers to attempt new dance styles as well as to get students more involved in all forms of traditional dance. Tapping through Time was developed and instructed by Deja Gustafson, and fully supported by New Vision Dance Center.

Hailey, Alexandria
Sociology

Project Advisor:
Eisen, D.

Irish Dance as Simulacrum: Is Irish Dancing Still Irish Dancing?

Historically, Irish dancing served as a visual expression of cultural heritage and history, making the dance important in preserving Irish culture. Similar to the oral tradition of storytelling, traditional choreography and techniques were passed down from dance teacher to student with an emphasis on the oral transmission of knowledge. The emergence of dance shows like *Riverdance* in the past two decades has increased the popularity of Irish dance. Often the traditional aspects of the dance are left behind in favor of more creative, athletic, and exciting methods of dance, extravagant costumes with bright colors, bold designs, and rhinestones, and wigs that replace naturally curled hair. Using Baudrillard's concept of simulacrum to analyze interview data, I examined how dancers understood the origin of Irish dancing to see if that perceived origin has been altered throughout the progression of Irish dance. Participants used the knowledge of traditional forms and practices of Irish dance as cultural capital, which enabled them to modernize Irish dance, perhaps constructing a mere simulacrum of Irish dance. Ultimately, this research examines the progression of the art form and how that shift has impacted Irish dance as a whole.

Hale, Heather
Public Health

Project Advisor:
McGrath, M.M.

Social support for Pacific University Student smokers

In the United States, 18.1% of all adults (aged 18 years or older) smoke cigarettes (CDC, 2014a). On May 31st, 2015, all of Pacific University's campuses will become smoke-free. The reasoning of this is to promote healthier lifestyles for Pacific University students, faculty, and staff. Smoking is the leading cause of preventable death in the United States (CDC, 2014b). Although some people may not choose to quit smoking while attending the university, many may want to as a way to improve their health. Studies show that social support aids in smoking cessation efforts compared to those that did not have social support (Carlson, Goodey, Bennett, Taenzer, & Koopmans, 2002). The Social Support for Pacific University Student Smokers group is aimed at undergraduate students at Pacific University that want to quit smoking. The program includes monitoring of participants' quitting successes; education on the effects of smoking on the human body; social support at meetings through discussion; and resources such as nicotine patches or methods that combat cravings to help participants continue to be smoke-free. The program is designed to help young adult smokers become smoke-free at Pacific University.

Hall, Breanne
Creative Writing

Project Advisor:
Postma, K.

Road of Grief: Exploring Loss in Young Adult Fiction

My senior thesis focuses on the first chapters of my novel *Asphalt Chasers*, in which I explore the subject of young adults and grief. The story follows eighteen-year-old Ellie as she graduates from high school and embarks on a road trip with her mischievous and fearless cousin. Ellie is running away from many things: her over-protective father, her dreamless Kansas hometown, and most importantly the recent loss of her mother. Since this novel explores grief in young adults, my research consisted of reading and studying novels that dealt with the topic, such as *Waiting* by Carol Lynch Williams and Nina LaCour's *Hold Still*. Both novels dive into the process of recollecting oneself as a teenager after a loved one dies. Grief is a mysterious occurrence because it can be unpredictable and affects each individual differently. My interest in writing about this subjects springs from my own personal experience. I want to write a novel for a younger reader who has experienced the death of a loved one and who needs someone to connect with, in this case an adventuresome and grieving fictionalized young adult.

Hall, Tianna

Project Advisor:

Sociology**Whitehead, J.****Living in a “Man’s World”: The Stigmatized Identity of Female Wrestlers**

This study reveals how female wrestlers perceive and manage negative stereotypes associated with their participation in the highly masculinized sport of wrestling. The study also examines the way in which outside perceptions influence how female wrestlers “do gender” (meaning how they present or express gender) both on and off the mat. These objectives are explored through the stories that they tell from their wrestling careers, including the ways that they interact with their team and the wrestling community. The conclusions of this study are based on eleven qualitative interviews with female wrestlers ranging from high school wrestlers with as few as two years of experience to an Olympic competitor who has made a career out of the sport. Results include an analysis of different attitudes that women and men have within the wrestling community and the disconnect between the female wrestler’s performance of gender in a wrestling atmosphere versus when she is living her everyday life.

Hampton, Victoria
Media Arts (Journalism)**Project Advisor:**
Cassady, D.**How Small Newspapers Survive**

Media chain groups are currently the sustainable business models of newspapers. Owning a group of newspapers that centralize aspects of publishing such as printing and web management drastically cuts costs. These media groups have successfully maintained many publications that may not be around today if not for media chains. Yet, in Oregon numerous independent, small town newspapers exist and are an important news source for their communities. This projects look at several independent newspapers with the main objective being how do they survive in today’s market. The study also focuses on literature focusing on the future of independent newspapers and media chain groups. This project is a projection of where print media is heading while keeping a conscious awareness of the importance of small publications to their communities.

Hampton, Victoria
English**Project Advisor:**
Mitra, K.**Somewhere Between Hope and Paradise**

My creative writing capstone includes the opening chapters of *Somewhere Between Hope and Paradise*, a novel that captures the hardship of childhood cancer and the essence of small town life in Montana. The story follows the life of Lilly, a seven-year-old girl that is the binding element holding her family together, who is diagnosed with leukemia. While Lilly battles for her life, her brother, Dillon, and mother, Meredith, deal with the pressure of rising above their social class in a community with minimal opportunity. For Meredith, this means defining herself as something more than a recovering drug addict. For Dillon, it’s making a future for himself outside of the confines of a small town. In order to realistically capture a hospital setting in my novel while also familiarizing myself with character of children being treated for cancer I volunteered at Doernbecher Children’s Hospital in the oncology unit. My desire to conduct outside research was sparked by authors like Jodi Picoult and Nicholas Evans who invest copious amounts of time learning about every aspect of the topic covered in their books. Having never experienced a children’s unit in a hospital, my volunteer position allowed me to reflect in a journal all that happened during my shifts and also grasp the intricacies of adolescent mortality and hospital life. This explorative project was designed to improve my skills of adapting research into fictional settings and articulate the intricacies of childhood illness.

Hand, Brandon
Politics and Government**Project Advisors:**
Boykoff J.

Van Dyk, R.

The Power of Portrayal: Whistleblowers and the Media

Whistleblowers act as a check against overarching government power, so the portrayals of whistleblowers in mass-media outlets would benefit from a comparative mass-media analysis. I used case studies of Daniel Ellsberg (1971) and Edward Snowden (2013) to answer the questions: How are whistleblowers framed in mass media? How do these frames serve to aid or work against whistleblowers? Using their portrayals in the media, I identified frames (Whistleblower, Traitor, Sympathy,) used by media to portray whistleblowers and determine to what extent these positive, negative, or neutral frames helped or hurt the whistleblowers. My analysis explores how these identified frames relate to the broader classification of whistleblower events as episodic or thematic. I used the Nexis Lexus Academic and ProQuest Historical databases to gather the newsprint media from the following outlets: The Guardian, USA Today, New York Times, Washington Post, New York Post, and the San Jose Mercury Times. And, for these publications, I used search terms: “Daniel Ellsberg, Pentagon Papers, Vietnam” and “Edward Snowden, NSA Leak, Privacy” for each respective case study.

Hara, Megan
Chemistry

Project Advisor:
Cordes, D.

Synthesis and characterization of dibenzylideneacetone and its derivatives

Dibenzylideneacetone, a highly conjugated compound, was synthesized and characterized to determine its fluorescent properties. Three of its derivatives were also synthesized, each possessing boronic acid side groups in the *ortho*-, *meta*- or *para*- positions. Each derivative was synthesized and characterized to determine its fluorescent properties and was compared to the parent compound. The characterization techniques used were melting point, mass spectrometry, infrared spectroscopy, nuclear magnetic resonance, ultraviolet visible spectroscopy, and fluorescence spectroscopy. Additional work was done to determine the response of these boronic acid-substituted fluorescent compounds to the presence of monosaccharides such as glucose, galactose, and fructose.

Harder, Eric
Politics and Government

Project Advisor:
Van Dyk, R.

The Washington Redskins: A Media Study

This thesis conducts a source analysis comparing sports journalism and mainstream journalism of the conflict surrounding the name controversy of the NFL football team, the Washington Redskins. Several sources from the two categories of journalism were coded for five specific source categories that show the difference in sources used in the articles. I used this to track a difference between the two categories of journalism. I found that the two types of journalism are almost identical with regards to pulling the same sources. However Native American sources were slightly higher in the mainstream sources, which include the Washington Post and USA Today. In addition to a source analysis I performed a longitudinal study showing the upward trend of articles available in favor of changing the name from 1990-2015, which shows a spike in coverage from 2012 to present. For example President Obama voiced his opinion on the topic, which influenced the spike in 2012. Historic factors are used to explain the jumps in coverage over time.

Hargitt, Michael
Exercise Science

Project Advisor:
Dolphin, K.

The effect of manipulated performance feedback on affect and stress reactivity in competitive swimmers

Over 80 million Americans are affected by cardiovascular diseases such as hypertension, coronary artery disease, and atherosclerosis. A heightened physiological reaction to stress increases the risk of developing cardiovascular disease. Thus, identifying the factors that influence our stress reactivity could help reduce the prevalence of cardiovascular diseases. Physical activity has been shown to attenuate stress reactivity, potentially due to a sense of mastery from successfully completing a demanding exercise task. **Purpose:** The purpose of this study is twofold: (1) to reexamine the stress-buffering effect of aerobic exercise in competitive athletes; and (2) to determine if perceived performance moderates the ability of exercise to buffer cardiovascular reactivity. **Methods:** Collegiate swimmers ($n = 15$) were randomly assigned to one of four conditions: (1) high performance feedback; (2) low performance feedback; (3) accurate performance feedback; and (4) control. All four groups went through a series of cognitive and social tasks to induce stress while heart rate and blood pressure reactivity were measured. Data were analyzed using a repeated measures analysis of variance for each of the reactivity variables. **Results:** Findings will be presented Senior Projects day.

Harms, Brandon
Mathematics Department

Project Advisor:
Guenther, C.

Multimode Quantum State Measurement

In our current electronic world, we have found a need to strive for faster speeds. One way of accomplishing this task is by transmitting information via light photonics. In order to advance this technology, it is necessary to be able to characterize light that has been stopped and stored. In my project, we were able to characterize an original weak, signal beam of light by interfering it with a strong reference beam and observing the intensity pattern formed in space on our array detector. We determine the spatial frequencies or "modes" associated with this interference pattern using Fourier Analysis. With our array detection technique, we are able to plot the average photon count vs the plane wave mode angle for every mode that contributes to the pattern.

Harms, Brandon
Physics

Project Advisor:
Dawes, A.

Multimode Quantum State Measurement

In our current electronic world, we have found a need to strive for faster speeds. One way of accomplishing this task is by converting our world into photonics. In order to advance this technology, it is necessary to be able to characterize light that has been stopped and stored. We are able to characterize an original weak, signal beam of light by interfering it with a strong reference beam and observing the intensity pattern formed in space on our array detector. We determine the spatial frequencies or "modes" associated with this interference pattern using Fourier Analysis. With our array detection technique, we are able to plot the average photon count vs the plane wave mode angle for every mode that contributes to the pattern.

Hatch, Alex
Politics and Government

Project Advisor:
Seward, J.
Van Dyk, R.

Exit Right: Success, Failure, and Collective Action in the Christian Right

Beginning in the early 1980's, an informal coalition of conservative political and religious leaders in the United States came together to instill Christian values into American politics through what came to be known as the Christian Right. The plethora of organizations that fell under the Christian Right umbrella engaged in a wide range of tactics to reach their goals to varying degrees of success. Some groups, like the Moral Majority, Family Research Council, and the Christian Coalition, typically utilized traditional channels and methods, while

organizations like Operation Rescue were more transgressive in nature. This study tests the ability of a set of six specific preconditions to measure the ability of each organization to mobilize effectively and evaluates the degree to which each organization was successful. The study ultimately concludes that the organizations that mobilized most effectively tended to have little impact outside the Christian community, and those that had the greatest lasting societal impact often did so because of the overwhelming influence of one or two significant leaders within the organization.

Hattig, Jess
Public Health

Project Advisor:
McGrath, M.M.

Integrating the Well-Visit Planner to adolescent care at St. Vincent's Hospital in Portland, Oregon

The Well-Visit Planner (WVP) was developed to increase engagement between patients and health care providers (CAHMI, 2014). By implementing the WVP to adolescent care in a pilot program at St. Vincent's Hospital, the WVP will be assessed for its efficiency in improving adolescent health and increasing engagement between pediatricians and adolescents. This engagement is essential because adolescence is a crucial life stage during which key developmental milestones occur. Patients involved in their health care have better health outcomes (James et al. 2013). Therefore, increasing engagement between patients and pediatricians will help adolescents cope with the challenges and growth associated with puberty.

Haymond, Joshua
Computer Science

Project Advisor:
Khoja, S.

FRAMES: Free Research Assistant for Media Studies

In political science, researchers often analyze large sets of news reports to determine how an issue or event is portrayed. Gathering these data sets is tedious, and researchers must read through every article in these datasets individually to find the information that interests them. Using the Python programming language along with cutting edge natural language processing (NLP) algorithms, I developed FRAMES to solve this problem. FRAMES uses an ever-expanding NoSQL database of news articles from various providers, and it tracks the names of people and organizations that are quoted in those articles. By automating these key steps of methodology, FRAMES makes it easier for media researchers to publish their results while the topics they study are still in the public eye.

Heinz, Alica
World Languages and Literature: Spanish

Project Advisor:
Wilson, J.
Christoph, N.

Loss of Language with Hispanic Families

Children of Hispanic immigrants are losing their ability to speak Spanish; although this is necessary for integration into U.S. society and in many cases beneficial to the integration into our society, it also causes a disconnect to their families, culture, and place of origin. This paper looks at language loss trends and how it affects future generations. The observations from bilingual education elementary school, Echo Shaw, an interview from a 19 year old second generation female, and research from literary articles are used to answer the following question: Is the loss of language a detriment to the lives of Hispanic children or do the benefits, the ability to interact with the English speaking population, outweigh the loss? At this time, according to my research, it looks like it is beneficial for people to learn English to integrate better into society but it also creates a language barrier between generations. When future generations learn English many of them stop using Spanish or lose the ability to use it at all. This does not become a large problem until the future generations can no longer communicate with the older ones. Bilingual education is shown to help with dual language ability however when children are face with the choice between languages in a school setting the majority of them choose to focus on the language they already know the best and their second language ability falls behind as a result.
*PRESENTATION WILL BE IN SPANISH

Heredia, Wesley
Environmental Studies- Sustainable Design

Project Advisor:
Van Buskirk, R.

Take a hike! A partnership with CALC and AWL for At-Risk Youth

It has been known for decades that the outdoors provides many benefits to people, from relieving stress to helping children with learning disabilities and helping youth discover and develop their character. In recent decades outdoor recreation has seen major growth in participation and accessibility. However, there is a demographic that does not have the same amount of access compared to the average American. At-risk, low-income, and minority youth are a part of the population that does not have equal access to the outdoors nor its benefits. My project consisted of establishing an outdoor program with the Community Alternative Learning Center (CALC) in the Forest Grove School District that will result in an ongoing partnership with the non-profit outdoor organization, Adventures Without Limits (AWL), located in Forest Grove. Building on my research into outdoor programs for at-risk youth, I worked with the head instructor at the CALC to develop a program tailored to the needs of their students. A general goal in any adventure-based program is to teach outdoor skills to the participants. At the CALC, however, one of the biggest things that students are missing is a sense of teamwork. With this understanding, I developed a program to be delivered by AWL that will meet the needs of the CALC students: teambuilding, education, and general enjoyment. Activities include teambuilding games that promote goal resolution skills, educational lessons on natural history of the area that could be transferred as school credits, and knowledge of outdoor physical activities. Experiencing physical challenges in a new environment allows people to develop skills to overcome fears or to move past adversity, which then allows for application of these skills to real life.

Hinges, Emilee
Media Arts (Journalism)

Project Advisor:
Cassady, D.

Beachbody Brochure

This capstone, is a promotional publication, specifically a magazine, for an at-home fitness company. The company is named Beachbody, and it provides a program, called “coaching”, for individuals to earn an income and help others start on their fitness journey. The project covers the stories of several coaches of how they started, and why they continue to be a Coach. It contains interviews, information, articles, and pictures, presented in a magazine format.

Hoglund, Chelsey
Exercise Science

Project Advisor:
Henry, S.

The difference of physiological functions while cycling on land and in water

Pulmonary function is an essential part of exercise. It can be measured with maximal flow-volume loops, maximal voluntary ventilation (MVV), and minute ventilation (V_E). Heart rate (HR) and rate of perceived exertion (RPE) also provide information about physiological functioning during human movement. Although exercise occurs in many different settings, water as an exercise environment is becoming increasingly popular. Some forms of water exercise, such as swimming and water aerobics, have been extensively studied. However, there is minimal research investigating the difference of pulmonary function and other physiological responses at a set work rate between land and water. **Purpose:** The purpose of this study was to determine and quantify the difference in HR, RPE, and pulmonary function while performing cycle ergometry on land and in water. **Methods:** Thirty volunteer, healthy adults (mean \pm SD; age = 20.17 ± 1.23 yr; stature = 1.65 ± 0.07 m; mass = 66.53 ± 10.11 kg) successfully completed the study. Testing order was counter-balanced and included cycling on land and in water, with an appropriate break between the two conditions. A custom-designed cycle ergometer, allowing for measurement of workload in watts, was used in both land and water conditions. For water condition, participants pedaled on the cycle ergometer while submersed to waist level in thermo-neutral water. Flow-volume loops, MVV, V_E , VO_2 consumption, CO_2 exhalation, HR, and RPE were measured prior to initiation of biking (resting condition), pedaling with no resistance (0 W), pedaling at 50 W, and pedaling at 100 W. Each stage was two minutes in duration, to ensure steady-state physiological measurements. The water cycling condition and the land cycling condition were alike in all manner, with the exception of the water. A repeated measures two-way ANOVA with post hoc tests was utilized to analyze data. **Results:** To be presented.

Hollinger-Lant, Paige
Public Health

Project Advisor:
McGrath, M.M.

Food for Thought: A gardening and cooking program at the community senior center in Hillsboro, Oregon

About 80% of older Americans are living with at least one chronic condition (CDC, 2007). One factor that leads to chronic conditions is poor eating habits: research has shown that insufficient food intake among seniors is a serious problem that often escapes recognition until definite physical changes are evident (Brownie, 2006). The Community Senior Center in Hillsboro, Oregon offers daily lunches for seniors, but the meal does not provide adequate nutrition for an entire day. Consequently, patrons may have unhealthy eating habits during other meals if nutritious food is not available due to financial, motivational, and/or physical barriers. Food for Thought addresses these needs through two main components: a community-center garden and weekly cooking classes. Gardening has been proven successful in improving diet and reducing obesity, along with enhancing fruit and vegetable consumption (Davis, et al., 2011). In addition to the opportunity to grow nutritious food in a garden near the Senior Center, seniors will learn healthy cooking techniques and have additional opportunities for socializing. Food for Thought

program will motivate older adults to eat nourishing food and will improve their overall well-being by decreasing chronic conditions.

Horikawa, Cydni
Kageyama, Kanoelani
College of Education

Project Advisor:
Zijdemans Boudreau, A.

An Ethnographic Study of the Forest Grove Community School

The intent of this ethnographic study was to better understand the unique structure of the Forest Grove Community School (FGCS) and how its focus on scholarship, stewardship, and citizenship are reflected in the daily life of the school. Over an eight-week period, we collected observational notes and conducted interviews with students, teachers, administrators, staff, parents, and members of the surrounding community. In addition, we reviewed news articles and other artifacts pertaining to the Forest Grove Community School and captured pictures documenting various aspects of the school. Common themes from these data sources were compiled and analyzed for cohesiveness with the school's mission. The outcomes were used to address the question, "What makes the Forest Grove Community School unique and how does this environment impact their students, families, staff, and community?" Through this project, we gained a better understanding of this small, public charter school and how its non-traditional structure seeks to inspire learning and personal growth in its students.

Ishihara, Matthew
History

Project Advisor:
Yang, T.

A Mutualistic Relationship: An Examination of the Interdependency between the 442nd and the Japanese-American Redress Movement

This thesis examines the relationship between the Japanese-American Redress Movement in the 1980s and the public memory of the 442nd regiment from World War Two. As a segregated unit of Japanese-American volunteers, the 442nd was one of the war's most decorated fighting units, and their achievements have been documented through film, print, and memorials. Yet, there is a significant difference between how the regiment has been portrayed in popular culture during the 1950s versus the 1990s-2000s. Through court documents, commission reports, and oral histories, I show how the Redress Movement played a pivotal role in reshaping the memory of the 442nd, and conversely, how the memory of the 442nd created the opportunity for Japanese-Americans to seek reparations for the forced internment that Japanese-Americans endured during the war.

Jacinto, Evelyn
Biology

Project Advisor:
Odden, J.

Induced pluripotent stem cells show a promising future with cardiac regenerative medicine through successful rodent trials.

Of the many human diseases, cardiovascular disease is the most devastating for there is no current cure, and it is the number one cause of death worldwide. Previously embryonic stem cells were used but the discovery of induced pluripotent stem cells has replaced them. Without the moral implication of using young embryos, induced pluripotent stem cells have increased research in regenerative medicine. Current *in vivo* studies have supported that induced pluripotent stem cells are sufficiently similar to embryonic stem cells. After myocardial infarction and cardiomyocyte loss in rodents, bioengineered tissue made from induced pluripotent stem cells has been shown to reduce fibrosis and increase thickness of the anterior wall of the heart. Along with decreasing scar tissue due to myocardial infarction, other studies have confirmed that implantation of an induced pluripotent stem cell derived cardiomyocyte sheet has improved cardiac function. While there are no current human trials, the recent rodent

experiments have been successful. This shows a promising future for cardiac regenerative medicine.

Jaeger, Emily
Biology

Project Advisor:
Ruppell, J.

Who is Healthier, Captive or Wild Primates?

With human populations expanding so rapidly, it is important to consider the ecological transformations on earth coming along with it. It is essential to understand the effects that mass species extinctions will have on the rest of the remaining living species, especially of those closest to us. In this research analysis, the question of who is healthier, captive or wild primates? is explored by examining lifespan, physical health and disease, mental health and social health of both captive and wild populations of primates. Some of the studies investigated in this research analysis include the social health of different sized captive chimpanzees, pathogens and their origins and effects on wild primate populations as well as infant survivorship between captive and wild populations of silvered leaf monkeys. These studies, in addition to others, exhibit strong counter arguments that wild populations are not necessarily healthier than captive just because they live in their natural habitat. The results, however, do demonstrate that the health of both captive and wild populations is of equal importance when considering the conservation of the entire order-primates from going extinct. This analysis also emphasizes the importance of captive primate health and how captive breeding programs can make improvements to increase overall health among captive populations.

Jessop, Linnette
Exercise Science

Project Advisor:
Bhalla, J.

Methods for Teaching Life Skills Through Sport

Today, the number of youth participating in sport is higher than ever (Papacharisis, Goudas, Danish, & Theodorakis, 2005). This means that those participating are offered significant socialization opportunities that can lead to lifelong friendships, and tools that can be used in many aspects of their lives. Some of these tools include the acquisition of life skills and values. Life skills correspond to mental, emotional, and social attributes as well as characteristics and behaviors that the athlete develops and refines through practicing sports, all of which can be transferred to the world beyond sports (Danish, Fazio, Nellen, & Owens, 2002). It is imperative that programs used to teach life skills are done in a well thought out, systematic manner – the acquisition of life skill is not an automatic consequence of sport participation. Throughout this service-learning project, the goal was to design and deliver a life skills program to a group of eight young soccer players from a local team, over the course of 5 training sessions. Using adaptations of S.U.P.E.R. and Going for the Goal, these young athletes worked on refining life skills while maintaining a high level of play in soccer. The objective of this camp was to cultivate life skills such as inclusion, recognition and appreciation of differences, goal setting, cooperation, and respect. These skills can be used in the participants' lives as they progress through school, enter the work force, and establish meaningful relationships throughout their lives.

Johansen, Rustee-Ann
Department of Biology

Project Advisor:
Searcy, B.

Assessment of the Endocrine Disrupting Potential of Glyphosate

Glyphosate is the primary active ingredient in their popular herbicide product, Roundup. Due to this herbicides widespread use by both the agriculture industry and homeowners, assessing the risks associated with glyphosate exposure is of worldwide concern. Monsanto, the producer of RoundUp has claimed that glyphosate exposure poses no significant health risk. In contrast,

recent independent research suggests that glyphosate has the capability of altering reproductive hormones, such as estrogen and testosterone, which would classify the chemical as endocrine disruptor. In this review, glyphosate's ability to act as an endocrine disruptor resulting in negative impacts on reproductive health in mammals is examined. In 1998, the Environmental Protection Agency came to the conclusion that glyphosate had no evidence of producing endocrine-modulating effects based on data collected by the Monsanto Environmental Health Laboratory in 1990 for an unpublished report that did not undergo the peer-review process. Contradicting this conclusion, research groups not tied to Monsanto have concluded that glyphosate is potentially acting as an endocrine disruptor, altering sex hormone concentrations and sex hormone dependent transcriptional activity. However, these studies may not mimic real-world exposure, and it can be argued that the results cannot be applied to the current usage of glyphosate. The safety of glyphosate is still uncertain, and until additional independent studies are conducted, a definite answer to this question will remain undefined.

Johnson, Kaila
Exercise Science

Project Advisor:
Alstot, A.

Using Token Economies with Individuals with Autism in Physical Activity Settings

Previous research has shown that using a token economy system can improve physical activity, motor skills, and social behavior within physical activity settings (Wolfe, Dattilo & Gast, 2003; Todd & Redi, 2006). Tokens, themselves, do not increase the likelihood that a child will engage in a desirable behavior because they hold no specific inherent value to their recipients. However, when tokens are paired with reinforcing items or activities, these tokens can become extremely reinforcing to the child and subsequent behavior change may occur. Children with autism may also particularly benefit from the use of a token economy in that this population often requires a dense schedule of programmed reinforcement for appropriate behavior (Anderson, Taras, & Cannon, 1996). Token economies have been shown useful with individuals with autism in a variety of settings to improve numerous behaviors, but the literature lacks specific guidelines for using token reinforcement systems with this population, specifically in physical activity settings. Therefore, the purpose of this project is to design such guidelines for practitioners to use with children with autism in physical activity settings.

Johnson, Sorrel
Biology

Project Advisor:
Clark, K.

Using Chromosome Translocations to Detect Charged Particle Radiation Effects at Low Dose

The effects of high-energy accelerated ions on cells is important to study because these ions are common in deep space. Thus astronauts' cells will be hit frequently by these ions during a prolonged space mission, such as a trip to Mars. Accelerated ions directly damage DNA via ionizing radiation tracks, which cause mutations and as a consequence increase risk of cancer. The purpose of this investigation was to observe the mutagenic effects of 0, 0.25, 0.5, and 1 Gy of Fe ion radiation in vivo on mouse kidney epithelial cells. Mutant cells were harvested 3 months post-radiation and clones expanded for cytogenetic analysis focusing on identifying a specific class of mutation called translocations, which form when fragments of different broken chromosomes fuse. Translocations are of interest because they are a good marker for radiation-effect and occur infrequently without radiation exposure. To identify translocations, we used chromosome painting to highlight a target mouse chromosome and then examined the chromosome preparations under a microscope. We found an increase in chromosome translocations for all examined doses of radiation, and there were significantly more translocations identified in radiation-exposed mutants than in sham-irradiated mutants. These

results show a clear mutagenic effect associated with Fe ion radiation, giving a better idea of the health implications for astronauts exposed to these and similar ions in the space environment.

Johnson, Nicholas
History

Project Advisor:
Jobs, R.

“The Public Scandal of Private Diaries:

The Controversy Surrounding the Private Diaries of Roger Casement”

The purpose of this research is to utilize Roger Casement’s “black diaries” as an entrance into Anglo-Irish relations in the late 1950s and 1960s. The thesis will make use of books, scholarly journal articles, and newspaper articles and primary correspondence from the Public Records Office in Kew, London, England. By understanding the reasons that Casement’s diaries were such a point of controversy in the mid 20th century, this thesis draws conclusions about religion, sexuality, and long-standing cultural conflict. Casement’s successful humanitarian movements as a British consul in the Belgian Congo in 1903 and the Amazon River Basin in 1910 paved a path for his eventual knighthood from the British Government in 1913. However, his role in the Easter Rising in Ireland against England in 1916 saw him stripped of knighthood and hung for treason. He was seen in Ireland as a national hero and martyr, killed by the unjust imperial power that was England. Britons viewed Casement as the homosexual deviant that was recorded in his personal diaries. For years, the authenticity of the diaries was in question because the British Government was accused of forging them in order to slander Casement’s name during his trial. However, the diaries were proven to be Casement’s writing in 2002 when a forensic test determined the authenticity. Though now accepted as originals, this thesis aims not to weigh in on whether they are authentically his diaries -- there are still some that believe them to be forgeries – but rather to determine why these private homosexual diaries that were made public are such a substantial rift in Anglo-Irish relations for the last 100 plus years.

Johnson, Chrystian
Politics and Government

Project Advisor:
Seward J.

The Untouchable: Framing Analysis of U.S. Foreign Aid to Israel

The narrative surrounding the subject of U.S. foreign aid to Israel is highly controversial to say the least as the U.S. government and a majority of the American public continue to provide material aid to Israel and to support its government's policies despite numerous allegations of human rights abuses from reports by the United Nations, Amnesty International, and Human Rights Watch. This thesis seeks to answer a few questions: What biases did the news sources exhibit when portraying U.S. foreign aid to Israel? Was human rights abuses a major factor? How prevalent were these frames? In order to answer this question I specifically chose to look at the *New York Times* and *Washington Post* because of their similar circulation numbers, readership, and political leanings. The four main frames that my study concluded were dominant were the Ally Frame, Skeptic Frame, Reduce Aid Frame, and the Israel Frame. These frames represent a complex relationship of politics, diplomacy, economics, media, and much more connected by a complicated history. This study found that contrary to my hypothesis, both the *New York Times* and the *Washington Post* tended to be more critical of U.S. foreign aid to Israel over time, but human rights abuses were rarely the focus.

Johnson, Jordan
Goshi, Kimilyn
McDougall, Kindra
Business

Project Advisor:
Ramaya, K.

EVOLUTION IMAGING

At Evolution Imaging we manufacture the most advanced cameras at attractive prices. We strive to create the most evolved cameras in the industry to satisfy the growing technological demands of our customers. To do this we are setting ourselves apart with high Performance and Quality Ratings, advanced technology in both our entry-level and multi-featured cameras at moderate costs relative to our competitors. We provide great value for the dollar. We develop brand loyalty with our customers and the communities that we serve.

Jones, Aryn
Sociology

Project Advisor:
Whitehead, J.

Queering Common Consciousness: The Ritual Effects of Portland Poetry Slam

This study conceptualizes the Poetry Slam as a ritual event which exalts, demystifies, and unites participants through the use of intense emotion and personal narrative. This paper applies Emile Durkheim's later sociological work on religious life to define Slam as a ritual serving to expand and revolutionize society's collective understanding of itself. Durkheim saw ritual as the basis for religion in its power to create solidarity within society, unifying moral and norm codes, and motivating citizens to act in accordance with these dominant structures. This paper argues that the Slam Ritual makes space for the re-creation and constant progression of these societal codes through exalted collective effervescence. This autoethnographic study looks specifically at the Portland Poetry Slam and its revolutionary impact on common group understandings of gender. Finally, this study looks at how participation in this ritual plays out in the affirmation and inclusion of transgender and gender non-conforming poets and attendants of the Portland Poetry Slam, to whom visibility and validation in everyday, normative society is scarce.

Jongeward, Hailey
Environmental Biology

Project Advisor:
Gundersen, D.

Toxic Analysis of Street Sweepings Collected in Forest Grove

Since we live in a world dependent on fossil fuels, the chance of exposing our self to harmful toxins increases significantly every day. Polycyclic Aromatic Hydrocarbons (PAH's) are a group of chemicals known to be potent carcinogens when metabolized by humans, which are formed during the incomplete burning of coal, oil, gas, wood, and garbage. These chemicals contaminate biota, air, water, and soil. Recently, scientists have had success with bioremediation of fossil fuel contaminates using several species of fungi that will accumulate, metabolize, and breakdown the toxic compounds in soil. Bioremediation with fungi can be an effective way to reduce levels of certain environmental contaminants. The goal of this project was to develop quantitative chemical methods to test the ability of *Stropharia Rugoso-annulata*, a mushroom species known to breakdown PAH's in soils, to successfully lower the concentrations of hydrocarbons and total petroleum contents in street sweepings over a one month period. These sweepings were collected off the roads of Forest Grove by Clean Water Services and could potentially contain PAH's from the oil residue of cars and the breakdown of rubber tires. Using column and gas chromatography I was able to quantify the amounts of PAH's and total petroleum hydrocarbons present in the street sweepings. My research with one species of fungi is only a segment of what was done and where this project is going. A partner project was done looking at another species of fungi, *Pleurotus Ostreatus* and its ability to remove toxins in the same sweepings. The results of my research will help Clean Water Services compare these two species of fungi, and guide this

project to focus on the most successful species that can remove the maximum amount of toxins. More significantly my work with the preliminary study to develop a method to extract the PAH's and measure the Total Petroleum content in the street sweepings gives Clean Water Services the most efficient procedures to move forward and expand this study. This project is moving toward a much larger scale with hopes to use bioremediation methods on all of the street sweepings collected in Forest Grove, and reuse them on local farmland which would save the City thousands of dollars. Once Forest Grove is able to reuse the once contaminated street sweepings, a door is opened to a whole world of bioremediation possibilities.

Justice, Karissa
Psychology

Project Advisor:
Kleinknecht, E.

Empathizing with Others: A School Enhancement Program

An increasing body of empirical literature attests to the fact that the enhancement of non-cognitive self-regulatory skills (*e.g., self-regulation, empathy/emotional understanding, perspective taking*) boosts both prosocial behavior (*thereby reducing the likelihood of bully-behavior*) and academic achievement. I have been testing the effectiveness of a program designed to address the social problem of bullying in a proactive manner. The program stems from a clinical tradition: Selman & Yeates's (1989) "Interpersonal Negotiation Strategies", a program that focuses on internal growth within learning contexts. The content spans different academic and personal situations, thereby creating opportunities for generalization across contexts, by design. Activities use classroom content and are teacher-directed. I have worked on implementing the first phase of program assessment, centering on classroom activity usability. The activities focused on are perspective taking "get well soon" cards, worksheet-guided activities that promote perspective taking of others, and working together to create something out of reused household items. Assessment data are qualitative: semi-structured observation of student-engagement, student work-samples, and teacher reflections. The third-grade teacher currently partnering with me has remarked that her students are indeed beginning to look at the perspectives of their peers more than they were before doing these activities.

Kageyama, Kanoelani
Horikawa, Cydni
College of Education

Project Advisor:
Zijdemans Boudreau, A.

An Ethnographic Study of the Forest Grove Community School

The intent of this ethnographic study was to better understand the unique structure of the Forest Grove Community School (FGCS) and how its focus on scholarship, stewardship, and citizenship are reflected in the daily life of the school. Over an eight-week period, we collected observational notes and conducted interviews with students, teachers, administrators, staff, parents, and members of the surrounding community. In addition, we reviewed news articles and other artifacts pertaining to the Forest Grove Community School and captured pictures documenting various aspects of the school. Common themes from these data sources were compiled and analyzed for cohesiveness with the school's mission. The outcomes were used to address the question, "What makes the Forest Grove Community School unique and how does this environment impact their students, families, staff, and community?" Through this project, we gained a better understanding of this small, public charter school and how its non-traditional structure seeks to inspire learning and personal growth in its students.

Kahele, Krystal
English

Project Advisor:
Mitra, K.

Clarity

My creative writing thesis consists of a story about a seventeen-year-old girl, Erica Davis, trying to find herself through her senior year of high school in Elk Grove, California. Erica is battling with how to balance her modeling career (one of which she's not entirely sure she wants to continue), her mother's extreme expectations, her boyfriend, Nick, who she's been feeling some distance from for a few months, and her fairly new friendship with Amy, who recently moved to the small Californian city from Sacramento. In a story that has the façade of a love triangle between Erica, Nick, and Amy with Erica stuck and confused in the middle; the story is more about Erica's desire to understand her personal identity, if she even has one. The critical portion of my thesis draws from conclusions I have made from the storylines of three of my favorite books: *This Lullaby*, *Just Listen*, and *Pants on Fire*. All three stories have main characters of which resemble certain traits that Erica also possesses, in addition to some unique ones. I have always been attracted to stories that are about a character's search for identity and these three stories influenced my decision to write my thesis about that search. Erica has developed over the majority of my final year of undergrad to become a complex, yet relatable character that has impacted the direction of my thesis to ultimately lead to the idea of Erica finding herself and some piece of mind, essentially her clarity.

Kamealoha, Darin
Exercise Science

Project Advisor:
Henry, S.

The Effect of Foam Rolling on Delayed-Onset-Muscle-Soreness

Delayed-onset muscle soreness (DOMS) is a one manifestation of exercise-induced muscle damage. It is a phenomenon familiar to elite and novice athletes alike, as any unaccustomed workout of sufficient intensity can potentially induce DOMS and a subsequent, transient decrement in athletic performance. DOMS is characterized by muscle soreness and tenderness, peaking 24-48 hours following unfamiliar physical activity. A number of treatment strategies have been promoted to ease the severity of DOMS, including non-steroidal anti-inflammatory drugs, stretching, and massage therapy. Although foam rolling has also been purported to alleviate DOMS, to date there have been very few studies on the effects of foam rolling. Purpose: To investigate the effects of foam rolling treatment, applied 48 hours post-exercise, on DOMS. Methods: Volunteer adult participants who were physically healthy, but not currently involved in resistance-training of the lower body (i.e., legs), completed a custom-designed exercise regimen including leg press, leg extension, leg flexion, and calf exercises. The purpose of the exercise regimen was to induce DOMS in the legs. Prior to exercise and approximately 36-48 hours post-exercise (peak of DOMS), legs were tested via a dolorimeter for muscle sensitivity and tenderness to establish the occurrence of DOMS. If sensitivity was increased by criterion %, as compared to pre-exercise sensitivity (baseline), the leg was determined to have DOMS. If DOMS was verified, foam-rolling treatment was administered to the leg. Post-rolling sensitivity was assessed to determine efficacy of treatment. Results & Conclusions: To be presented.

Kawachi, Kristen
Exercise Science

Project Advisor:
Schot, P.

Influence of Test Duration Description on Walking Characteristics

A strong mechanical basis exists for maximizing walking economy. A force-driven physical pendulum model posits that the preferred stride frequency (PSF) for walking should match the resonant swing frequency (RSF) of the leg. It is generally reported that humans naturally match their PSF and RSF and this is characterized as self-optimizing. Recent findings challenge this notion. A methodological concern that has arisen is the length of the walking test bout, how it is

described to participants (e.g., minutes or miles), and how this may affect perceptions that may influence walking behavior. **Purpose:** To examine preferred walking behaviors for longer test durations described in units of time or distance. **Methods:** Healthy individuals with a wide range of leg lengths were recruited. Participants attended 2 treadmill walking testing sessions where the duration was described as 40 minutes or 2 miles, with test order counterbalanced. All walking was conducted under preferred (self-selected) speed conditions. No external control of stride length or frequency was imposed, except that the speed was constant throughout the test. Stride length and frequency, perceived exertion, and heart rate measures were taken at 25% intervals throughout the test. **Analysis:** RSF/PSF correlations were calculated for each bout. Effects of duration description and testing order on selected measures were evaluated by separate factorial, repeated measures ANOVA. **Results:** Findings will be shared at the presentation.

Keli'iho'omalua, Robert
Media Arts (General Media)

Project Advisor:
Cassady, D.

A Journalistic Melange: Covering multiple subjects in multiple writing styles

A collection of Semi-professional journalistic articles covering multiple topics including but not limited to: race relations in the Hawaiian Islands, Recreational Marijuana Legalization, Crowdfunding, and The Spanish Economic Crisis. The articles demonstrate multiple journalistic writing styles and focus on eventual submission of the articles to local, national and international publications.

Kendrick, Kasey
Public Health

Project Advisor:
McGrath, M.M.

Empower transitional housing program for military veterans

Empower will house 50 formerly homeless veterans in the Portland metropolitan area. The program will provide health care vocational training in a safe and sober environment. Clients will spend up to two years at Empower, where their medical, mental health and substance abuse treatment will be coordinated with the Veterans Administration. While at Empower, veterans will be engage in team-building, life skills training, and outreach to other homeless veterans. These services will help residents pursue stable independent living and gainful employment while building lasting relationships.

Kester, Michelle
Chavez, Erika
Eppinger, Marc
Faagau, Justin
Business

Project Advisor:
Ramaya, K.

JAUNTY

At Jaunty, we aim to provide every individual with a quality camera that they can feel proud to own and at an affordable price. All of our stakeholders can walk with a jaunty step. Our customers will feel proud knowing that their camera is produced by a company that holds social responsibility as paramount while our investors can be at peace knowing that we are also focused on the bottom-line and will continue to find ways to add value for all stakeholders.

Keylock, Shaun
Dance

Project Advisor:
Camp, J.

same, but different: The Choreographic Process

To explore queer representation through dance can be considered an attempt to identify transgression within and against an established group or collective society. In order to make this

attempt, choreographers utilize various forms of queering tactics as choreographic tools. Despite the use of these tools, however, dance critics and scholars frequently avoid outward discourse and analysis of queer representation by various choreographers and dance makers. In an effort to bring more awareness and educate the dance community on the importance of establishing a queer framework for dance criticism, this project examines my process as a choreographer in creating and producing the choreographic work *same, but different*, which was presented in the Autumn Choreographers Concert in the Tom Miles Theatre at Pacific University on November 13, 14, 15, 2014. *same, but different* was developed out of preliminary research on the work and autobiographies of various queer choreographers, activists, and scholars as well as my own personal autobiography and experiences. Additionally, *same, but different* was further influenced by several theoretical concepts and methodologies, specifically, Deconstruction and Queer Theory, which also aided in its overall development.

Keylock, Shaun
Art History

Project Advisor:
Twist, R.

“A Simulacrum of Ambiguity”: Luigi Ontani and the Deconstruction of Gender and Sexuality in the Tableaux Vivant

Since the early part of the 1960s, the Italian artist Luigi Ontani has been producing various works known as *tableaux vivants*, or living pictures, which he also calls *quadri-non-quadri* (paintings-non-paintings). The little previous scholarship on Ontani connects the importance of these works with the revival of the *tableaux vivant* within the Arte Povera movement during the 1960s and 1970s. The focus for my research was on Ontani’s work ranging from 1963 to 1980 with an emphasis on how Ontani’s *tableaux vivants*, in particular, reveal the artist’s pursuit towards self-actualization, as well as a possible struggle with his own personal sexuality and gender identity. I argue that his series of *tableaux vivants* deconstruct the binary relationships within gender and sexuality through the artist’s use of photography as a tool for transformation and performance. By using Jacques Derrida’s theory of Deconstruction, I argue how Ontani’s work rejects the conventional use of photography, as well as alters, and at times, abandons the accustomed performance of western gender stereotypes to instead place a greater emphasis on androgyny and the ability to transfer or change one’s own identity at will. Furthermore, I analyze how this transformation of gender and identity allows for the recognition of various levels of queer signification within Ontani’s works. This study provides evidence of the important contributions of often overlooked queer artists. In particular, it addresses the frequent rejections of the social constructions of gender and sexuality in art historical analysis.

Kihune, Connor
Physics

Project Advisor:
Hall, S.

Energy Efficiency and LEED scoring of Pacific University’s Cascade Hall

Pacific University has implemented aspects of green building in its new dormitory, Cascade Hall. The building received a Gold certification in the LEED rating system developed by the U.S. Green Building Council. The LEED certification process is designed to reward buildings that promote human health, use resources efficiently, and are energy efficient. Focusing mainly on the aspects of the building that related to energy efficiency, I examined the ventilation system, the lighting, and the boilers. Through careful calculations I estimated how much energy is saved with the installed systems. However, only about 30% of the LEED rating is directly related to energy efficiency, and in this category Cascade Hall scored poorly, earning about half of the available points. This means that the energy efficiency of the building didn’t contribute much to the overall successful rating of the building. I will present a cost-benefit analysis of installing solar panels and consider why they weren’t included in the eventual plans for Cascade Hall.

Kilsdonk, Makaela
English

Project Advisor:
Mitra, K.

Franklin's Freak Show

Throughout my junior and senior years at Pacific University, I have developed a creative thesis that consists of two parts: a critical reflection and purely creative piece. The creative piece is the first section of an in-process novel entitled, *Franklin's Freak Show*. The story is told from the perspective of William, a hired "shill," this being slang for the title of a job that consists of a normal looking person listening to the introductory speech by the ringmaster that happens outside of the ticket box and then running forward within the crowd to excitedly buy a ticket and interest others to follow suit. By using a seemingly "normal" person to target the perspective, it creates a relatable outlook for the reader whilst also making William, and in turn the reader, feel as if he/she is the freak when surrounded by the real freaks who are uniformly unusual-looking. By creating this outsider feeling, the story creates an interesting situation that engages the reader to accept unusual things including a mer-creature the freak show has on display, and the rough background of all the freaks. In order to make this story do all the things I wanted to, a lot of research went into it. I researched the culture of the 1920's, the development of freak shows, and the history of the ugly laws and other such movements that made freak shows societally acceptable. Through my critical analysis I also delve deeper into the ways in which all people feel like freaks and the way this story developed me as a person in return for me developing it. It was my goal with this piece to make the normal seem unusual and the unusual seem normal, thus changing the reader's perspective.

Kim, Darran
Biology

Project Advisor:
Searcy, B.

An Evaluation of Human Health Risk from the Estrogenic Effects of Bisphenol A

Bisphenol A (BPA) is a widely used industrial chemical that is used in the production of polycarbonate plastics and epoxy resins. Recent studies have demonstrated a link between BPA and numerous health problems such as cancer, diabetes, heart disease, infertility, and more. Humans are ubiquitously exposed to BPA, and it has been proven that BPA can seep into foods and beverages from containers that are made with BPA. Although BPA is believed to be a weak xenoestrogen based on its low binding affinity for estrogen receptors α and β , recent studies have demonstrated that BPA can stimulate cellular responses at extremely low concentrations. Since many adverse health effects have been reported at and below the United States Environmental Protection Agency's safe dose of 50 μg /kg/day, I argue that this extensive new literature shows the need for a new risk assessment of this compound.

Kim, Mina
Biology

Project Advisor:
Nyerges, G.

Assessment of the diversity and abundance of methane-associated microorganisms in the Columbia River Estuary

The atmospheric methane concentration increased in the last 200 years and oceans and estuaries play an important role in shaping the global methane budget. With microbial processes known to account up to 69% of the methane budget, assessing the microbial communities in estuaries plays a key role in understanding local estuarine methane dynamic. In this study, we investigated the diversity and abundance of methanogens and methanotrophs in the Columbia River Estuary by targeting functional genes using PCR and qPCR. The resulting phylogenetic analysis revealed a high level of diversity of methanogens. The detection of methanogens in the oxygen saturated water column suggests that these microbes are attached to particles. The low level of diversity observed among methanotrophs might indicate that the methanotrophic community is dominated by a few species and it is specific to the Columbia River Estuary (CRE). The quantification of

the methanotroph specific *pmoA* gene has shown that water samples collected at the same time of the day have similar copy numbers regardless of the depth of collection, suggesting a uniform distribution of methane oxidizing bacteria within the water column. Further studies should investigate the activity of the methane associated microbial community in the CRE.

Kimura, Natalie
Environmental Science

Project Advisor:
Gundersen, D.

The Analysis of PAHs in Street Sweepings Collected in Forest Grove

Clean Water Services collects street sweepings from Forest Grove roads. However, a major concern with the street sweepings is that they contain automobile oil residues and tire breakdown products. These products typically contain polycyclic aromatic hydrocarbons (PAHs). PAHs are components of fossil fuels and can be formed when the burning of organic material such as coal, oil, gas, and garbage is not done to completion. PAHs are known to be persistent molecules that can stay in the environment for long periods of time and can accumulate in the biota causing cancer and other health issues. Research has shown that fungi have the ability to break down these PAHs. This project focuses on developing methods for quantifying PAHs in street sweepings and to analyze the ability of the fungi species *Pleurotus Ostreatus* to break down the hydrocarbons that were identified in the street sweepings over a one-month period. Using sonication extraction methods followed by column chromatography I was able to extract PAHs from the street sweepings and separate them from other hydrocarbons present in the street sweepings. The cleaned-up extracts were analyzed using gas chromatography (Flame Ionization Detector). This data was used to determine which PAHs were in the street sweepings and at what concentration. With a preliminary study, I was able to develop an accurate method for the separation of the PAHs from the street sweepings and evaluate the ability of the fungi species *Pleurotus Ostreatus* to break down the PAHs. This project could save the City of Forest Grove money and resources. This project will likely lead Clean Water Services to a safe, natural, and sustainable alternative cleanup method for street sweepings that can be used as a soil amendment on farmland.

Klassy, Rebecca
Psychology

Project Advisor:
Island, H.

Behavior Modification using Animal-Assisted Activities
Among Child Residents of Short-Term Domestic Violence Shelters

Animal assisted interventions compliment virtually all forms of contemporary therapy, in a variety of contexts and with a myriad of populations. One form of intervention, behavioral modification, is a particularly common model for children with development disability, geriatric populations with dementia or Alzheimer's, adults and children with neuromuscular problems or to aid in their rehabilitation, and for children of domestic violence. This project reflects a longitudinal program evaluation of an animal-assisted activity program that works specifically with this latter population, child residents of short-term domestic violence shelters. Most animal-assisted interventions are part of an individualized education or therapy program, the interactive sessions are long-term, goal-directed, and outcome driven. *The Little Dog Laughed*, the nonprofit organization that this project evaluates is an animal-activity program that uses dog training as a model for non-violent problem solving, psychosocial, and life skills education. In conjunction with behavioral therapy professionals, this program gives opportunities for children of domestic abuse to interact with the dogs in short, 20-minute training sessions once a week. The children are introduced to a learning goal, provided guidelines for respectfully working with the dog, as well as tools (e.g., clickers and hand signals) to promote clear communication between the child and the trained dog model. The opportunities to train and observe outcomes are limited both in terms of the length of each visit as well as the number of visits each residence

receives. Therefore evaluating individual outcomes for a program of this kind can be challenging. Behavioral improvement was evaluated through focal observation every 5 minutes for the 15 to 20 minute training sessions over a 12-week period. Improvement was evaluated using seven categorical learning and behavioral domains: 1.) Engagement (e.g., paying attention), 2.) Instruction Adherence, 3.) Concept Recognition, 4.) Attitude, 5.) Affect (e.g., animated, outgoing, fearful, etc.), 6.) Approach/Avoidance (e.g., with respect to the therapy dog), and 7.) Social Rapport. The results of this program evaluation will be discussed relative to these seven outcome goals.

Kline, Jessica
Music

Project Advisor:
Stephens, T.

Aeterne Rerum Conditor: Ancient Chant and Modern Song

Aeterne Rerum Conditor is an original musical composition for four voices, two treble, two bass, inspired by the work of twentieth-century composer Arvo Pärt. Part's unique style is characterized by minimalism and tintinnabuli, and a large part of his work is related to Gregorian Chant. Aeterne Rerum Conditor synthesizes Part's style with the principles of Ambrosian chant and the composer's unique tonal and contrapuntal language, developed by studying and crafting music based on the music such as that of Ancient Greece and the piano compositions of Béla Bartók. The piece is a setting of excerpts of St. Ambrose's thirteenth century chant by the same name.

Knowles, Garrick
Biology

Project Advisor:
Scholnick, D.

The role of cyanobacteria in black band disease and its role in coral tissue death

Black band disease (BBD) is a highly virulent coral disease that affects the major coral reefs around the world. BBD has been shown to be one of the primary factors for coral bleaching, which is largely responsible for a worldwide decline in coral reefs. BBD is a complex microbial mat that forms from numerous species from a variety of different microbial groups, the most destructive being species of cyanobacteria. How BBD is able to disrupt coral tissue and ultimately destroy large amounts of coral reef is still under investigation. For my capstone project, I examined the potential role, and the mechanism of action, of the cyanobacteria in BBD. Evidence from previous studies suggests that the cyanobacteria associated with BBD, many of which produce and release microcystin toxins, can reside in the microbial mat and may act as the pathogen for BBD. Studies have suggested that the sulfide environment, created by the microbial mat, may be the cause of death for the coral tissue. One plausible hypothesis is that a combination of microcystin toxin production by cyanobacteria and elevated-sulfide levels near the coral tissues result in cell lysis and ultimately death of the underlying coral tissue. Microcystin toxins are able to degrade coral by detaching the coral tissue from the calcium skeleton. Then, localized elevations in sulfide appear to further harm the already damaged coral tissue. Thus, it appears that BBD is extremely effective at destroying large expanses of coral because it is able to combine the production and release of microcystin toxins by cyanobacteria with harmful levels of sulfide.

Koga, Dailey
Economics

Project Advisor:
Haag, J.

**The Nexus of Gender Inequality, Population Growth,
and Poverty in Sub-Saharan Africa**

In response to major aid efforts and improved access to health care, developing countries in recent years have been able to reduce the amount of people living in poverty. One outlying region, though, has regressed: Sub-Saharan Africa. Although the region has succeeded in

reducing the rate of poverty, the number of people suffering from extreme poverty has increased mainly because the region has not been able to decrease poverty fast enough to overcome extremely high population growth. Studies suggest that the best way to slow population growth is to reduce fertility rates by educating women. Using data gathered by the World Bank, the analysis empirically assesses the relationship between gender inequality, population growth, and poverty in the region. Specifically, the study examines whether increased rates of female education help to reduce fertility rates, whether decreased fertility rates contribute to slower population growth, and whether slowing population growth would help to reduce extreme poverty in Sub-Saharan Africa.

Kon, Torri
Exercise Science

Project Advisor:
Dolphin, K.

The influence of sleep habits and emotional state on diet and exercise behaviors

Certain characteristics of our everyday lives lead to natural motivation and increase the likelihood that individuals will choose healthy behaviors. It seems that while there is a push towards healthier lifestyles, the practice of unhealthy behaviors has not been deterred by these efforts. Not much research has been done to monitor individuals' ability and efforts to be healthy. **Purpose:** The focus of this study was on whether or not diet and exercise behaviors are associated with sleep habits and emotional state, and the likelihood of individuals choosing adequate exercise and well-balanced diets over unhealthy habits. **Methods:** Participants ($n \sim 200$) were asked to report their current sleep habits, emotional states, health-related knowledge, and diet and exercise choices through an anonymous online survey. Data were analyzed using multiple regressions on SPSS. **Results:** Findings will be presented on Senior Projects Day.

Kono, Yuki
Theatre Arts

Project Advisor:
Margolis, E

Comedy Delivery Service from Japan

My idea of comedy is to energize people after being tired from their life. This is why I started doing comedy. My senior project is part comedy, part one-man show; I keep the essence of Japanese comedy style, but translate those jokes into theatrical form. I use what I have learned from my theatre classes, using my body to express feelings, communicate ideas, and tell stories. The material comes from my everyday life as an International Student in America: what I have seen, learned, questioned, and mostly found funny. It is full of observations about culture clashes and misunderstandings. After I graduate, I will keep pursuing my career in comedy. This project represents a big step from 5 minute open-mic to 20 minutes of my own show. I am so excited to share my comedy with my classmates, people I've passed on campus, and everyone I've learned from here.

Kuga, Marisa
Pham, Thao
Spriggs; Stephanie
Business

Project Advisor:
Ramaya, K

DIGITON COMPANY

Digiton is a new player in the worldwide digital camera industry. We offer a wide range of products for both entry-level and multi-featured cameras. Our vision is to become the leading company in the digital camera industry. Our mission is to provide customers the experience of premium products at affordable prices. In addition we provide the best experience and high tech support for all our customers.

Kwok, Benny
Public Health

Project Advisor:
McGrath, M.M.

Educating about diet to meet RDI for Pacific University students

This program will help Pacific University students learn more about healthy eating to increase the proportion of students meeting the federal Reference Daily Intake (RDI) of key micronutrients. Pacific University is a private school located in Oregon with an undergraduate enrollment of approximately 1,800. 70-80% of first year college students consume too much saturated fat and about 50% are consuming too much fat overall which can cause numerous health problems (Lindner, 2000). The present program will include: a nutrition tracker to help students monitor what they eat, cooking classes, and on-campus talks by public health speakers and nutritionists, and a student club where students can come together to voice their opinions and concerns on health risks. Students will be able to meet their RDIs, make healthier choices, and have the knowledge to educate others about healthy living.

LaBarbera, Lorena
Biology

Project Advisor:
Halpern, S.

The Buzz on Bees: The role of *Nosema ceranae* in colony collapse disorder

A recent global decline in honeybee (*Apis mellifera*) populations, termed Colony Collapse Disorder (CCD), prompted the question: what's killing the bees? While many hypotheses have been proposed, ranging from environmental stress to parasites and pathogens, combinations of stressors may have the greatest detrimental effect. Using data from previous research, this review focuses on how a newly emergent gut pathogen, *Nosema ceranae*, works in tandem with other stressors to cause higher mortality rates in colonies than *N. ceranae* alone. These findings raise concerns about pollinator health, economic and agricultural effects, and the importance of further research on diseases and stressors of honeybees.

Lacy, Emilie
Exercise Science

Project Advisor:
Dolphin, K.

**Examining Diet and Performance in Highly Active Adults:
Low-Sodium and Gluten-Free Diets**

Gluten-free and low-sodium diets are increasing in popularity, both as a result of clinical needs and preference; however, there are no studies examining the effect of gluten-free or low-sodium diets on cognitive and physical performance in non-clinical and healthy, active adult populations. **Purpose:** To increase the understanding of how increasingly popular diets affect both the physical and cognitive performance of active adults. **Methods:** Healthy, college-age participants ($n = 12$) were assigned to one of three groups: (1) low sodium diet; (2) gluten-free diet; or (3) control group. We then controlled the diet of the low sodium and gluten-free groups for one week, while the control group continued to consume their usual diet. All participants completed a pre-test, mid-week test, and post-test which included a one-mile run, 100-meter sprint, push-ups to fatigue, and a memory test of five random words. Data were analyzed using a repeated measures analysis of variance for each of the performance variables. **Results:** The physical and cognitive results and their implications will be presented on Senior Projects Day.

LaMotte, McKenzie
Rogers, Chase
Schroeder, Dillon
Business

Project Advisor:
Ramaya, K.

APERTURE ALLIANCE

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Lapping, Madeline
History

Project Advisor:
Jobs, R.

Jewish Eugenics: Science, Zionism, a Darwinian faith

In the early twentieth century, tensions of immigration, anti-Semitism, racial science, and Social Darwinism were the driving forces behind the Jewish embrace of eugenicist ideas. Jewish Eugenicists focused on the survival of the Jews as a people whose history of persecution and isolation had allowed for the development of superior racial traits, which, they argued, had enabled them to survive. With modern anti-Semitism on the rise, as demonstrated by the Dreyfus Affair in France or the large number and increasing frequency of pogroms in Eastern Europe, some Jews turned toward the promise of Zionism as a political movement to establish a Jewish nation-state. Others suggested, instead, that the survival and thriving of Jews as a people would depend on adopting eugenicist principles. Still others combined them both as some Jewish eugenicists promoted Zionistic concepts in their works and argued that to maintain the pure Jewish race, Jews must avoid immigration to multiracial countries. This paper examines a unique historical moment centered on ideas of science, religion, and immigration by considering the involvement of Jews in the early Eugenicist movement.

Larson, Svea
History

Project Advisor:
Jobs, R.

**“Salut les Copines”:
Young Women, Rock’n’Roll, and Media in 1960s France**

This thesis examines French youth culture through the music focused youth magazine *Salut les Copains* and *Mademoiselle Age Tendre* and the way that young people used these widely circulated magazines as a platform to articulate their personal understanding of their identities. The magazines offer a vibrant lens into the normative youth culture of the era and are particularly interesting sources because of the ways in which youth were able to help shape the content of the magazines. This thesis seeks to examine how young women in yé-yé began to not only understand and articulate their own identities as female young people, but shape media portrayals of normative female youth. This thesis argues that young women played a key role in yé-yé culture and served as a domesticating agent that helped integrate youth culture into mainstream culture in a period of general social upheaval. The participatory nature of the youth magazines showcased and spread the new youth culture of rock’n’roll and pop music and gave young women a central outlet to explore and express their own sensibility of what it meant to be young and what it meant to be a woman in 1960s France.

Larson, Svea
French

Project Advisor:
Purdy, J.

**“Salut les Copines”:
Changing Views of Femininity through Rock’n’Roll and Media in 1960s France**

This paper draws upon the French youth magazines, *Salut les Copains* and *Mademoiselle Âge Tendre*, published between 1962-1966, in order to argue that young women played a key role in Rock’n’Roll culture and served as a way to integrate youth culture into mainstream culture during a period of general social upheaval. Furthermore, these youth magazines provided a platform on which young women could willingly participate in the discussion of French social norms. Through these popular magazines, young women were able to act as agents in the changing portrayal of young femininity in the 1960s French media. This study nuances studies of the gender and cultural revolutions that took place in this era.

LaVoie, Britta
Areta, Una
College of Education

Project Advisor:
Zijdemans B., A.

Scaffolding Reflective Activities to Promote Student Learning and Critical Thinking

The goal of our capstone project was to examine types of reflective activities and ways of scaffolding critical thinking in students in the elementary classroom. Through research we determined that effective reflection on learning helps students think critically as they connect and transfer their knowledge to context outside of the classroom, and increases their engagement and enjoyment in the learning process. We worked with the teachers of the 5th and 6th graders at Forest Grove Community School who showed concern in helping students become more engaged in their reflective practices. Data collected over a 5 week period included, observational field notes, teacher surveys, and a collection of past written reflections by the students. Our research resulted in two key findings: 1. Students need to be scaffolded to develop their ability to think more critically, on a deeper level, and creatively; and 2. Teachers identified that they would benefit from having a scaffold for developing reflective activities. After concretely defining our concepts of learning, creativity, and reflection, we developed a Teacher evaluation rubric and Student evaluation rubric for both the students and teachers to measure the effectiveness of the activities. The teachers can use the rubrics to create, analyze and make improvements on their reflective activities while the students can use the rubrics to understand the objective of the activity and also meet or set goals for themselves. We will conclude our study by evaluating the effectiveness of these rubrics in practice in the classroom.

Lawrence, Lucy
Biology

Project Advisor:
McCormick, L.

MTHFR C677T Polymorphism and Dementia in Adults

According to the CDC, Alzheimer's disease and other dementias are the 6th leading cause of death in the United States, with nearly 1 in 3 adults expected to suffer from a form of dementia in their lifetime. Patients' symptoms often include a severe decline in memory over time (often forgetting family members and friends, location, and life events), the inability to reason or think clearly, a decline in language and communication ability, and difficulties with visual perception. The causes of dementia have been under investigation by researchers for several decades, however until recently few conclusions had been reached. It is estimated that approximately 10% of American Caucasian and Asian populations, and 20% of the American Hispanic population have a mutation in the gene that encodes for the enzyme methylenetetrahydrofolate reductase (MTHFR), which plays an important role in the methylation pathway and the metabolism of the amino acid homocysteine. It has been found that the side effects of this mutation (C677T) often lead to a significant increase in vascular damage due to a buildup of serum homocysteine, and a number of studies have found a link between the C677T mutation and vascular dementias in adults. Studies have shown high doses of a dietary folic acid supplement to be a promising treatment for the vascular damage caused by the buildup of homocysteine from the C677T mutation, indicating a possible means of prevention for vascular dementias.

Grandinetti, Riley
Lawrence, Jakob
Torii, Kaela
Business

Project Advisor:
Ramaya, K.

HIJACK CAMERAS

We at Hijack Cameras sell our products in North America, Europe-Africa, Asia-Pacific, and Latin America. At Hijack Cameras we offer a variety of cameras that are both multi-featured and entry-level. We pride ourselves in being a good corporate citizenship and won the gold star award for our efforts. We continue to search for new ways to grow and add value for our customers with our exciting products.

Lee, Kerry
Biology

Project Advisor:
Halpern, S.

***Parelaphostrongylus tenuis* and *Alces Alces*: a changing parasite-host relationship in North America due to climate change**

The Earth's average temperature is rising and one of the changes occurring as a result is an altered relationship between parasites and hosts. I investigate the effects of climate change on interactions between the parasite *Parelaphostrongylus tenuis* and one of its hosts, *Alces alces* (moose). With climate change, the habitat overlap between *P. tenuis* and *A. alces* is increasing because *A. alces* is being pushed into a more northern range to escape the rising temperatures. *Alces alces* is also extremely susceptible to heat, leading to a weakened immune system that *P. tenuis* is able to take advantage of. The pairing of poor body condition and an increased presence of *P. tenuis* has caused *A. alces* to experience a severe decline in population sizes in central North America in the past ten years. The increase in temperature is projected to continue into the near future, raising the likelihood that other parasite-host relationships are changing. If the environmental mismatch between host and parasites continues to decrease, understanding changes in the relationship between *P. tenuis* and *A. alces* may provide crucial insights into other parasites, and even viruses that may affect humans in the near future.

Lee, Pa
Biology

Project Advisor:
Odden, J.

Cell-based versus pharmacological-based therapy to enhance neurological plasticity after stroke

Stroke is a major cause of death and long-term disability among adults in developed countries. Because natural neural plasticity is not sufficient to fully recover all neurological functions, one fundamental unsolved question is how to improve disability after stroke. Thus far this has been limited to mostly physical therapy. The present paper reviews promising stroke recovery cell based therapies using chemokine CCL2 and its receptor CCR2 as well as pharmacological therapies such as cerebrolysin and phosphodiesterase 5A inhibitor. In animal studies, based on neurological tests, it has been found that there are effective therapies for stroke recovery in as early as three days after the stroke and even for delayed treatment. Enhancement in neural plasticity techniques opens up possible recovery options for addressing neural and brain injuries like Alzheimer's disease, Parkinson's disease and dementia.

Leijon, Stuart
Politics and Government

Project Advisor:
Van Dyk, R.

The Prison Industrial Complex

The term prison industrial complex refers to the vast network of private and public interests influencing correctional justice policymaking, and leading to a state of hyperincarceration. Some scholars debate the existence of the prison industrial complex citing a lack of noticeable

legislative influence by private industry, the likes of which can be found in the military, medical, educational, and other industrial complexes. This paper compares the profits and spending of private correctional, medical, and military industries with incarceration rates and policy changes to indicate the level of legislative influence that the corrections industry holds. The comparison finds that expenditures and profits from corrections companies are far less than the expenditures and profits of military and medical industries. Public favor for strict punishment is then examined over time and compared to correctional policy changes and incarceration rates to find that there is indeed a correlation between support for strict punishment and heightened incarceration rates. This paper concludes that the driving force behind hyperincarceration is public support for strict punishment, but there is a distinct effort by the correctional industry to promote this support due to the profitability of private incarceration and prison administration. These findings suggest the private industry does not hold significant legislative influence over correctional policy, and therefore hyperincarceration is not attributable to the existence of a prison industrial complex.

Leslie, Hailey
Social Work

Project Advisor:
Ritter, J.

Serving homeless individuals with mental illness: Critical Time Intervention & tiny homes
Every inhabited place in the world has a homeless population. According to the National Alliance on Mental Illness, approximately 250,000 homeless individuals in the U.S. suffer from a mental illness, the most common illnesses being schizophrenia & bipolar disorder. Critical Time Intervention (CTI) is a social work intervention designed to help this specific population end their reoccurring homelessness. The tiny house movement is a model that is being used to provide immediate housing to homeless individuals in some major cities in the U.S., including Dignity Village in Portland, OR. This senior capstone project examines the effectiveness of combining these two interventions into one successful model of intervention for homeless individuals with mental illness.

Lesperance, Evan
History

Project Advisor:
Rampton, M.

Peasants' Rebellion of 1381

My research into England peasants and society in the fourteenth century has shown that most historians attribute the cause of the Peasants' Revolt of 1381 to the poll taxes of 1379 to 1381. However, the taxes was just one of the reasons the peasants and townspeople of England rose in revolt against the ruling class. I demonstrate that the roots of the Peasants' Revolt of 1381 was the destabilization of the feudal system in fourteenth-century England along with the weakening of the English monarchy, the rise of Parliament in English government, the Black Death (bubonic plague) as well as the effects of the Hundred Years War on English society. In other words the peasants revolt was the culmination of a century of destabilization.

Levang, Lisa
Exercise Science

Project Advisor:
Dolphin, K.

Pin It: The influence of Pinterest on diet and exercise behaviors

Social influences are a primary factor in the adoption of health behaviors. Pinterest is one of the fastest growing social media platforms for content sharing, though the site's influence on behavior is unknown. **Purpose:** This mixed-methods study explored the influence of Pinterest and motivation on dietary and exercise behaviors. **Methods:** Participants ($n \sim 350$) were recruited via social media to complete an online survey, including quantitative and qualitative questions, assessing their attitudes, self-efficacy, use of Pinterest, and health behaviors. Data was

analyzed via regression, and short answer responses were coded using inductive content analysis.
Results: Complete results and conclusions will be presented on Senior Projects Day.

Liskh, Cody
French

Project Advisor:
Purdy, J.

Ingredients for Culinary Excellence: An Analysis of Lyon’s Gastronomic Success

How did Lyon, a city that is not even the capital of France, achieve the prominent distinction as the culinary capital of the world? Many forces contributed to this exceptional reputation, including elements of geography that determined which ingredients defined the base of Lyonnais cuisine. Additionally, the printing press built in Lyon during the French Renaissance contributed to certain crucial, gastronomic aspects within Lyonnais culture. Moreover, the food products that converged in Lyon, along with the distinct cuisine found there became large economic factors that contributed to the financial success of the city. I will investigate these remarkable forces in detail to illustrate the interrelated components that have established Lyon as the capital of gastronomic excellence.

Losh, Jocelyn
Biology

Project Advisor:
Halpern, S.

Effects of Sudden Oak Death (SOD) on Forest Ecology

Since the mid-1990s, the emerging water mold, *Phytophthora ramorum*, has been the cause of the fatal oak disease “sudden oak death” on the U.S. Pacific Coast. This epidemic has caused damage to public and private property, had enormous economic impact on nursery, gardening and logging industries, and has increased the cost of implementing regulatory activities. Additionally, the pathogen’s arise has led to complications in forest ecology, especially in the state of California. My capstone focuses on how *P. ramorum* affects the severity and future management of forest fires in SOD-infected forests. I also examined how forest fires consequently affect the existence of *Phytophthora ramorum* pathogen hosted by bay laurel in oak forests. SOD-infected forests are at greater risk of forest fires as dead limbs add copious amounts of fuel to a fire. Likewise, areas that have experienced forest fire are more susceptible to SOD. With severe damage being sustained to native California black oak, coast live oak, and tanoak in their respective ecosystems, further research must be done to determine the complicated relationship between forest fires and SOD.

Lu, Angie
Biology

Project Advisor:
Scholnick, D.

Mechanism of *Toxoplasma gondii* transmission in the California sea otters
Enhydra lutris nereis

Toxoplasma gondii is a protozoan parasite that causes the disease toxoplasmosis in terrestrial mammals including rats, cats, and humans. More recently, toxoplasmosis has been reported in marine mammals, suggesting an alternate route of infection and the potential for serious threats to coastal populations. For my capstone project, I examined the potential source of *T. gondii* for the California sea otter, *Enhydra lutris nereis*, how the parasite enters the marine ecosystem, and its method of infection in *E. lutris nereis*. Recent studies show that *T. gondii* is present in coastal habitats and tissues of marine invertebrates consumed by sea otters. Samples collected from wild and domestic felids residing in areas surrounding Monterey Bay, CA provided evidence of parasite prevalence and the existence of multiple parasite strains. It is likely that during the oocyst life stage of *T. gondii*, a highly impervious form, that the parasite is shed in cat feces and enters the sea through freshwater run off. Exposure of *T. gondii* oocysts to various kelp blade treatments, and the discovery of the parasite within sea otter prey, suggest that after entering the ocean, oocysts have the ability to remain viable in filter feeding invertebrates or on kelp blades

until ingested by kelp grazers. Evidence of *T. gondii* in marine prey and high rates of infection in older sea otters, supports the hypothesis that sea otter toxoplasmosis infections are the result of a complex pathway involving freshwater runoff, and a variety of intermediate marine invertebrate hosts, which are ultimately consumed by sea otters.

**Gallagher, Austin,
Lukose, Namitha,
Van, Evangeline
Business**

**Project Advisor:
Ramaya, K.**

IMAGENIE INC.

Imagenie Inc. strives to foster relationships with consumers and communities through the launch of innovative products with an emphasis on profitable solutions and services. We aspire to become a leader in the global camera industry by creating products that enrich lifestyles while fulfilling our social responsibility as good citizens.

**Lund, Melissa
Public Health**

**Project Advisor:
McGrath, M.M.**

“Insta”-Health: Promoting healthy lifestyles through social media

“Insta”-Health is a pilot program at Forest Grove High School in Forest Grove, Oregon designed to decrease obesity in Washington County high school students. Students will post photos of themselves being active or eating healthily on their personal Instagram accounts, and staff members will frequently post photos with health facts on the program’s account, which participants will “follow.” When a student posts to the Instagram site, he or she becomes eligible for a gift card from a “healthy” retailer such as Subway or a sporting goods store. Social media is well suited to Forest Grove because it is well used among the Latino population (Niche, 2014), which makes up a large proportion of the student body. “Insta”-Health aims to counter the high volume of ads for unhealthy lifestyles students encounter. The pilot program will last three years.

**MacDonald, Dion
Media Arts (Journalism)**

**Project Advisor:
Cassady, D.**

Media Coverage of the Bosnian Conflict

Following the end of the Cold War, a multitude of conflicts erupted once again in the historically volatile Balkans region of southern Europe. This included the Bosnian War, which lasted from 1992 to 1995 and claimed more than 100,000 lives. The conflict resulted from governmental power relations that clashed with perceived notions of ethnicity and identity in the area, particularly between the Serbs, Bosnians, and Croats. The war’s end was eventually reached in 1995 through the Dayton Agreement, after drawing involvement from other parts of the world including the United States. This project is a media analysis of US print journalism during the Bosnian War. It looks at major US newspapers in order to better resolve questions of how much the war was covered and in what context.

**Maeshiro, Mika
Biology**

**Project Advisor:
McCormick**

Mending broken hearts: Potential treatments of congenital heart defects with amniotic fluid-derived stem cells

Congenital heart defects, malformations of the heart during development, are the number one cause of infant death in the United States. The term “congenital heart defects” refers to a wide variety of abnormalities in development, however, this paper focuses primarily on ventral septal defects and hypoplastic left heart syndrome. Both can cause arrhythmias, respiratory problems, and generalized underdevelopment and delayed growth and both can be life-threatening if left

untreated. This paper reviewed multiple literature sources in order to answer the question, Can amniotic fluid-derived stem cells be used to treat congenital heart defects in children? Treatments for these defects currently require invasive surgery or heart transplants. Current treatments are not always applicable to patients with congenital heart defects due to the complexity of individual physiology. A potential therapy to remedy the problem of individual variation is the utilization of cells with the same genetic makeup as the individual. Such cells can be found in the amniotic fluid. Reviewed literature showed strong evidence for the use of amniotic fluid-derived stem cells for treatment congenital heart defects in children. Borowka and colleagues provided evidence for the mobilization of stem cells in response to cardiac damage. Moretti and colleagues experimentally determined a working model of the pathway of multipotent stem cells that may be used to autonomously differentiate stem cells into cardiac tissues. Connell and colleagues demonstrated reduce infarct size and increased repair by amniotic fluid-derived stem cells after heart attack that may translate into use of amniotic fluid-derived stem cells in treatment of congenital heart defects. Overall, the combined research of Borowka, Moretti, Connell, and their colleagues provides strong evidence for amniotic fluid-derive stem cell therapy in treating congenital heart defects in children. The implications of these findings may more broadly be applied to cardiovascular health issues and potentially save millions of lives every year.

Maldonado, Chanelle
Biology

Project Advisor:
Searcy, B.

BPA Exposure leads to an Increased Risk for Breast Cancer

Bisphenol A (BPA) is a well-known and widely used chemical. Exposure to this compound has been linked with an increased risk of breast cancer in both humans and mice. Breast cancer is the number one diagnosed cancer in women, with approximately one million new incidents identified per year. BPA plays a role in the development of breast cancer by acting as an endocrine disruptor that mimics the steroid hormone estrogen, which ultimately results in physiological changes that negatively affect normal body functions. Although BPA is known to have many negative health effects, this review will evaluate evidence that BPA exposure can lead to an increased risk in breast cancer. Two recent studies that analyzed this topic found that there is a significant increase in tumor formation following exposure to a variety of doses of BPA in both mice and rats. An additional study examined the relationship between BPA and a non-coding RNA molecule, HOTAIR. The interaction between BPA and HOTAIR was examined because previous findings have shown that over expression of HOTAIR plays a role in the development of a variety of cancers, including breast cancer. These researchers found that BPA exposure leads to an increase in HOTAIR expression, potentially identifying a direct mechanism linking BPA and breast cancer risk. In conclusion, much evidence shows that BPA exposure increases breast cancer risks. However, further research should be done to further support the risk of BPA and other commonly used chemicals that have the ability to affect human health.

Manning, Jayson
Department of Exercise Science

Project Advisor:
Schot, P.

Core Strength and Postural Control: Mechanical Stability Manipulations

Core strength is a popular topic in fitness, rehabilitation and sports training arenas. Most related research is focused on athletic performance and how to implement a core-strengthening program. However, there is very little empirical support for its efficacy. Balance and stability regulation (i.e., posture control) is important for athletic performances as well as activities of daily living across the lifespan. The widespread significance of posture control and the potential role core strength may play motivated this project. **Purpose:** To examine various posture control

challenges to tease out potential relationships with core strength. **Methods:** Healthy young adults representing a range of strength levels were recruited. Each completed four strength tests (isometric trunk flexion, trunk extension, left lateral flexion and right lateral flexion). Participants stood upright on a force platform system to allow recording of the center of pressure excursion and were presented with two categories of posture control challenges. Category 1 involved manipulations of basic mechanical stability factors (stance width and center of mass height). Category 2 required participants to catch balls of different mass on different trajectories. **Analysis:** The relationship between core strength and postural stability measures under the various challenges were evaluated via a mixed effects 2x2x3 ANOVA. **Results:** Findings from the mechanical stability manipulation portion of the study will be shared during the presentation.

Mapes, Hannah
Public Health

Project Advisor:
McGrath, M.M.

Policy Advocacy for Curriculum Transition (PACT) to reduce the burden of teen pregnancy and sexually transmitted infections in Latino youth in Washington County, Oregon

Latinos are among the fastest growing ethnic groups in the United States. Of the 547,672 residents of Washington County in 2014, 7,889 were aged 15-19 and Hispanic/Latino (U.S Census Bureau, 2014a, 2014b). Hispanic/Latino youth make up about one fourth (23%) of the high school-aged population (U.S. Census Bureau, 2014a). Due to the language, cultural, and economic barriers they face, Latino youth are one of the most underserved by the healthcare system (Hobbs & Stoops, 2002). They have much to gain from culturally competent and multifaceted comprehensive sexual education, however the sole curriculum currently used in Washington County is one-dimensional and does not address cultural diversity. PACT will increase the number of Latino students who are exposed to an improved reproductive health curriculum by recruiting teachers, students, and other advocates to promote district-wide policy change on approved human sexuality education curricula. In the long term, this program will better support the reproductive health and needs of the growing young Latino community and will act a model for policy change strategies that can be used in other communities.

Martinez, Jessica
Studio Art

Project Advisor:
Iijima, J.

Deep

The basis of this project is to convey what it feels like for me when I am scuba diving 80 feet below the surface and look up. The goal for my senior capstone exhibit is about noticing the unnoticed and examining the feeling it gives me. What I notice when diving is the immensity of the world around me. The water is always moving and the subtle color varies from dark to light while swirling around me. The epiphany I had in the water was that everything right in front of me was clear, but as I looked out into the deep everything became dark, much like how I see my future. I will explain my process and how the product and materials are important to my overall idea for this project.

Martinez, Isaac
Muraoka, Alyssa
Rogers, Grant
Business

Project Advisor:
Ramaya, K.

CONQUEST

We are Conquest. Our strategy is to out-execute every competitor in the industry with our well-grounded strategy while holding ourselves to the highest standards for product quality for both

our multi-featured and entry-level cameras while never compromising on good corporate citizenship. Our goal is to eventually become undisputed market leader.

Mayhugh, Amy
Chemistry

Project Advisor:
Cordes, D.

The hydrodehalogenation of aryl halides using sodium borohydride

The hydrodehalogenation of aromatic halides has been achieved using a wide variety of methods. In our system, aromatic halides are dehalogenated using a sodium borohydride reducing agent and catalytic palladium-on-carbon under ambient conditions. High conversion yields are seen within an hour for many substrates in this heterogeneous reaction system. Solvent effects and catalyst variations have been studied to provide optimized conditions, with protic solvents and wet catalysts yielding the best results. System reactivity is best with aryl iodides, bromides, and chlorides although fluorinated compounds have also shown promising results.

Mayhugh, Julie
History

Project Advisor:
Green, J.

The Revision of a Good Death: Confederate Women and Nurses during the Civil War

The American Civil War (1861-1865) was the bloodiest conflict on American soil, causing high death rates on both sides, but especially on the Confederate side. The Civil War challenged previously held notions on how to die well, known as a “good death.” This thesis uses diaries to examine how women on the southern home front perceived and reacted to this change over the course of the war. Comparing Confederate nurses to the women on the home front provides a more complex understanding of nineteenth-century southerners’ views of death and how different roles influenced women’s understandings of a “good death” during the war. In both groups, Confederate nationalism strengthened while their spirituality and view of themselves altered as the body count increased.

Mayorga-Overtone, Olivia
Politics & Government

Project Advisor:
Moore, J.
Seward, J.

Women’s Rights: How and why they vary across Arab nations

For the last century, women’s rights have and continues to be a mainstream topic and issue for discussion within the United States. In the past decade however, Middle Eastern countries have come under much scrutiny regarding women’s rights. Controversy surrounding the progression, or lack of progression, of women’s rights within Middle Eastern countries continues to circulate within academic circles, main stream news media and the United Nations. Through the application of a historical comparative analysis, this thesis examines the potential variation of factors that may influence the progression or lack of progression within 14 countries belonging to the Arab League. It explores the variation of women’s rights, the possible reasons behind these variations, and the variations and explanations of the level of women’s rights of the 14 Arab nations.

Dopps, Kevin
McCammon, Haley
Simmons, Rachel
Business

Project Advisor:
Ramaya, K.

KISMET CAMERAS

We are Kismet Cameras. We are in a head-to-head competition with formidable competitors in the digital camera industry. At Kismet we focus on our performance and quality ratings which we hope will positively impact our image and the bottom line. Our customers will know that we

are quality focused and offer reasonably priced cameras. We aspire to become the leader in the camera industry.

McCurley, Hannah
Public Health

Project Advisor:
McGrath, M.M.

Integrating the Health & Wellness Curriculum into a summer reading program in Woodburn, Oregon

The “Summer Learning, Summer Library, and Summer Lunch” (SL3) program bridges the learning gap that low-income Woodburn elementary-school aged children face during the summer months by keeping libraries open for reading instruction, socializing, and nutritious meals. Research shows that a family’s economic and social position shape children’s health, with low-income children are at a higher disadvantage than children of higher income. Studies also show that the key to healthy habits is instilling them into early childhood development. Adding the new activity-based Health and Wellness Curriculum (HWC) to SL3 will complement program activities with new health information designed improve physical and mental health of by fostering healthy eating and active living. Sessions will be led by AmeriCorps VISTA volunteers and librarians, and the curriculum will use best practices such as parent involvement, interactive teaching, and low student/teacher ratios. At least 25% of Woodburn Elementary school children will attend the HWC within 3 years of implementation, and 10% of participants’ parents will participate once before the session is over. By year two of the program, it is expected that 10% of participants will report exercising at least twice a week and eating fruits and vegetables three times a week.

McCusker, Colin
History

Project Advisor:
Rampton, M.

Defining a Renaissance: How Societal Reforms Were Used to Maintain Order in the Carolingian Empire

This thesis examines the idea of a “renaissance” and whether the Carolingian era of the ninth century qualifies as one. Beginning in the eighth century under Charlemagne’s leadership, the empire underwent a transformation. Literacy levels were raised, the art and architecture of the era were transformed, schooling and education were improved, and numerous similar societal reforms occurred. Originally titled a “renaissance,” scholars have begun to question the accuracy of the term for the Carolingian era. My presentation looks at the characteristics that define a “renaissance” through an examination of the Italian Renaissance, and I argue that “renaissance” is not an appropriate term, as the Carolingian reforms lacked the “humanism” vital to a “renaissance.” Rather, the reforms of the period occurred under the direction of the ecclesiastical elite in order to establish conformity and order throughout the empire.

McDougall, Kindra
Exercise Science

Project Advisor:
Henry, S.

The Acute Effects of Elastic Band Arch Supports on Balance

Background: Balance is important for both athletic performance and quality of life. There is a direct, positive relationship between balance ability and athletic performance in activities such as dance and gymnastics. Equally important, there is an inverse relationship between balance and risk of falls (and fall-related injuries). Although many variables affect balance, there has been recent interest in the utilization of external support strategies, such as elastic taping and bracing. One particular strategy – a figure eight elastic band arch support that wraps around the foot and ankle – is specifically marketed for improving balance. However, there has been little, if any, research determining the efficacy of this band. Therefore, the purpose of this study was to test the effects of this category of elastic bands on balance. *Methods:* Nineteen adult volunteers (five

male and fourteen female; stature = 168.710 ± 11.401 cm; mass = 68.279 ± 12.040 kg; age = 21.632 ± 2.500 year) completed single leg static and dynamic postural stability tests and double leg limits of stability (LOS) tests on an instrumented dynamic balance instrument. In a random and repeated measures design, trials were completed barefoot with elastic band arch supports (experimental, or BAND) and without elastic band arch supports (control, or CONT). For single leg static tests, the balance platform was held stationary, the participant was instructed to stand as stationary as possible, and variability of center of pressure information provided an overall stability index (OSI). For single leg dynamic tests, the balance platform was allowed to tilt in all directions (dynamic setting), again yielding an OSI value. The double leg LOS test required participants to stand on a dynamic platform and purposefully manipulate their center of pressure to computer-generated targets. Performance on the LOS test was quantified by an overall direction control (ODC) value. Paired t-tests, comparing experimental to control, were used for analysis. *Results:* For single leg static postural stability tests, there was no difference in OSI ($p = 0.828$) between the CONT (1.091 ± 0.189) and BAND condition (1.098 ± 0.253). Similarly, there was no difference in OSI ($p = 0.434$) between the CONT (1.281 ± 0.397) and BAND (1.259 ± 0.366) for single leg dynamic postural stability tests. However, LOS testing showed a difference in ODC ($p = 6.17E-05$) between CONT (47.918 ± 12.586) and BAND (51.556 ± 13.465) with the BAND condition scoring higher on ODC. *Conclusion:* Although elastic band arch support did not improve balance when measuring either static or dynamic single leg balance, it did improve balance in the LOS assessment. Thus, it is possible that elastic band arch supports are beneficial for improving balance in the short term if the balancing task is sufficiently challenging. Future studies should investigate the long-term effects of these bands and differences between foot types.

Goshi, Kimilyn
Johnson, Jordan
McDougall, Kindra
Business

Project Advisor:
Ramaya, K.

EVOLUTION IMAGING

At Evolution Imaging we manufacture the most advanced cameras at attractive prices. We strive to create the most evolved cameras in the industry to satisfy the growing technological demands of our customers. To do this we are setting ourselves apart with high Performance and Quality Ratings, advanced technology in both our entry-level and multi-featured cameras at moderate costs relative to our competitors. We provide great value for the dollar. We develop brand loyalty with our customers and the communities that we serve.

McShane, Tess
Psychology

Project Advisor:
Salgado, D.

Masculinity, Muscularity, and Disordered Eating among Heterosexual Men

While approximately 1-3% of the general population meets the diagnostic criteria for an eating disorder, research suggests that up to 50% report behaviors associated with disordered eating. Disordered eating is characterized by difficulties in emotion regulation, unhealthy attitudes toward food, and harmful weight and diet behaviors. While eating disorders are historically considered a “feminine disease,” research has documented increasing prevalence rates among boys and men. One explanation emphasizes the attempts by boys and men to embody masculinity in the form of increased muscularity and restrictive eating behaviors. Past research has examined these relationships in subgroups of men (e.g., gay men, athletes) who are considered to be at increased risk for disordered eating behaviors, however few studies have investigated this phenomenon among heterosexual men. A total of 360 heterosexual men from 18 to 25 years old ($M = 20.83$, $SD = 2.02$) participated in an online survey assessing health-related

attitudes and behaviors. Results will examine the influence of men's endorsement of masculinity and muscularity on features of disordered eating, including dieting, bulimia and food preoccupation, and oral control. Implications for the findings will be discussed within the context of identifying and treating men at risk for disordered eating and eating disorders.

Mejia, Brian

Environmental Studies: Sustainable Design

Project Advisor:

Van Buskirk, R.

Tiny House Village: Solution to Homelessness in Washington County

The towns of Beaverton, Forest Grove and Cornelius have seen a slow but steady increase in homelessness over the last half-decade, increasing from 262 to 289 households. Hillsboro homeless numbers have declined, but currently are at 209 households. Washington County also tracks overall homelessness in the county by the individual, which currently stands at 1,153. Typical reasons for homelessness include no access to affordable housing, unemployment and abusive alcohol/drug use. Shelters in the region assist the homeless by opening their doors when the weather gets cold offering warm clothes, tarps and other material items, as well as providing food, basic employment resources and drug/alcohol rehabilitation. Though a commendable deed, this fails to address the real problem and does not put the homeless in a better situation long-term. In Portland, OR, a community of folks experiencing chronic homelessness decided to take matters into their own hands and establish a permanent alcohol/drug free village that provides shelter, support and a sense of place to those who often have nothing. My project involved researching the process of implementing and sustaining Dignity Village and similar communities around the nation, allowing me to gain the understanding necessary to organize a project of this sort for Beaverton, OR, a city with no homeless shelters. By talking with homeless outreach organizers, as well as Washington County and City of Beaverton officials, I was able to navigate the building and land-use codes, allowing me to develop a proposal for implementing a Tiny House Village for Washington County. A community such as this has the potential to serve as a catalyst for people facing homelessness, allowing them to reengage with society in a meaningful way once again.

Melton, Kiera

Public Health

Project Advisor:

McGrath, M.M.

Educating food handlers in Washington County, Oregon

Each year roughly one in six Americans get sick, 128,000 are hospitalized, and 3,000 die from foodborne diseases (CDC, 2014). Reducing foodborne illnesses (FBI) is vital for groups such as children and the elderly because they are more susceptible to illness. Decreasing the incidence of FBI requires targeting those who work with food because many cases are caused by improper food handling. Currently, food-handlers are trained using written materials and evaluated with a test. Yet the continuing burden of FBI suggest these methods may not be effective enough. The present program teaches food safety by identifying barriers to proper food safety practices and using new technologies to deliver training information. This program will result in increased knowledge of food safety and FBI for food handlers in Washington County, Oregon and a consequent decline in FBI.

Membrere, Tere Ann

Public Health

Project Advisor:

McGrath, M.M.

Community-based stroke awareness for older adults in Hillsboro, Oregon

Stroke is the fourth leading cause of death and the leading cause of adult disability in the U.S. (American Heart Association, 2014). Up to 80% of strokes can be prevented by learning about personal risk factors. Older adults have the highest risk of stroke and many are uneducated about stroke symptoms and the need to seek treatment as soon as possible (Jones, Jenkinson, Leathley,

& Watkins, 2009; National Stroke Association, 2014). Community-based stroke awareness programs have been effective when there is a target population because programs can be tailored to meet their specific needs (Zahuranec et al., 2008; Butler-Ajibade, Booth, & Burwell, 2012). Therefore, this intervention will be targeting older adults (age fifty and older) in Hillsboro, Oregon and will be held at various community locations. The program will provide information about stroke risk factors, warning signs, and when to call 911 - presented through PowerPoint and video. In addition, there will be printed materials and a question- and- answer section to engage participants, which have been effective methods for educating older adults in general (Kececi & Bulduk, 2012). The program will increase awareness of stroke, change behaviors, and decrease the incidence of stroke in the older adult population.

Meskeil, Zachary
Creative Writing

Project Advisor:
Postma, K.

From Good to Evil: The Lucifer Effect in Fiction

This thesis explores the descent of a primary fictional character from good into evil, a pattern identified as the Lucifer effect. My thesis consists of two separate parts: a creative piece and a critical introduction. For the critical introduction, I discuss the theory behind my portrayal of a good character doing evil things, my process in realizing that goal, and the influence of previous works of fiction and non-fiction upon my writing, notably Philip Zimbardo's *The Lucifer Effect*, Heinrich von Kleist's *Michael Kohlhaas*, and AMC's *Breaking Bad*. For the creative portion of my novel, I wrote the opening chapters of a novel in which I applied my theories about how a primary character spirals downward into base and cruel behavior. The story follows a young man named Justin and his childhood friend Kevin when they are reunited after completing college. Struggling with depression, loneliness, and a dire financial situation, Justin yearns for the romanticized version of the adventures that he and Kevin had when they were boys. Kevin has been more successful at building a life for himself, but his success is imperiled when he is dragged by his girlfriend into a network of loan sharks and hit-men. Kevin and Justin reunite in an attempt to come out on top in a fight with the criminal underworld. As these unusual circumstances drive the pair into desperation, Justin tests the limits of his morality and eventually devolves into evil.

Mihara, Hidetoshi
Environmental Studies: Sustainable Design

Project Advisor:
Van Buskirk, R.

Undergraduate behavior & attitude toward recycling at Pacific University, Oregon

Recycling is an effective and personal action that can decrease the consumption of raw materials needed for manufacturing. Pacific University has placed a strong emphasis on recycling as a component of their Sustainability Plan, but undergraduate students often overlook its significance. Although many students think that global resources are abundant, they need to understand that our resources are finite and decreasing rapidly due to their high rate of consumption by a rapidly growing global population. In order to address this problem and encourage students to be more involved in recycling, more information on their motivations is needed. This capstone project examines students' behaviors, environmental attitudes, social norms, moral norms, and capacity for change toward recycling at Pacific University's Forest Grove campus. For my project, I have solicited student responses to an anonymous recycling survey, consisting of questions based on the Theory of Planned Behavior. The results will be used to determine how recycling behavior, environmental attitudes and capacity for change compare with published results from other academic institutions. In addition, the survey will analyze social and moral norms toward recycling that can be used to identify factors that influence recycling behavior. This study will ultimately inform the design of targeted posters and outreach at Pacific University to improve campus recycling participation.

Miranda, Summer
Exercise Science

Project Advisor:
Dolphin, K.

Pin It: The influence of Pinterest on diet and exercise behaviors

Social influences are a primary factor in the adoption of health behaviors. Pinterest is one of the fastest growing social media platforms for content sharing, though the site's influence on behavior is unknown. **Purpose:** This mixed-methods study explored the influence of Pinterest and motivation on dietary and exercise behaviors. **Methods:** Participants ($n \sim 350$) were recruited via social media to complete an online survey, including quantitative and qualitative questions, assessing their attitudes, self-efficacy, use of Pinterest, and health behaviors. Data was analyzed via regression, and short answer responses were coded using inductive content analysis. **Results:** Complete results and conclusions will be presented on Senior Projects Day.

Pacarro, Brittany
Moani, Sabrina
Public Health

Project Advisor:
McGrath, M.

YouTube, an Alternative Wellness Source (YAWS) for people living with multiple sclerosis
YAWS is designed to effectively gain access to wellness programs for people living with multiple sclerosis (MS). Using YouTube videos as exercise guides where brick-and-mortar wellness facilities are not accessible will increase quality of life while decreasing symptoms for the multiple sclerosis population in rural areas in Oregon. Of the 8,000 Oregonians with MS, 3,000 live in rural areas (ORC, 2014). Rural people tend to face financial and transportation barriers to physical activity, which is an important influence of health status for people with MS. Residents in rural areas tend to have lower physical health-related quality of life, which is commonly found to be associated with an increased need for an assortment of health services (Buchananhu, Zhu, Schiffer, Radin & James, 2008). YAWS will create a YouTube channel that provides wellness and fitness videos accessible without cost or travel and will train clinicians at rural hospitals to refer MS patients to the channel. YAWS participants will increase exercise behavior to 2-3 times a week, which will reduce severity of symptoms and change attitudes about exercise. This cost-effective program harnesses the power of the Internet to effectively address access to wellness.

Mood, Topher
Public Health

Project Advisor:
McGrath, M.M.

Disability Health Entitlement

As one of the states with the highest proportions of residents living with disabilities, Oregon has a great need for preventive screening that uses adaptive techniques. However, because some clinicians lack training or facilities lack appropriate commitment, health care providers sometimes deny disabled individuals the right to schedule an appointment. Not only does this create a barrier to preventive health care, but it is a violation of the Americans with Disabilities Act (ADA). Disability Health Entitlement aims to increase provider compliance with the ADA by recruiting them to attend weekly lunch-hour trainings for two months. Program staff will assess participants' procedures at baseline and train them to adaptive techniques and equipment. Attendees will then be responsible for training current and future staff members to maintain a competent workforce. Disability Health Entitlement alumni will better serve the disability population with enhanced adaptive medical techniques which will elevate the overall quality of life for people with disabilities.

Moore, Sarah
English

Project Advisor:
Bove, A.

Sense within Nonsense: The method of literary and visual nonsense in Lewis Carroll's "Alice" books and political caricaturist J. J. Grandville

Beneath the complex and comical veil of literary and visual nonsense lie deeper truths that elucidate faults not only within logic and language, but also within human nature. A close analysis of the tales of *Alice's Adventures in Wonderland* and *Through the Looking Glass*, and the images of French political journalist and caricaturist J. J. Grandville, reveals that there is more than meets the eye in these works and a hermeneutic approach must be employed to see beyond the surface; this, coupled with Sigmund Freud's theory on the unconscious significance of jokes, will help make sense of the elements of comicality and wit in these instances of literary and pictorial nonsense.

Moore, Rachel
Biology

Project Advisor:
McCormick, L.

The effect of folic acid supplementation in the prevention of congenital heart defects.

The heart is the first formed fully organ during fetal development. As such, it undergoes a complicated process including induction, proliferation, migration, and differentiation of cardiomyocytes. Due to this extensive process, the heart is especially vulnerable to disruptions in development, and as a result congenital heart defects are the most common birth defect found in humans. While some can be traced back to known causes such as genetic defects, overall over 85% are due to unknown. One promising preventative measure is the use of folic acid supplementation. While folic acid is more commonly known to help prevent neural tube defects, studies have found the use of increased folic acid intake to prevent up to 40% of all congenital heart defects. Research from several studies have found that folic acid is able to help prevent congenital heart defects through either supporting the methylation of certain genes via the dihydrofolate reductase enzyme or through supporting the migration of cardiac neural crest cells. Due to these promising findings, more studies should be done to better determine the mechanism of folic acid in heart development. In the meantime, further use of folic acid by pregnant mothers should be encouraged by fortification of grains and increased accessibility to folic acid supplementation.

Morgan, Riley
Exercise Science

Project Advisor:
Schot, P

Relationships Between Core Strength and Postural Control in a Ball Catching Task

Core strength is a hot topic in the physical fitness and rehabilitation fields. It is widely presumed that core strength is essential for athletic performance, but very little empirical evidence supports this view. Posture control (i.e., balance and stability regulation) is an important consideration for sport performance as well as for functional daily living activities across the lifespan, so the potential influence of core strength in this dynamic should be investigated. **Purpose:** To present various posture control challenges in order to tease out potential relationships with core strength. **Methods:** Healthy young adults representing a range of strength levels were recruited. Each completed four strength tests (isometric trunk flexion, trunk extension, left lateral flexion and right lateral flexion). Participants stood upright on a force platform system to allow recording of the center of pressure excursions and were presented with two categories of posture control challenges. Category 1 involved manipulations of basic mechanical stability factors (stance width and center of mass height). Category 2 required participants to catch balls of different mass on different trajectories. **Analysis:** The relationship between core strength and postural stability measures under the various challenges were evaluated via a mixed effects 2x2x2

ANOVA. **Results:** Findings from the ball catching portion of the study will be shared during the presentation.

Morris, Jeremy
Exercise Science

Project Advisor:
Jackson, B.

The Effects of Music Tempo and Experimental Paradigm on Heart Rate, Perception of Fatigue, and Time Estimation

With more interest placed on sport and exercise, athletes are continually searching for anything that will give them a competitive advantage (Schie, Nicola, Stewart, Becker & Rogers, 2008), and non-athletes are trying to find ways to improve their health/fitness. Music has become a popular strategy in both arenas, however, given the various dimensions of music (e.g., tempo, volume, genre), it has been difficult to determine what aspects of music, if any, affect performance. Some research has supported that music tempo can affect cycling performance, where faster tempos resulted in better physical performance and higher HR (and vice versa) (Waterhouse, Hudson, & Edwards, 2009). Further research is needed, and the underlying cause of this effect is unknown. **Purpose:** The purpose of this study is to examine the effect that music tempo has on task performance, HR, and perceptions (i.e., fatigue and time estimation) in either a retrospective or prospective testing design. **Method:** Participants were asked to perform three bouts of a cycling task, each which either no music, slow music, or fast tempo music being played via headphones. Participants' heart rate, speed, and perceptions of exertion were recorded within each condition. In addition, participants were asked to estimate the amount of elapsed time in either a prospective (knowing in advance that they were going to be asked) or retrospective (not knowing that they would be asked) manner. **Data Analysis:** Data will be analyzed to determine whether the music condition and testing design had an effect on task performance and perception. **Results and Conclusion:** Will be presented as to the effect that music tempo and experimental paradigm has on HR, perception of fatigue, and time estimation.

Mosquera-Mena, Graceliano
Exercise Science

Project Advisor:
Schot, P.

Effects of Mass and Velocity Manipulations on Landing Impact Forces

Landings from jumps occur very frequently in sports (e.g., volleyball, basketball, soccer) and are integrated into training regimens. The impact forces accompanying jump-land cycles produce significant stress levels in the lower extremities, exposing athletes to greater risk of injury. Therefore, it is important to identify factors affecting landing biomechanics to prevent, minimize and treat injury. **Purpose:** To examine the effects of several combinations of added mass and velocity on vertical ground reaction forces during a terminal landing task. **Methods:** 24 healthy young college age adults with previous experience in jumping and landing activities participated. All performed 8 drop landings using their preferred strategy in each of 5 conditions onto a dual force platform system. The control condition (45cm drop distance) was performed first and the various mass and/or velocity manipulation testing order was counterbalanced (+15% mass, +15% velocity, +7.5% of both and +7.5% velocity). These 5 conditions gave rise to 3 unique momentum levels and 4 unique kinetic energy levels at contact. Task demand perceptions (Subjective Units of Distress Scale) for the control and the most extreme conditions were taken before testing and also immediately after each condition was executed. **Analysis:** Responses to the 5 experimental combinations were analyzed via repeated measures ANOVA. **Results:** Findings will be reported at the presentation.

Mourich, Bryan
Media Arts: Integrated Media

Mooberry Elementary School Dual Language Program Promotion Video

For my project, I was the sole creator of a video that aims to promote Mooberry Elementary School's Dual Language program that is currently being implemented in their kindergarten and 1st grade classes. The video features interviews and testimonials from teachers, parents, and others involved with the program. It also features in-classroom footage of students interacting and learning with each other, in-progress classroom lessons; and local learning performance statistics compared to other educational programs. The hope is that this video will show parents what this program is all about and encourage them to enroll their child.

Project Advisor:
Geraci, M.

Mull, Anthony
Chemistry

Synthesis of Metallic MIP's as Imitators of Enzymatic Hydrolysis

The unique ability of enzymes to catalytically alter compounds has been studied for decades now, and by use of molecularly imprinted polymers (MIP's) it is possible to emulate the chemistry of some enzymes. One such enzyme, carboxypeptidase-a (CPA-1) is capable of hydrolyzing peptide bonds at the C terminus by forming a tetrahedral intermediate using a zinc bound active center. As a sort of inspiration, the blueprint for this enzyme was translated to that of an MIP scheme in this study, using similar ligating structures, a zinc active center and similar substrates to that of CPA-1. The first goal of the study was centralized around the synthesis or alteration of starting materials to obtain the various components of the desired MIP. Following this would be the actual synthesis of the MIP, and eventually the testing of its efficacy as a hydrolyzer. The required synthesis of this MIP would require a combination of a vinylated zinc bound active site and a phosphorous nitrobenzene pseudo-substrate acting as a template, which would then be polymerized to form the MIP itself. The first step in this template synthesis was the isolation and characterization of a pure starting material (Tris(1-methyl-imidazole)methanol from an original crude product using tetrahydrofuran. Addition of a vinylbenzene group to this compound was then performed, and both the original purified product and the altered substrate were characterized successfully with NMR spectroscopy. Due to complications with the isolation of this vinylated product further synthesis was not performed. And hence completion of the template and MIP as a whole is yet to be accomplished.

Project Advisor:
Gohdes, J.

Muraoka, Marissa
Physics

Lab Exploring the Fundamental Physics Behind Magnetic Resonance Imaging

An increase in the use of Magnetic Resonance Imaging (MRI) in the healthcare field has inspired more students to understand and explore the physics behind the imaging process. As an addition to the Modern Physics with Health Applications course offered at Pacific University, a complete laboratory experiment was designed to enable students to take data from small-scale MRI simulations using a TeachSpin PSI-A Pulsed Nuclear Magnetic Resonance Spectrometer. The lab consists of prerequisite assignments, lab activities, and homework made for future students and faculty. The primary objective of the experiment is to obtain the two times a MRI uses to create an image: spin-lattice relaxation time (T1) and spin-spin relaxation time (T2). Completion of the lab activities will help students to make data-supported conclusions about the physics concepts and principles involved in MRI based on their own findings.

Project Advisor:
Brosing, J.
Lin, S.

Martinez, Isaac
Muraoka, Alyssa
Rogers, Grant
Business

Project Advisor:
Ramaya, K.

CONQUEST

We are Conquest. Our strategy is to out-execute every competitor in the industry with our well-grounded strategy while holding ourselves to the highest standards for product quality for both our multi-featured and entry-level cameras while never compromising on good corporate citizenship. Our goal is to eventually become undisputed market leader.

Murdock, Connor
History

Project Advisor
Szefel, L.

Popular Print Culture and its Contribution to Oregon Prohibition

During the early twentieth century the shadow of recent settlement and the “Wild West” hung over the State of Oregon. It was still viewed as a land composed of hardy pioneers who worked hard and enjoyed their whiskey. How then was the temperance movement able to influence state legislation that brought Prohibition to Oregon in 1916? This thesis examines numerous newspapers, magazines, and advertisements spread throughout Oregon before the commencement of Oregon prohibition. It explores how class, gender, race, ethnicity, and economics were important factors in winning support for the passage of State Prohibition. Additionally, this thesis draws on letters written to editors of various newspapers to illuminate public reaction and opinion in regards to different aspects of Prohibition, in order to gauge the influence of popular print culture on consumers. By investigating Prohibition in Oregon, this thesis highlights popular print culture’s contribution to successful temperance movements. Although popular print culture often goes unnoticed in the history of prohibition, drowned out as they are by stories of mobsters, speakeasies, flappers, and bootleggers, it was a vital component of the temperance movement’s quest for prohibition.

Nahorney, Brittany
Environmental Science: Environmental Biology

Project Advisor:
Van Buskirk, R.

Substitution of Vertebrate Lure Animals in Raptor Research

Raptors are the subject of a variety of field studies that often involve the collection of tissue samples and the banding of wild birds. In the United States, research, testing or teaching that involves animals must follow standards set by animal welfare legislation. However, these guidelines can be poorly matched to the unique methods required for studying and capturing wildlife. In order to gain research approval, studies must be reviewed by the Institutional Animal Care and Use Committee (IACUC). The well-being of lure animals can become contentious when seeking field research protocol approval. Lure animals are used as bait when attracting birds of prey but raise concerns from IACUC due to the distress the lure animals could experience and the need to properly house the small numbers maintained for raptor studies. IACUC approval is mandatory for research involving vertebrate animals but is not required for the use of invertebrates (with the exception of cephalopods). This project explores the use of invertebrates as an alternative to vertebrate lure animals. In Washington and Yamhill County, I collected data on the behavioral response of American kestrels (*Falco sparverius*) to two different lure animal choices: Mice (*Mus musculus*) and Madagascar Hissing Cockroaches (*Gromphadorhina portentosa*). Data was collected using modified bal-chatri traps positioned near kestrels perched alongside roads. After deployment of the experimental traps, the falcons’ behaviors were recorded using ethograms. Kestrels were found to approach traps containing mice more often and investigated them for longer durations of time compared to traps containing

cockroaches as lures. Although the results showed higher levels of response to mice, kestrels did show interest and approached invertebrate lure animals. This research provides raptor biologists with a direct comparison of the use of invertebrates and vertebrates as lure animals. Knowledge of the effectiveness of different lures in capturing birds of prey can guide the design of field studies while minimizing the impact on wildlife and the research animals used to attract them.

Narro, Sawyer
Spanish

Project Advisors:
Welsh, M.
Wilson, J.

Racism in Bilingual School and Antiracist Programs

Even though bilingual schools have a different race dynamic than schools that are predominately white, there are still many instances of racism. Racism can have many negative effects on children, including their health, education, and mental well-being. It is crucial for future generations to find a way to eliminate or reduce racism in our schools to better our society. Antiracist programs aim to provide a multicultural education that teaches students about issues that different ethnicities or races face. This style of teaching should decrease the instances of racism. By observing students at Echo Shaw Elementary School, a dual-immersion bilingual school in Cornelius, OR, and by investigating the outcomes of studies done on antiracist programs in bilingual schools, I wish to discover the results of the antiracist programs researched, specifically how effective they were, and the opinions about the programs from the personnel of the schools, in terms of reducing racism in schools by implementing antiracist programming. With the example schools I have found during my research, there is a correlation between instances of racism and antiracist programs. If schools implement an antiracist program, instances of racism will slowly decrease. In my presentation, there will be a discussion of this topic as well as a reflection of the service learning aspect of the capstone at Echo Shaw. The presentation will be in Spanish.

Newman, Ryan
Computer Science

Project Advisor:
Khoja, S.

Boxer App: A Pacific University Android Application

In the day and age of smartphones, Pacific University seems to be on the outside trying to look in to the mobile department. For my senior project, I used usability testing to design and implement a high fidelity prototype for a Pacific University Android Application. By conducting interviews with Pacific University students, I identified their needs and designed an application with easier access to university information. Using the programming language Java, along with the Android Software Development Kit, I created an interactive high fidelity prototype that can be further developed into a fully functional application. This presentation will include a demo of my high fidelity prototype, as well as basic Human Computer Interaction techniques.

Nguyen, Vicky
Biology

Project Advisor:
Sardinia, L.

The Role of the Gut Microbiota in the Development of Autism

An increasing number of today's children are being diagnosed with Autism Spectrum Disorder, with a 123% increase in prevalence since 2002. Autism is a neurological disorder that remains, to this day, a popular topic for researchers due to the lack of knowledge of the exact causes of the disorder. Common, reoccurring gastrointestinal problems experienced by autistic individuals have led scientists in a new direction towards studying the cause of autism. The main objective of this paper was to analyze previous studies to determine whether or not the human gut microbiota play a role in the development of autism and more specifically to see if high levels of pathological gastrointestinal bacteria, as seen in autistic individuals, impair brain functions.

Valicenti-McDermott et al. found that frequent vomiting, history of bulky stools, use of laxative and fecal encopresis was significantly more frequent in autistic children than in non-autistic children. A study conducted by Adams et al. showed that ATEC scores and ATEC subscores were higher in high 6-GSI groups compared to low 6-GSI groups. Other studies show lower levels of Bacteroidetes in VPA-exposed mice, higher levels of Firmicutes in VPA-exposed mice and a greater prevalence of bacteria of the *Clostridium* class in autistic individuals who suffer from gastrointestinal problems. Based on these studies, there is an association between the composition of the gut microbiota and autism; however the cause and/or effect of the pathological gastrointestinal bacteria remain to be determined. There is not sufficient evidence to conclude that high levels of pathological gut microbiota impair functions of the brain.

Northway, Scout
Psychology

Project Advisor:
Schultz, T.

“I Don’t Think Your Happiness is Quite Appropriate”: The Significance of Family in Wes Anderson’s World

Known for meticulousness and complex character-driven stories, the filmmaker Wes Anderson is widely considered a hipster auteur, an artist interested in not only cinematography but also writing, actors, music, and all the minute details that enrich and expand a film beyond its entertainment value. Each of his films might be looked at as a super-magnified microcosm of the familiar: his film-worlds are self-contained, running parallel to our own, caricaturing familiar social roles and situations, but also playing with the fantastical and magical, creating an aesthetic that leaves viewers either confused or captivated. At the forefront of every Anderson film is family, biological and adopted. Fathers, mothers, sons, daughters, sisters, brothers—these are the primal roles and relationships that structure Anderson’s work. He returns to them again and again, complicating them, testing them, breaking them and then piecing them back together. What is it about family that Anderson finds so endlessly perplexing and captivating? Why does he recreate dysfunctional families in his work? What does this accomplish for him? Some answers may be found by looking closely at his films, where we see relationships in triangles: fathers, sons, and the women they compete over, as well as sets of siblings whose secreties and jealousies stop them from maintaining deep and significant connections. Psychobiography uses information about a person, narratives and details and facts, to understand the life. Unraveling these relationships could shed light on Anderson’s life, on the meaning he derives from his work, and also on the way in which the work symbolically represents inner experiences Anderson himself knew to be central to who he was as a person.

Okawa, Christopher
Biology Department

Project Advisor:
Searcy, B.

Investigation Into the Impact of Bisphenol A Exposure on Systemic Lupus Erythmatosus

There has been a marked increase in the amount of environmental endocrine exposure in human populations due to widespread contamination from modern synthetic products, such as plastics. This paper reviews the evidence that one potential endocrine disrupting compound, bisphenol A (BPA), a plastics additive, leads to an increase incidence of systemic lupus erythmatosus (SLE). While there are many studies linking BPA exposure with negative health effects, few have examined the connection between BPA and autoimmune diseases. SLE is a chronic inflammatory autoimmune disorder whose prevalence is heavily female-dominated and has the capacity to negatively affect most organ systems. The studies reviewed in this paper examined the role of estrogens, and BPA on the development of, SLE. The majority of evidence supported a link between estrogen exposure and SLE progression. Much of the impact identified in these studies were indirect, and had multiple potential contributing mechanisms. Of the few studies that were conducted specifically to examine the connection between BPA exposure and SLE, the

results were highly conflicting, and a consensus for a positive or negative association could not be determined. Future research exploring the impact of endocrine disruptors, such as BPA, on previously established mechanisms, that contribute to the development or progression of SLE, needs to be done to gain a greater understanding of possible dangers associated with environmental estrogen-mimic exposure.

Wogan, Ted
Olds, Isaac
Exercise Science

Project Advisors:
Baughter, P.
Dolphin, K.
Henry, S.

The role of angiotensin converting enzyme polymorphisms on cognition & tolerance to high altitude

Most people in the Pacific Northwest live at a low elevation and work during the week. Recreational climbers, therefore, are often limited to occasional weekend excursions. This scenario does not allow time for appropriate altitude acclimatization, which typically takes multiple weeks. Instead, climbers rely on their short-term altitude tolerance. However, this is a risky endeavor, as many novice climbers don't fully understand how their ability, or lack thereof, to tolerate altitude. **Purpose:** The purpose of this study was to add to the body of research exploring the effects of altitude and genetic variation on altitude tolerance, specifically cognitive function and physiological response. **Methods:** A small expedition (n=5) climbed Mt. Rainier and performed a small battery of cognitive and physiological tests at five elevations: 64 m (baseline), 1,798 m (Glacier basin), 2,883 m (Camp Shurman) and 4,392 m (summit). The battery of tests included a modified version of the Stroop test (measuring attention and psychomotor ability), the Modified Differential Emotions Scale (mDES, measuring positive and negative emotions), and an Acute Mountain Sickness (AMS) questionnaire. Participants' DNA was extracted and analyzed using a polymerase chain reaction (PCR). Subsequent genetic tests, including gel electrophoresis, established polymorphisms of the ACE gene (either insertions or deletions). **Results:** Two participants exhibited the DD (deletion homozygous) genotype, while three participants exhibited the I/D (heterozygous) genotype. Correlations were found between altitude and AMS; however, altitude did not correlate with other cognitive variables tested. No correlations were found between genotype of ACE and cognitive ability at different altitudes. **Conclusion:** This study's statistical significance is limited by a small sample size. We are hoping it may serve as a pilot study, establishing a simple protocol that may be utilized by future expeditions. These expeditions could come from Pacific University, other guiding organizations, or individuals that want to participate in the study. We feel this study is important, as altitude tolerance has not been extensively studied at moderately high altitudes. As modern transportation improves access to remote areas, mountaineering will continue to increase in popularity. It is important that people, especially those who live at low elevations, fully understand the physiological and cognitive challenges associated with climbing at high altitude.

Oliver, Heidi
Social Work

Project Advisor:
Ritter, J.

More than a GPA: Eliminating SES & Racial Disparities in Higher Education Access

Obtaining an education beyond a high school diploma has become increasingly important for students entering into the work force and beginning careers. Although students are often encouraged to enter into higher education, not all students are given the same resources or opportunities to do so. Racial and socioeconomic status disparities continue to play a role in which students attend college. Fox (2010) reported that of people 18 to 24 years old, 44% of white, 32% of black, and 26% of Hispanic students were enrolled in college. This senior capstone examines students who are systematically disadvantaged and proposes an intervention

to increase the rate of high school graduates who extend their education through college, trade school, or apprenticeships. Informed by research of previous models, this proposed intervention includes three components—academic support, community mentorship, and college familiarity.

Oliver, Heidi
Sociology

Project Advisor:
Whitehead, J.

I'm Accepted Here, I Belong: A Rural Perspective on Higher Education

As the work force continues to evolve into requiring higher skilled workers, the importance of earning a college degree continues to increase. Compared to their urban peers, students from rural communities have lower rates of attending higher education (Andres 2001). I conducted qualitative interviews with a selection of individuals from rural communities who currently attend college to explain how and why young adults make the decision to enter higher education. Interviews focused on participants' experience of growing up in a small town and how this affected their perspectives on attending higher education. I apply the concepts of localism and historicism to explain the logic rural young adults use to understand their choices to attend college.

Olson, Bailey
Public Health

Project Advisor:
McGrath, M.M.

Mammogram promotion for low-income women in a subset of Washington County

While breast cancer is the highest funded and best-publicized form of cancer in the U.S., it remains the second leading cause of cancer death in women. Mortality rates are declining overall, yet have remained constant in low-income women. Low-income women are less likely to obtain regular mammogram screenings, leaving them unable to benefit from early detection. While the Affordable Care Act was designed to make healthcare more accessible for low-income Americans, many are not yet accessing these resources. This program addresses this gap by educating low-income women in Forest Grove and Cornelius, Oregon on the importance of mammograms. Participants will complete an educational session and be referred to a nearby facility for a mammogram. Completion of a screening will be rewarded with monetary incentives. Mail follow-up will encourage mammograms every two years. Increased mammogram adherence will allow for early detection and a decrease in breast cancer deaths in low-income women. Moreover, learning about breast health and mammograms will improve health literacy and personal empowerment.

Osborn, Alana
Politics and Government

Project Advisor:
Boykoff, J.
Van Dyk, R.

The Chronicles of Ellsberg and Snowden: A Longitudinal Analysis of Government Whistleblowing in Mainstream Print Media

This research proposed to analyze the mainstream media portrayal of government whistleblowers, in particular Daniel Ellsberg and Edward Snowden. To do so a large number of articles from four major American news sources and one British newspaper were analyzed for particular repeating tropes. From 1971 to 2014, it was found that mainstream newspapers are often balanced in their positive or negative presentations of whistleblowing, with some variation depending on the news source. The study concludes that, while the coverage of the whistleblowers is balanced, their message of government wrongdoing tends to be made secondary to the diplomatic impacts of the leaks.

Faith, Brennan
Reed-Dustin, Charles
Business

Project Advisor:
Ramaya, K.

GRADUATE GRAPHICS

We at Graduate Graphics plan to take digital photography to the next level. Our company provides state of the art cameras with cutting edge technology aimed to enhance customer experience. We plan to take advantage of markets in Asia-Pacific and Latin America. Our goal is to continue to push profit and revenue margins up while keeping an above average credit and image rating. Our investors are important to us, so we will strive to raise firm earnings and stock price.

Yamamoto, Carli
Oshiro, Kylee
Exercise Science

Project Advisor:
Jackson, B.

What Makes an Effective Team?

Social Facilitation's Effect on Teamwork and Performance Effort

Social facilitation has been a popular topic of research for over a century, suggesting that the presence of someone can have an effect on task performance. The term *social facilitation*, coined by Robert Zajonc (1965), states that having an audience enhances performance on simple or well-known tasks. This result can be explained by the co-action effect because the audience is performing the same task and at the same time as the performer. It is believed that teams with better team “chemistry” will perform at a higher level. This belief was supported a study examining high school basketball teams, which showed that as the players felt more attracted to the group as the season progressed, their individual performance improved (Bray & Whaley, 2001). The current study will help to provide further understand of social facilitation in a “team” environment. **Purpose:** The purpose of this study is to determine if one’s personality and connectedness to a teammate/co-actor has an effect on their performance in an effort-based task. **Method:** Volunteers from Pacific University were tested along with one participant whom they felt highly connected with (who they brought with them) and another participant with whom they were not highly connected (who were “connected” participants in another pair). Participants performed a plank task in each of the following conditions: alone, alongside their highly connected partner, at the same time (but not able to see) their highly connected partner, alongside a participant they are not highly connected to, and at the same time (but not able to see) a participant they are not highly connected to. In each of the partner conditions, pairs were told that they were competing against the other pair for the highest combined time in order to qualify for a drawing for one of four \$10 gift cards. The personality of each participant was measured using the Eysenck’s personality inventory, and connectedness to paired participants was determined by a connectedness questionnaire. **Data Analysis:** Data was analyzed to determine the effects of connectedness (high/low), personality (extraverted/introverted), and social facilitation (visible/ not visible) on task effort. **Results and Conclusion:** Will be presented as whether connectedness and personality affect the effort of performing a plank task in a social facilitated setting. These results will help to provide a better understanding the situations in which teams could expect the greatest effort to occur.

Ostrom, Nani
Exercise Science

Project Advisor:
Jackson, B.

Stability Ball Use in College Classrooms: Effects on Student Engagement

Although the health benefits of exercise/physical activity are well-known, recent research has begun to examine the potential cognitive benefits. In a recent meta-analysis, acute exercise was shown to have an overall positive effect on cognitive functioning (Chang et al., 2012) including

increased working memory (Lin et al., 2014) and selective attention (Alves et al., 2014). Hill and colleagues (2010) examined the effects of physical activity during the school day, and found that the students who were required to participate in physical activity for 30 minutes during the school day displayed higher cognitive performance measures compared to students who did not. Fedewa & Erwin (2011) studied the effects of added physical activity by having children diagnosed with ADHD sit on stability balls during class rather than the normal desk chairs. Findings suggest that students with ADHD have more on-task behaviors, and demonstrated fewer ADHD behaviors while seated on stability balls. **Purpose:** To examine the effects of using stability balls (instead of standard desk chairs) on student engagement in an actual college classroom. **Method:** Pacific University students who were enrolled in a winter course were randomly assigned to a seating type (stability ball or chair) for the duration of a two-week course. Participant engagement was assessed via a pre/post survey, daily questionnaires, video analysis, and participation scores from professors. **Data Analysis:** Data was analyzed for differences in engagement among the different seating conditions. **Results and Conclusions:** Will be presented as to how seating conditions within a college classroom affect student's level of engagement. These results will enhance instructors' knowledge about the importance of providing a dynamic seating option within classrooms.

Ottosson, Madeleine
Environmental Science

Project Advisor:
Van Buskirk, R.

The Effectiveness of Bioswales in Urban Areas

Bioswales are a new type of landscape element that are intended to help remove and filter silt and pollutants from runoff before the water enters rivers, lakes, and streams in a more natural way. Most consist of a swaled drainage with slightly sloped sides that are filled with vegetation, compost, and/or loose stones. The use of bioswales is a relatively new method of bioretention and therefore little research has been done in regard to their effectiveness. The purpose of this project was to collect multiple water samples from the inlet and outlet of selected bioswales located around the Pacific University campus and to then determine how effective they are at reducing the levels of nitrates and/or sulfates in the runoff water. This is important because nitrate-nitrogen can have serious health effects on infants, children and adults if exposed via drinking water. To test the water samples, I used an ion chromatograph and a diluted seven-ion standard that made it possible to detect levels as low as ~0.75 ppm. After transforming the raw data, I used a t-test to determine the significance of the effect of the bioswales on pollutant concentrations. The results showed that in only one out of ten instances, the bioswales had a significant effect on the concentration of nitrate and/or sulfate. This indicates that the bioswales on campus are not working at their highest capacity and that there is room for improvement. Furthermore, I compared the differences in plant life between the bioswales, and compared my results to the results of similar research done in Portland. This research provides a quantitative assessment of bioswale performance that we can use to gain a better perspective on their efficiency. The use of natural filtration systems such as bioswales has the potential to better the environment we live in by reducing the rate at which contaminants enter our waterways.

Oyama, Drew
Chemistry

Project Advisor:
Chan, J.

Evaluating Inhibition of CYP2A6 by Analogs of *trans*-Cinnamic Aldehyde

The hepatic enzyme cytochrome P450 2A6 (CYP2A6) is involved in the metabolism of the addictive compound, nicotine, commonly found in tobacco. The inhibition of CYP2A6 is proposed to be a strategy for improving the efficacy of smoking cessation treatments. The dietary constituent *trans*-cinnamic aldehyde has been demonstrated to function as a selective and mechanism-based inhibitor of CYP2A6. Analogs of *trans*-cinnamic aldehyde (α -

bromocinnamaldehyde and α -methyl-*trans*-cinnamaldehyde) were therefore assessed for their ability to be more potent inhibitors of CYP2A6. Evaluation was performed using a reconstituted CYP2A6 enzyme system. Prior to the evaluation of these inhibitors, the reconstituted system consisting of CYP2A6, cytochrome P450 reductase, and cytochrome b₅ was optimized to give maximal activity with the substrate coumarin. The inhibition of the reconstituted enzyme system by *trans*-cinnamic aldehyde was also measured to confirm its consistency with results from previous assays using Supersomes™ as the enzyme source.

Palmer, Hayley
Studio Art Department

Project Advisor:
Iijima, J.

Grown

This project explores change and growth, in both nature and myself. I have taken notice of transformation in my life, specifically as an artist. By representing myself through a nature motif, I see parallels between the growth in my life and the changes that occur in nature. In nature, seasons cycle, trees grow, life blossoms, and so on. It is constantly developing, much like myself. I have chosen to create interactive pieces out of metal and found wood to reflect this concept. Through the interactive process with the audience, this body of work reflects the sum of the actions individuals have on a person or a place over time.

Pang, Kellianne
Media Arts: Integrated Media

Project Advisor:
Geraci, M.

Grapppler's Closet Brand Design & Website

Grapppler's Closet is a new, small martial arts sporting goods business based in Honolulu that brings in both domestic and international judo and Brazilian jiu jitsu gear. I created and designed a brand identity and website for GC that works to set them apart from other similar retailers in Hawaii. Prior to this, the only online presence that Grapppler's Closet had was Facebook and Instagram. They now have their own website that cleanly showcases their inventory and allows customers to submit order requests, becoming the main avenue of access to GC's products and increasing business. In my presentation, I will talk about my design processes and the challenges I faced while developing their brand identity and website.

Paradis, Dustin
Biology

Project Advisor:
Scholnick, D.

Effect of Polyamine Depletion on Parasite Proliferation in *Leishmania donovani*

Leishmania is a genus of protozoan parasites that are responsible for causing the disease leishmaniasis. For my capstone project I worked with the DI700 and Bob cell lines of *Leishmania donovani* to determine the effect of polyamine depletion on parasite proliferation. The purpose of my studies were to investigate the function and importance of polyamines in *Leishmania*. Three different types of assays were used; growth rate analysis, long term rescue and a polyamine analysis assay to determine *L. donovani* success. The assays provided a mechanism to compare and contrast the effects of putrescine and spermidine depletion on *L. donovani* proliferation and viability. Wild type (WT) parasites produced the most promising results, the ornithine decarboxylase genetic mutant (Δodc) parasites showed early death and had the lowest growth rates, and the spermidine synthase genetic mutant (Δspd) parasites showed an intermediate growth rate and did not show early death. Differential growth and mortality in the absence of putrescine suggests that putrescine is a more important polyamine than spermidine for *L. donovani* success. Overall, the results of my research show that putrescine is more important for parasite proliferation and spermidine is more important for parasite viability. My findings

may be helpful for future studies that could potentially target the polyamine pathway for designing a pharmaceutical inhibitory treatment of leishmaniasis.

Pederson, Jason
English

Project Advisor:
Mitra, K.

Heads and Tails

Joanna Penn, author of the urban fantasy series *Arkane* and *Psychic London* conceptualizes urban fantasy as a story with “magic and weird stuff creeping in at the edges of a world in which magic is not the norm. The majority of the people who live there will have normal lives, oblivious to the magic all around them, hidden in plain sight.” My anthology of interlinking short stories combines these elements of urban fantasy with the concept of the “outsider” to tell the story of Nicky Tails. A half-breed demon, pulled from the underworld ghetto and pressed into service on Earth by the pure races of the multiverse as an Enforcer, Nicky investigates possible violations of the peace treaty between the angels of Heaven and Hell. Her only reward servitude without end or death. As an outsider, Nicky is trapped between two worlds she doesn’t belong, and through her I explore the gray areas between good and evil, faith and zealotry, and the indelible human qualities which cross all racial boundaries, all while dealing with zombie cab drivers, cross-dressing hijackers, angry ex-wives, and mutant Cosplayers.

Peterson, Kevin
Exercise Science

Project Advisor:
Bhalla, J.

The Effects of Season Ending Injuries on Social and Academic Performance

Physical injuries are an all-too-common phenomenon experienced by individuals inside and outside of sport. Injuries and consequent treatments have implications beyond sport participation, including conflicts with academic interests (Trentacosta, 2009). While the academic side effects of injuries have been explored, research regarding the impact of injuries on social participation is limited. These side effects may end up causing more anxiety in the student’s life, resulting in poor rehabilitation adherence leading to re-injury in the future. Johnston’s (2000) research discovered that coping methods post-injury, to help the individual return to everyday life after injury, start out strong and slowly diminish, meaning there is a strong will to do the best to return to sport at the beginning of the rehabilitation process, but not at the end. The purpose of this study is to understand how injury affects social and academic performance on a NCAA Division III college campus. The participants of this study are Pacific University full-time student athletes who have sustained an injury while participating in their sport. Results will be presented at Senior Projects Day. Gaining more information on injuries and the impact they have on academic and social performance may illustrate the crucial importance of recovery methods on the individual’s well-being and quality of life, especially during the college years.

Pfefferle, Alexis
Exercise Science

Project Advisor:
Schot, P.

Anti-Concussion Headbands in Basketball

Sports-related concussion now referred to as mild traumatic brain injury (MTBI), is of widespread concern and has stimulated the search for prevention strategies. Anti-concussion headband use is often required in youth soccer and becoming more common at all levels. Particularly for women, MTBI is a growing concern in basketball. However, no protective headgear is designed or marketed specifically for basketball, so players often use the soccer products. **Purpose:** This report is a portion of a combined study comparing impact attenuation effects of several anti-concussion headbands on different playing surfaces, focused on the basketball court component. **Methods:** A 5.9 kg headform instrumented with a 3-d accelerometer recording at 512 Hz was mounted on a portable inverted 1.85m tall pendulum. Six different headbands (A-F, prices ranging from \$60 to \$17) and a control condition were tested on 4 different playing surfaces (grass, two artificial turfs and a wooden basketball court). The mean peak transverse plane acceleration from 5 head/ground impacts under each condition was analyzed via a 7x4 ANOVA with repeated measures. **Results:** The significant interaction result justified the specific analysis of the headgear response on the basketball court. Post hoc testing results were equivocal, with 3 clusters identified as follows: the control and product A (160g's), products B, D, E and F (177g's), with product C acceleration levels being statistically indistinguishable from either cluster.

Pham, Thao
Kuga, Marisa
Spriggs; Stephanie
Business

Project Advisor:
Ramaya, K.

DIGITON COMPANY

Digiton is a new player in the worldwide digital camera industry. We offer a wide range of products for both entry-level and multi-featured cameras. Our vision is to become the leading company in the digital camera industry. Our mission is to provide customers the experience of premium products at affordable prices. In addition we provide the best experience and high tech support for all our customers.

Plechot, Kamryn
Environmental Science: Toxicology and Chemistry

Project Advisor:
Gundersen, D.

Investigating the use of combinatorial dietary phytochemicals as an alternative to conventional chemotherapeutics

Cancer is the second leading cause of death in the United States. It is a disease characterized by uncontrolled cell proliferation in which tumor cells successfully avoid various treatments through a variety of mechanisms. In order to fight cancer, a combination of multiple treatments is needed to repress the resistance and reemergence of cancer cells. Today, many natural products are used in combination with other chemotherapeutic treatments. Recently, dietary phytochemicals have sparked an interest in the field of cancer research due to their potential chemopreventative and chemotherapeutic characteristics. Unfortunately, little research has been done providing support that these products have the potential to fight cancer alone. Dietary phytochemicals like curcumin (CUR), thymoquinone (TQ), and 2-hydroxycinnamaldehyde (HCA) have all shown chemopreventative and chemotherapeutic properties. Due to preliminary research, I hypothesized that combining CUR, TQ, and HCA (CTH) in a 1:1:1 ratio would synergistically treat breast and ovarian cancer with efficiency similar to conventional chemotherapeutics. My results showed that while testing each dietary phytochemical individually in breast (MCF-7) and ovarian (SKOV-3) cancer cells lines, the chemotherapeutic

effect was very poor. However, when combining these products at a 1:1:1 ratio, they possessed strong synergistic effects in MCF-7 and SKOV-3 cell lines similar to other conventional chemotherapeutics. This research is extremely exciting and very important because the combination of CTH may have the possibility to treat cancer alone without any negative side effects.

Porter, Katie
Exercise Science

Project Advisor:
Henry, S.

The difference in efficiency while performing cycle ergometry on land and in water

Background: Efficiency of a system is the mathematical ratio of work output divided by the energy required to complete the work. Although efficiency can be measured in multiple ways, a common approach for quantifying human movement is to utilize *net* efficiency. Net efficiency is the ratio of work to the energy expended above rest (subtracting out all energy expenditure not related to the work performed). Water as an exercise environment has become increasingly popular and various forms of exercise have been extensively studied. However, there is minimal research investigating the difference of efficiency between land and water. *Purpose:* The purpose of this study was to quantify the difference in work efficiency while performing cycle ergometry on land and in water. *Methods:* Thirty volunteer, healthy adults (mean \pm SD, age, 20.17 ± 1.23 y; stature, 165.75 ± 6.90 cm; mass, 66.53 ± 10.11 kg) successfully completed two cycle-ergometer testing sessions, one on land and one in water. For the water condition, participants were submersed in thermo-neutral water to waist-level while pedaling on a custom-built cycle ergometer. The testing order was counterbalanced and sessions were separated by a break. Testing consisted of baseline/rest, two minutes pedaling at 0 watts (W), two minutes pedaling 50 W, and two minutes pedaling 100 W. At all stages, VO_2 , VCO_2 , rate of perceived exertion, and heart rate were measured. Utilizing principles of indirect calorimetry, net efficiency was calculated for all workload stages on land and in water. Repeated measures two-way ANOVA and appropriate post hoc tests compared the condition (water vs. land) and workload (e.g. 50 W vs. 100 W). *Results and Conclusion:* To be presented.

Pratuangvijitkul, Wanlapha
Chemistry Department

Project Advisor:
Ciochina, R.

Click Chemistry and Applications of Curcumin

Copper-catalyzed azide-alkyne cycloaddition (CuAAC) is often referred to as click reaction; these reactions are stereoselective, high yielding, and generate only inoffensive by-products that can be removed by non-chromatographic method. CuAAC is the reaction between an alkyne and an azide using copper as catalyst. Curcumin is the primary active component of the spice tumeric. Curcumin has fluorescence properties. In this study, monoalkyne curcumin derivative was synthesized, purified and characterized. Further studies will look into the click reaction with an azido sugar of our choice (for example: azidoacetylgalactosamine, GalNAz and azidoacetylmannosamine, ManNAz). Fluorescence properties together with click chemistry can be used in biochemical, medical and chemical research fields for analyzing glycans.

Prevou, Jake
Sustainable Design

Project Advisor:
Gundersen, D.

Holistic Integration of Bioremediation Strategies

PAHs, or polycyclic aromatic hydrocarbons, are a major source of environmental toxicity due to their carcinogenic properties, persistence, and ability to bind to fine particulates. These hydrocarbons are largely deposited by motor vehicles on roadways in the form of exhaust and tire particles, which then bind to fine, inorganic sediments that are deposited into watersheds via storm runoff and wind. PAHs are highly carcinogenic and persistent, affecting humans and

wildlife alike. In order to mitigate the environmental impact of PAHs, it is necessary to employ sustainable, cost-effective remediation strategies. For my senior Capstone, I participated in a bioremediation study which consisted of measuring the ability of two species of fungi to propagate in and break down PAHs in municipal street sweepings, which contain both organic and inorganic materials. *Pleurotus ostreatus* (oyster mushrooms) and *Stropharia rugosoannulata* (king stropharia) have exhibited the ability to degrade toxins within mixtures of organic and inorganic media in other studies. I cultivated these species using a media of poplar wood chips and locally collected street sweepings, which were analyzed and found to contain a variety of PAHs. Four 5lb samples were made for each species with varying concentrations of sweepings by weight. Each species was grown in a 10, 30, and 50% concentration sample, along with a control. Air temperature and moisture were monitored daily. PAH and hydrocarbon levels were measured initially and after one month. Both species successfully propagated in each of their three samples, plus the control. After the one trial was completed, neither species of fungi were shown to conclusively reduce PAH levels in the street sweepings. Though neither species clearly demonstrated an ability to degrade PAHs in this study, both species have the potential to grow in substrates with high levels of inorganic matter when temperature and moisture are relatively stable. It is important to note that both species of fungi can potentially be used as mycoremediants in substrates consisting of as little as 50% organic matter, which significantly increases their applicability in areas where organic matter is limited (e.g. cities). Thus, lower input requirements translates into decreased cost and resource efficiency when implementing this remediation strategy. Using these findings as a platform, I discuss the applicability of mycoremediation by comparing it with other natural remediation strategies that have been proven successful in both the lab and the real world.

Proctor, Coby
Qualls-Thomas, Martin
Battaglia, Giancarlo
Sherwood, Ian
Business

Project Advisor:
Ramaya, K.

FOCAL INC

We are Focal Inc. a digital camera company that is in competition for global market leadership. Our goal is to make Focal Inc. the leading digital camera company in the industry making great products for our customers while meeting ever increasing investor expectations with meticulous attention to all aspects of strategy implementation. We hope to become the unrivalled impossible to beat market leader.

Ramaley, Claire
Psychology

Project Advisor:
Burns-Glover, A.

Know Your Marshmallows:

Conscientiousness and Attributions in Introductory Psychology.

An increasing body of research indicates that personality traits are powerful predictors of academic performance in college (Komarraju, Schmeck, & Avdic, 2011). As part of an evaluation of new features (online quizzes, interactive e-book) of an introductory psychology course, we evaluated the effect of “Big 5” personality traits and various measures of conscientious behaviors (e.g., attending exam review sessions; make up work, etc.) on students’ course performance at three stages of the semester. Students were asked to provide situational and dispositional explanations for the accuracy of or difference between their predicted and actual grades at mid-term. At mid and late semester intervals Openness ($r=.23$) and Conscientiousness ($r=.23$ scale scores were each significantly ($p=.05$) positively correlated with actual percentage grades. After a “conscientiousness intervention” in which students were

allowed to improve their grades with extra assignments correlations were reanalyzed. Extraversion remained significantly negatively correlated ($r = -.30$); while Openness ($r = .22$) and Conscientiousness ($r = .22$) showed slight decreases in correlation. Attributions for course performance were analyzed and the “above average effect” (Alicke, 1985) was evident as 51% of students reported their grade at mid-term was “worse than I expected.” There was a significant effect ($F = 4.62$; $\eta^2 = .08$) for Extraversion on doing worse than expected (higher scores for those who are doing worse), while Conscientiousness effects appear to be mediated by situational attributions (illness, etc.). Our findings are interpreted in light of personality-cognition changes with maturity (Soubelet & Salthouse, 2011) and typical first year students’ (mis) perceptions of their academic abilities.

Ramirez, Gabe
Chemistry

Project Advisor:
Ciochina, R.

Synthesis of Laurenditerpenol via the Diels-Alder reaction

Laurenditerpenol is extracted from marine alga *Laurencia intricata* and is shown to inhibit HIF-1 activation by hypoxia. This study focuses on the synthesis of a 7-oxabicyclo [2.2.1]-heptane ring for the construction of the laurenditerpenol, using the Diels-Alder reaction. Furan was used as a diene while *trans*-ethyl crotonate was the dienophile, and BF_3 was used as the catalyst for the Diels-Alder reaction. A catalytic hydrogenation was performed using a palladium catalyst to prevent the Diels-Alder reaction from reversing back to starting material. H-NMR analysis was taken for the product and peaks corresponding to a saturated ring indicate promising results but more research on this reaction is still needed.

Reed, Shon
Public Health

Project Advisor:
McGrath, M.M.

Washington County farmworker vision fair

Latino migrant and seasonal farmworkers (MSFWs) are a large underserved population in the United States for access to eye care. More Latino MSFWs have uncorrected vision, chronic eye diseases, or report never having an eye exam than the average American (Quandt et al., 2008). Periodic comprehensive eye exams are essential to preventing vision loss from diseases that otherwise lack symptoms or can be treated more successfully earlier. This program is a single-day event for Latino MSFWs and their families in Washington County, Oregon with a focus on encouraging them to have eye exams. The fair will take place at two farms and be staffed by community health workers due to evidence showing their effectiveness in this population. At the fair, participants will be provided with fun and educational activities, vision screenings, health counseling, and a care package with safety sunglasses and a voucher for an eye exam at a partnering eye care provider. Cooperation and involvement with community members and a research-based marketing campaign will help maximize turnout. The program aims increase annual comprehensive eye exams among this population by 20% in 2 years.

Reed-Dustin, Charles
Faith, Brennan
Oshiro-Atabay, Trey
Business

Project Advisor:
Ramaya, K.

GRADUATE GRAPHICS

We at Graduate Graphics plan to take digital photography to the next level. Our company provides state of the art cameras with cutting edge technology aimed to enhance customer experience. We plan to take advantage of markets in Asia-Pacific and Latin America. Our goal is to continue to push profit and revenue margins up while keeping an above average credit and image rating. Our investors are important to us, so we will strive to raise firm earnings and stock price.

Richards, Jonah
Chemistry

Project Advisor:
Cordes, D.

Synthesis of β,β -distyrylstyrenes

A number of previously under-investigated fluorophores were synthesized and characterized: β,β -distyrylstyrene, β,β -diphenolstyrene, a β,β -distyrylnaphthalene, and bis- β,β -distyrylstyrene. Using the aldol reaction, dibenzylideneacetone was prepared from benzaldehyde and acetone under basic conditions for use as a starting carbonyl material in the Wittig reaction. The Wittig reagent was prepared using triphenylphosphine and an appropriate brominated aromatic compound in an aromatic hydrocarbon solvent such as toluene. The Wittig reaction was then used to alkylate dibenzylideneacetone to yield the desired products. The products demonstrated a variety of fluorescent and physical properties that were investigated using fluorimetry, UV-Vis spectroscopy, IR spectroscopy, H-NMR, and C-NMR.

Richards, Kathleen
Exercise Science

Project Advisor:
Alstot, A.

The Effects of a Token Economy System on Bowling Performance

Token economies have been found to be useful to improve a variety of behaviors across numerous settings. Token systems utilize a form of individualized positive reinforcement by rewarding participants with tokens (or points, tickets, stickers, etc.) when they engage in a specified behavior. These tokens, after earning a number of them by engaging in several instances of the behavior across time, can then be exchanged for a variety of rewards. Token reinforcement systems have been shown effective to improve a variety of physical activity-related behaviors (e.g., overhand throwing, jumping rope, riding a stationary bike, and so on), but the literature lacks empirical evidence linking token economies to improved performance in the activity of bowling. Therefore, the purpose of the study was to examine the effectiveness of a token reinforcement system on the performance of beginning and experienced bowlers. Participants were asked to engage in several games of bowling across two phases of study: baseline (where no tokens were awarded) and token economy (where tokens were awarded to participants based on their performance); total score at the end of each game was recorded. Each participant was then given the opportunity to exchange their earned tokens for a variety of rewards, such as gift cards. Results indicated that token reinforcement had little effect on performance of bowling skills.

Rielly, Victor
Mathematics

Project Advisor:
Breslin, B.

Differential Equations

We present a few rudimentary and general methods of solving first order linear and nonlinear differential equations which satisfy a specific form. The analysis is designed to present the reader with ideas more so than to present a complete and all-encompassing theory of the differential equations we study. Never the less, we present very general tests which can be run on the differential equations in question. If the equations satisfy the tests, the solutions to the differential equations can be written out directly. The analysis can be extended to a large class of differential equations, and can already tackle the general first order linear differential equation, the Bernoulli equation, separable differential equations, and a few differential equations we may be the first to solve. We end the paper with an extension to higher order differential equations and a discussion of the generality of the methods.

Rincon, Edgar
Gundle, Michael
Exercise Science

Project Advisor:
Alstot, A.

Validity, Reliability, and Effectiveness of a Physical Activity Monitoring Device

In American society, the obesity rates have climbed over the last few decades because of poor diet and a lack of physical activity (PA). It is recommended that U.S. adults engage in moderate to vigorous intensity PA for a minimum of 150 minutes on a weekly basis. Physical activity monitors, such as the Nike Fuelband, can help provide feedback to users regarding intensity and amounts of PA; this feedback may also help to encourage an increase daily PA. However, it is unknown if these devices provide accurate feedback to their users or if they positively impact the amount or intensity of PA. Therefore, the purpose of this study was to examine the accuracy of the Nike Fuelband during PA as well as its impact on exercise intensity. Participants alternated between a series of workouts where they wore a Nike Fuelband and workouts where they did not. During these sessions, they were also asked to wear a heart rate monitor to measure exercise intensity. Exercise intensity data were then plotted on a line graph to examine for response differentiation between sessions where the Fuelband was worn and sessions where it was not. Data were also analyzed examining the validity and reliability of the device. Results and conclusions will be discussed on Senior Projects Day.

Roberts, Mary
Biology Department

Project Advisor:
Baucher, P.

ALA-PDT Induces Necrotic Cell Death in MG-63 Human Osteosarcoma Cells

Objective: The goal of this research was to determine the mechanism of cellular death, apoptosis or necrosis, induced in MG-63 human osteosarcoma cells by aminolevulinic acid-mediated photodynamic therapy (ALA-PDT). **Background Data:** Osteosarcoma is the most prevalent type of bone cancer and it typically develops in the ends of long bones of children and adolescents. Current treatments for osteosarcoma include chemotherapy, surgery, and radiation, and all have significant limitations and side effects. ALA-PDT could potentially provide a more preferable treatment, circumventing amputation and eliminating malignant cells with minimal damage to healthy tissues. In the treatment of cancer, necrotic cellular death may help educate the immune system to tumor antigens, which would make it advantageous over apoptotic cellular death. **Materials and Methods:** To detect apoptotic or necrotic indicators subsequent to treatment with 0.5 or 1mM ALA-PDT, cells were stained with annexin V, propidium iodide, and DAPI and visualized with a fluorescence microscope. Dark conditions and 1xPBS vehicles were used as controls. A caspase cleavage assay was conducted to determine relative levels of apoptosis induced by 0.5 and 1mM ALA-mediated PDT compared to dark controls, positive controls, illumination only, and the vehicle. The fluorescence produced by caspase cleavage of a profluorescent molecule indicates an apoptotic signal activated those caspases. Fluorescence was measured with a microplate reader. **Results:** ALA-PDT resulted in positive staining of DAPI, annexin V, and propidium iodide; whereas all other treatments only stained positive for DAPI. Cells treated with ALA-mediated PDT exhibited significantly less fluorescence than the vehicle and dark controls.

Conclusions: The staining patterns observed, along with the minimal fluorescence produced by ALA- PDT treated cells, indicate that necrosis is the primary mechanism of cellular death that this treatment induces *in vitro* in MG-63 human osteosarcoma cells. Our findings also suggest that this treatment might suppress apoptosis in MG-63 cells.

Rodrigues, Bridgette
Exercise Science

Project Advisor:
Alstot, A.

Guidelines for Using Token Economies with Individuals with Traumatic Brain Injury in a Physical Activity Setting

It has been shown in previous studies that implementing a token economy system can increase participation in physical activity as well as decrease inappropriate behavior and improve motor skills (Wolfe, Dattilo & Gast, 2003; Todd & Redi, 2006). Tokens do not increase the likelihood that a child will engage in a desirable behavior; however, when tokens are paired with highly reinforcing items or activities, these tokens can become extremely reinforcing to the child, and therefore increase appropriate motor and social behaviors. Research has shown these systems to be effective in improving a variety of behaviors within numerous populations. However, specific guidelines for implementing a token reinforcement system with individuals with Traumatic Brain Injury (TBI) have not been developed; therefore, the purpose of this project was to design guidelines for practitioners working with individuals with TBI in physical activity settings to improve social and motor behaviors.

Rogers, Chase
LaMotte, McKenzie
Schroeder, Dillon
Business

Project Advisor:
Ramaya, K.

APERTURE ALLIANCE

Aperture Alliance is in the business of creating exciting state-of-the-art cameras for global markets. Our major markets are North America, Europe-Africa, Asia-Pacific and Latin America. We are pursuing growth from within and in the process intend to outperform all our competitors. Our ultimate goal is to make our firm Aperture Alliance the envy of the camera world.

Rogers, Grant
Martinez, Isaac
Muraoka, Alyssa
Business

Project Advisor:
Ramaya, K.

CONQUEST

We are Conquest. Our strategy is to out-execute every competitor in the industry with our well-grounded strategy while holding ourselves to the highest standards for product quality for both our multi-featured and entry-level cameras while never compromising on good corporate citizenship. Our goal is to eventually become undisputed market leader.

Roher, Caleb
History

Project Advisor:
Szefel, L.

**Confronting the Insanity of Nuclear Arms:
A Portland Area Peace Movement in the Reagan Era**

Pacific Northwesterners have a justly-earned reputation as tree-hugging, environmental enthusiasts. This interest helped to spur a peace movement during President Ronald Reagan's nuclear arms buildup in the early 1980s. The Hanford Nuclear Reservation in Richland, Washington became a flashpoint for concern about high-level radioactive waste as well as a nuclear war with the Soviet Union. Founded in 1943, Hanford produced plutonium used in the first nuclear bomb and in most of the nuclear arsenal created throughout the Cold War. When the Department of Energy released information about the long-suspected hazardous fallout contaminating the soil, rivers, and air, local legislators, lawyers, scientists, and concerned citizens mobilized to shut down the site. This thesis examines the role of the Portland, Oregon

anti-nuclear activist organization SANE/FREEZE in this effort. Using manuscript records of one of the key leaders, along with oral history interviews, newspapers, and pamphlets, this thesis investigates the challenges along with the successful strategies deployed by Portlandian activists. By studying this association it challenges the argument that social movements and activist groups are inconsequential in the grand scheme of political movements and reforming measures. Organizations such as SANE/FREEZE, acted as a catalyst in swaying both public and political interests, as well as federal opinion in matters surrounding the nuclear build up.

Rudella, Nick
Economics

Project Advisor:
Haag, J.

The Hollowing out of America's Middle-Class

This paper examines the phenomenon known as *hollowing out* and its effects upon the American middle-class system over a 44 year period (1970-2013) when compared to the top one-percent of household earnings. Other independent variables include: unemployment rate, educational attainment, and population of unemployed from the Bureau of Labor Statistics. There are various opinions within the literature and among economists as to what the middle class is defined as; however this paper categorizes the middle class into three separate groups utilizing Census Bureau data. The first fifth represents the lower-middle class, the second fifth represents the middle-class, and the third fifth represents the upper middle-class. These three groups are divided into household income groups ranging from \$40,000--\$105,000 (in 2014 dollars). With the hypothesis that hollowing out will be present within the middle-class due to the decreasing percent of aggregate income share within the United States.

Rumrill, Emily
Music

Project Advisor:
Stephens, T.

A Suite For Three Clarinets

Using a variety of composition and theory techniques, I have prepared three original compositions for three clarinets. This suite features a mathematical, abstract work written using an atonal matrix. It is encircled by two tonal melodies to demonstrate and express the growth of my musical education during my time at Pacific. All three pieces are based on themes I had earlier created while in earlier theory classes, adapted and extended from their original versions, and recorded onto DVD. Presentation of this project will include viewing of the recorded performance of the suite as well as commentary and insight from myself regarding the details of my compositional processes and inspirations.

Saplan, Kailea
Department of Theatre and Dance

Project Advisor:
Margolis, E.

The Pacific Letter Project

Theatre is no longer a pastime for me, a diversion from the "real world," something in which I participate now and again. It is not a way to fame as it was freshman year. It is not a means to an end. After four years at Pacific it has become my *modus vivendi*-- the manner through which I live my life. It is my primary interest in cultural studies, the breath of my creative expression, my map to better understanding the human condition, a voice for social justice. It is the reason I intend to earn a PhD in Education to advocate for radical changes to public education, and it is what inspired me to take on the Pacific Letter Project for my culminating senior capstone.

One day, during the summer of 2014, I read nearly two hundred pages of letters generously donated to Pacific's Theatre program by Cheron Mayhall, a 1964 alumna who has since passed on. I remember chortling at Cheron's colloquialisms while I read about her experiences with homecoming and other such school functions, even as I identified with her fastidiousness. Then, I read what I now call the October Crisis Letter, and her human frailty and fear for the future

reflected the same doubt I had been experiencing. Her letters illustrate many differences in culture for college-aged women attending Pacific University fifty years ago as compared to now, but they also illuminate commonalities that I have found consoling and encouraging as I fumble through my senior year. On that same day, I committed to writing a play that would allow Cheron's experiences and mine to interact on stage. The result is my first full-length play, *Dance Slow Decades*, which will have its premiere public readings later this spring.

Sattelmaier, Brandon
Biology

Project Advisor:
Odden, J.

The Effects of Mesenchymal Stem Cell Injections and Mesenchymal Stem Cell Patches for Heart Regeneration

The heart was previously thought to have limited cellular regeneration much like other muscles, but with recent discoveries in myocardial restoration, that view has begun to change. Degenerative tissue diseases in the heart, such as myocardial infarction, are unable to be treated because unlike other organs, the heart does not constantly regenerate its tissues. Currently, researchers know the molecular and physiological pathways involved after the injection of mesenchymal stem cells into adult rat hearts. Two different studies with injected mesenchymal stem cells found that these pathways have been shown to increase heart chamber thickness and ejection fraction, the two biggest problems after myocardial infarction. Attempting to find the safest, most successful method of implantation, researchers found cultured cells have wound healing capabilities. In the most recent studies to treat degenerative cardiac tissue diseases, mesenchymal stem cell patches were successfully implanted into adult rat hearts with myocardial infarction which improved ejection fraction. Researchers are thus currently attempting to build a mesenchymal stem cell patch for human use. Although mesenchymal stem cell patches are only being looked at in application to the heart, this technique could potentially be used in the future for curing diseases involved with other terminally differentiated cells.

Schad, Taylor
Applied Science

Project Advisor:
Gundersen, D.

Toxicity of Crumb Rubber as found in Artificial Turf Fields

Recycled tire material, or "crumb rubber", is the primary component of over 5,000 artificial turf fields across North America today. The use of these bits of tire as turf pellets have their benefits over the use of natural grass, including reduced cost of maintenance and decreased number of sports injuries. Over the last decade, however, the public has raised several health and environmental concerns associated with the exposure to crumb rubber, particularly in regard to children. Similar concerns have emerged as a result of rubber fabrication industry employees expressing their own ailing health. Rubber is the primary ingredient in tires. Furthering our knowledge of the health effects of crumb rubber is incredibly prominent considering the number of athletes, both young and old, who use artificial turf fields. This study investigates the harmful potential crumb rubber has as a result of the known toxic ingredients used in the manufacturing of tires. Using a gas chromatography-mass spectrometer, I tested unused turf pellets from Pacific University and found the pellets to be comprised of hazardous compounds including quinoline, benzothiazole, cyanobenzoic acid, thiocyanic acid, indole, pyrazole, and propane. This sample was also analyzed on a gas chromatograph equipped with a flame ionization detector (FID), and produced a chromatographic profile similar to profiles seen petroleum hydrocarbons. These results are meant to serve as a bridge to further research by using more advanced tests, which require greater funding. Health officials are awaiting legislators in the State of California as they call for the immediate halt of the installation of artificial turf fields until more is known about all possible health effects, making research such as my own very relevant.

Schoniwitz, Mariah

Psychology

Lewinian Action Research Through ‘Ōlelo No‘eau: A Native Theory of Practice and Values

This thesis is an overview of my learning journey as I develop my own theory of practice. A theory of practice combines personal theories, judgments and evaluations of an individual, others and the environment. The content of my learning cycle contains first-, second-, and third-person research data streams. I have chosen the action research approach called the Lewinian model (1951) as a process tool for developing new theories. I have applied ‘Ōlelo No‘eau (i.e., Hawaiian proverbs) to the Lewinian model. In addition, my personal Hawaiian values are integrated into each stage of the learning cycle: concrete experience, observations and reflections, formation of abstract concepts, and generalizations, and testing implications. This thesis seeks to contribute to the practice of action research, where the object of enquiry is “I”, and the process is concerned with developing practical knowledge in the pursuit of worthwhile human purposes (Reason & Bradbury, 2001). My goal is to illustrate the process of theory development using stage one (*I make no he hāwāwā; ‘auhea noho ‘i na lima a ‘au mai*), stage two (*Nānā ka maka, ho‘olohe ka pepeiao, pa‘a ka waha*), stage three (*Lālau aku ‘oe I ka ‘ulu i ka wekiu, ike alo no ka‘ulu, a hala*), and stage four (*active experimentation*) of the Lewinian model by applying Native Hawaiian values to my emerging theory of practice.

Project Advisor:

Burns-Glover, A.

Schot, Dana

Art

Wildlife of the Galápagos

Far too often it feels like humans differentiate themselves from nature in ways that causes us to be in direct conflict with the biological world. Nowhere is this more evident than in the Galápagos Islands, where humans flock to see unique animal species that are inherently threatened by the tourism industry that attempts to promote them. As a student of both biology and art, I chose to use this opportunity to highlight these animals in artistic photographs that show their unique beauty and place in the natural world. The goal of this project was to create striking images that encourage the viewer to have an introspective moment regarding the sometimes hidden or misunderstood magnificence of wildlife that often gets overlooked in favor of furthering human development. It is my hope that viewers will leave with a new sense of appreciation for both art and biology and the interplay that can exist between them.

Project Advisor:

Flory, J.

Schot, Dana

Biology

The role of temperature in the success of amphibian chytridiomycosis

Batrachochytrium dendrobatidis or amphibian chytrid fungus has played a major role in the rapid global decline of amphibian species. In frogs in particular, the fungus releases spores that thrive in their permeable skin and leads to the loss of function in many important physiological processes, which ultimately causes fatalities in adult frogs. Here, the effect of environmental temperature on the overall success of the fungus is examined. Temperature seems to only affect fungal success at high and low extremes that may not be relevant to naturally occurring environments. Ultimately, climate change does not appear to have a large effect on chytrid fungus, but the relationship between environment and fungus remains important for finding a long-term solution to amphibian declines.

Project Advisor:

Halpern, S.

Schroeder, Greg

Politics and Government

Oregon Natural Resource Politics: Regulatory Capture, Regulatory Policymaking, and Defining the Public Interest

Project Advisor:

Van Dyk, R.

Oregon state regulatory institutions are constantly embroiled in an evolving process of identifying and engaging the public interest while simultaneously working to commodify the land *and* promote sustainability. Streams, and the riparian areas surrounding them, are a prominent feature of the Oregon landscape, and thus are directly considered in land use regulations. The policy outcomes concerning stream protection stemming from regulatory agencies like the Department of Forestry, Department of Agriculture, and the Department of Environmental Quality point to patterns of regulatory capture and a departure from the public interest. This paper details the relatively small scope of public interest involved in this process, then determines the public interest as being embodied in the statutes that delegate authority and resources to a regulator, and shows examples of repeated departure from the public interest through empirical data. This paper then examines the aforementioned state agencies and determines that neither the organizational structure/appointment processes of these institutions, nor the influence of industry funds in political campaigns point to a clear causal relationship between policy outcomes and a departure from the public interest, but instead suggest circumstantial evidence of agency capture.

**LaMotte, McKenzie
Rogers, Chase
Schroeder, Dillon
Business**

**Project Advisor:
Ramaya, K.**

APERTURE ALLIANCE

Aperture Alliance is in the business of creating exciting state-of-the-art cameras for global markets. Our major markets are North America, Europe-Africa, Asia-Pacific and Latin America. We are pursuing growth from within and in the process intend to outperform all our competitors. Our ultimate goal is to make our firm Aperture Alliance the envy of the camera world.

**Sconyers, Lucas
Politics and Government**

**Project Advisor:
Boykoff, J.
Van Dyk, R.**

Sex, Guns, and Rockin' Goals: An Economic and Political Analysis of Hosting a FIFA World Cup

Every four years, the World Cup the world's largest soccer tournament takes place in a host country chosen by soccer's governing body, FIFA. This tournament is one of the largest sporting events in the world and requires change from the host nation. The host country must come up with the money for these changes internally and the attention gained from hosting the event can often cause changes within the political sphere as well. The massive question the surrounds the FIFA World Cup is "What are the costs and benefits of a World Cup? Is it worth it?" This multi-angular study analyzes the costs and benefits of hosting a FIFA World Cup, looking at the economic changes that took place specifically as part of preparing for the World Cup alongside the political changes, with specific focus given to changes in policy regarding the sex work industry and security and surveillance. The two main topics were then combined and analyzed to better understand the true costs and benefits of hosting a World Cup and whether it is really worth it to host or not.

**Scott, Ian
Psychology & Japanese**

**Project Advisor:
Principe, C.
Maruki, Y.**

Cultural Differences in Facial Perception

Contrary to popular belief, the perception of beauty is not subjective; rather, it is a consistent and universal concept that is stable between cultures (Langlois et al., 2000). Attractive faces are

prototypical (i.e., good categorical exemplars), and like prototypes of other objects (e.g., dot patterns; see Winkielman et al., 2006), more typical attractive faces are recognized and processed faster than less typical unattractive faces (Trujillo et al., 2013). This faster processing might account for these universal preferences. Prototype-based preferences are also associated with positive affect, and non-typical stimuli such as unattractive faces elicit negative affect (Principe & Langlois, 2011; 2012). Because less typical exemplars are by definition less familiar, and because humans are said to fear the unknown, I tested whether the slower cognitive processing of unattractive faces specifically elicits mild feelings of fear from participants. Furthermore, to underscore the importance of facial familiarity, we tested two disparate populations of individuals who vary in their exposure to face type. Specifically, participants from the racially homogeneous society of Japan were expected to have stronger fear responses to faces that deviated from the prototype than participants from the more racially heterogeneous society of the US. We compared the reaction times and emotional responses associated with faces deviating in attractiveness/typicality across groups of Japanese and American participants. This research was conducted in Tokyo in January 2015 and Spring 2015 at Pacific University.

Seaton, Benjamin
Computer Science

Project Advisor:
Khoja, S.

Chess Vision

At some point in our lives we have all dreamt of ourselves as the centerpiece of this event; after all, it is only regarded as the most exciting showing in sports entertainment history. That's right, you guessed it, the 1996 chess match between Garry Kasparov and IBM's super computer, Deep Blue. To make this dream come to fruition, Chess Vision has been created. Chess Vision is an open source desktop application that bridges the gap between computer chess and live play through chess piece movement recognition. Using a computer vision based library, OpenCV, and a programming language, Python, Chess Vision is able to accurately interpret information from a camera that records user play and then determine which square a player has moved to and from. The implications here are that, provided a chess engine and some sort of mechanism for moving the computer's pieces, a user would be able to play live chess against a computer AI. In this presentation, I will introduce various ways to implement chess piece movement recognition and will further discuss the pros and cons of each method I have tried. Afterwards, feel free to [fork](#) my project from GitHub and pretend you are playing Deep Blue.

Sharp, Scott
Media Arts (General Media)

Project Advisor:
Cassady, D.

After the Addiction

Drug addiction can have many negative effects. Addicts can lose family, friends and even their lives. Some addicts commit crimes to feed their habit. They sacrifice safe places to live or custody of their children for the next high. Three recovered addicts agreed to be interviewed on camera for documentary and style magazine articles. Currently bus drivers, errand runners, dog walkers and taxpaying citizens they discuss the crimes they committed during their addiction, how low they fell and why and how they climbed out.

Battaglia, Giancarlo
Proctor, Coby
Qualls-Thomas, Martin
Sherwood, Ian
Business

Project Advisor:
Ramaya, K.

FOCAL INC

We are Focal Inc. a digital camera company that is in competition for global market leadership.

Our goal is to make Focal Inc. the leading digital camera company in the industry making great products for our customers while meeting ever increasing investor expectations with meticulous attention to all aspects of strategy implementation. We hope to become the unrivalled impossible to beat market leader.

Shikada, Kaitlyn
Biology

Project Advisor:
Scholnick, D.

The combined effects of increasing carbon dioxide and temperature on the growth and toxicity of harmful algal blooms

Over the past decade, harmful algal blooms (HABs) have been reported more frequently in marine environments. HABs consist of dinoflagellates that produce toxins which bioaccumulate and result in a number of harmful fish and human diseases. Global climate changes have multiple effects on ocean environments, many, or all of which could impact the growth and biology of harmful algae. For my senior capstone project, I examined the possibility that algal blooms and associated toxins may be synergistically influenced by elevations in ocean temperature and carbon dioxide. Through my research I found that alone, warmer temperatures or increased levels of carbon dioxide do not necessarily influence algal toxicity, but when elevations in temperature and carbon dioxide are combined, HAB growth duration, growth rate and toxin concentrations increase. Projected climate change effects are also detrimental to coral reefs, which during degeneration, serve as a prime substrate for algae and produce more surfaces for HABs to proliferate. Occurrences of ciguatera fish poisoning, one of the most common foodborne diseases associated with seafood consumption and caused by the production of ciguatoxin from the dinoflagellate *Gambierdiscus toxicus*, may also become more frequent and damaging, potentially causing severe issues to human health.

Shurden, Laura
English, Creative Writing

Project Advisor:
Walls, D.

Poems by Laura Shurden

When I published a poem for the first time, I didn't tell my parents. They mention they'd love to read my work sometime—any piece of my choosing. I assure them they wouldn't. To say my poems aren't parent appropriate is inaccurate. My poems enrage those who refuse to be exposed to concepts opposing their own beliefs. This collection is an exploration and criticism of my parents, their relationship, and me. Often what I despise in them I discover in myself. My poetry is the words I no longer share with them. I abandoned attempts to expand their acceptance and instead quote Sharon Olds: "Do what you are going to do, and I will tell about it."

Dopps, Kevin
McCammom, Haley
Simmons, Rachel
Business

Project Advisor:
Ramaya, K.

KISMET CAMERAS

We are Kismet Cameras. We are in a head-to-head competition with formidable competitors in the digital camera industry. At Kismet we focus on our performance and quality ratings which we hope will positively impact our image and the bottom line. Our customers will know that we are quality focused and offer reasonably priced cameras. We aspire to become the leader in the camera industry.

Smith, Sascha
Exercise Science

Project Advisor:
Henry, S.

Peak forces of six martial arts strikes

One of the primary purposes of strikes in martial arts is to impart maximal force to a target, thus harming the recipient of the strike. There has been significant scientific interest in the various aspects of martial arts; however, to date there has been little research examining the peak forces of strikes other than the common fore-fist “punch.” Although Henry has previously investigated the forces associated with some typical strikes, the topic warranted additional investigation.

Purpose: Quantify and compare peak forces of six common martial arts hand strikes. **Methods:** Healthy, adult, volunteer martial artists were recruited from throughout Oregon. Participants were required to be competent martial artists, as evidenced by having earned a brown or black belt in their respective styles. After familiarization, participants executed strikes (fore-fist, back-fist, knife-hand, reverse knife-hand, elbow, and reverse elbow) against a padded force transducer in a random and repeated design. With proper form and appropriate rest periods to minimize fatigue, participants executed 15 hand strikes per arm and per technique, with a total of 90 strikes for each arm. The padded force transducer was interfaced with a computerized data acquisition system, enabling force (N) measurements for each strike. Repeated measures one-way ANOVA was used for data analysis. **Results & Conclusion:** To be discussed.

Kuga, Marisa
Pham, Thao
Spriggs; Stephanie
Business

Project Advisor:
Ramaya, K

DIGITON COMPANY

Digiton is a new player in the worldwide digital camera industry. We offer a wide range of products for both entry-level and multi-featured cameras. Our vision is to become the leading company in the digital camera industry. Our mission is to provide customers the experience of premium products at affordable prices. In addition we provide the best experience and high tech support for all our customers.

Springer, Briana
Politics and Government

Project Advisor:
Van Dyk, R.
Seward, J.

Legislative Path of Naturopathic Medicine

Healthcare and government are deeply intertwined, each state controls and regulates what type of medical care citizens care seek. As different medical specialties grow and expand, legislators decide what is and isn't allowed to be practiced. This research is intended to discover why some states have passed legislation to allow Naturopathic doctors to be licensed professionals, while others have not. Currently 17 states have passed this legislation, and I was unable to discover any specific trends that explain the differences between states that have allowed naturopaths, and those that have not. The research was guided by the Kingdon Model, which requires politics, policy, and problems to come together in order to pass legislation. This study analyzes broadly all 17 states, and then goes in-depth with case studies on 3 states that have recently passed legislation and 3 states that have recently failed to pass licensure laws. Kingdon's Model was helpful in organizing information, but strong campaigning and lobbying from naturopathic doctors on the topic appeared to be the best explanation why states pass legislation. States that failed to pass legislation had opponents pushing back on lobbyist efforts, together with evidence that there isn't scientific evidence for naturopathic treatment. Overall this is not a Democratic or Republican movement, and rather depends on the voices of the people being heard in what they want or do not want in their state health care regulations.

Sproles, John Michael
Media Arts (General media)

Project Advisor:
Cassady, D.

Frame Analysis of the Ferguson Shooting

The incident in Ferguson, Missouri involving the police fatal shooting of African-American 18-year-old Michael Brown on August 9, 2014 garnered both national and international attention, and sparked a worldwide debate on whether or not the event was of a racially charged notion. Racial oppression and its rationalizing and structuring frame have long been central to modern and imperialistic Western societies. This media framing analysis serves to analyze, through indexing of media sources in the timeframe between the shooting and December 2014, how both national and local outlets covered the event, as well as the decision by St. Louis' grand jury to not indict officer Darren Wilson, compare the differences between national and local news coverage, and discover the frames utilized by both.

Stahl, Shannon
Physics

Project Advisor:
Butler, J.

A Longitudinal Study Evaluating The Fluorescent Properties Of Various Quantum Dots

Quantum dots (QDs) have many potential biomedical applications due to their characteristic fluorescence properties. Ideally, these fluorescent properties should remain stable to long-term storage. We performed a longitudinal study evaluating the "shelf-life" of cadmium telluride/zinc sulfide (Cd/ZnS) core/shell QDs after a one-year time gap. In particular, time-resolved and steady-state experiments were performed to assess the absorbance and fluorescence emission properties as well as the photostability of CdTe/ZnS QDs with various shell thicknesses.

Stander, Bryan
Bioinformatics

Project Advisor:
Khoja, S.

Usage of DNA as Data Storage

As our understanding of DNA increases so does our ability to manipulate it. DNA has an amazing storage capability beyond that of any synthetic means currently available. DNA is an incredibly compact way to store data and watermarks inside the genome both *in vivo* and *in silico*. In addition to researching this problem, I have created a computer program to better understand how DNA can be stored and read back. My program is written in Python and reads in DNA strands containing watermarks into a decryption algorithm that outputs them in their original English form. These watermarks will become increasingly common as genetically modified organisms become more commonplace. Being able to retrieve and place watermarks will be vital for companies to protect their patents.

Struble, Stacie
Exercise Science

Project Advisor:
Bhalla, J.

Methods of Personal Trainers to Inspire Healthy Lifestyles

Data show that 69% of US adults are overweight and 35.1% of that 69% are obese (Centers for Disease Control and Prevention, 2012). Overweight and obese individuals have a higher risk for many diseases and health conditions, including type 2 diabetes, stroke, hypertension, among others (CDC, 2014). Data such as these compel us to search for solutions to this growing epidemic. There is strong scientific evidence that physical activity is a contributing factor in decreasing one's risk for obesity and being overweight (Jakicic & Otto, 2005). Despite this support for participating in physical activity, people do not engage in exercise as often as suggested. While there are a multitude of reasons for this, lack of motivation is among the top five reasons why people do not participate in physical activity (Scarapicchia, Sabiston,

Andersen, & Bengoechea, 2013). The purpose of this study was to examine what methods personal trainers have found to be most effective in motivating clients to participate in healthy lifestyles. Participants (n=8; 4 male, 4 female) participated in 30 minute to hour-long interviews. These were conducted according to a predetermined interview schedule that focused on participants' experiences as personal trainers, and their methods of encouraging healthy lifestyles. Interviews were video and audio recorded, and transcribed and coded to find lower and higher order themes. This study will be presented in the form of a digital story that highlights the personal trainers stories and experiences, as well as their opinions about how to best motivate their clients.

Studnick, Sierra
Public Health

Project Advisor:
McGrath, M.M.

Cultural Approaches for Restructuring End-of-Life services (CARE) in Washington County

Hospice care has long been acknowledged to be the gold standard in end-of-life services in regards to patient comfort and family satisfaction. Despite this, minority populations do not utilize hospice services – only 6.8% of hospice patients are Hispanic/Latino (National Hospice and Palliative Care Organization, 2013). Lack of awareness, various misconceptions, and cultural beliefs are all barriers to hospice and palliative care for the Hispanic/Latino population (Kreling, Selsky, Perret-Gentil, Huerta, & Mandelblatte, 2010; Carrion, 2010). The Hispanic/Latino community in Washington County, Oregon exhibits these educational and cultural barriers along with local hospice services that are poorly equipped for the needs of an ethnically diverse community. Working with Hospice and Palliative Care Partners, CARE will address both Hispanic/Latino perceptions of end-of-life care and organizational improvements in cultural competency through a combination of outreach/education to the community, and trainings and restructuring at Care Partners. By the end of year two, there will be an increase in Hispanic/Latino patients utilizing Care Partners, increased satisfaction of these patients, and increased provider comfort in cross-cultural interactions. These changes will ensure a more comfortable and fulfilling end-of-life experience for Hispanics/Latinos of Washington County.

Tachibana, Sean
Chemistry

Project Advisors:
Chan, J.
Hall-Osberg, P.

Optimizing the Sensitivity of Plasmonic Nanoparticles

Plasmonic nanoparticles (NPs) are great tools for sensing applications because the color of the nanoparticle is dependent on ligands that bind to the NP surface. The nanoparticle morphology is known to affect its sensitivity to ligand binding. We also predict that the sensing volume affects the nanoparticle's bulk and local refractive index sensitivity. In order to increase the sensitivity of the nanoparticles, we need to tailor them to specific ligands of interest. Here we examined the refractive index sensitivity of various NP morphologies. The second aim of the project is to use a cell phone camera to analyze ligand binding to the NP surface by measuring changes in pixel counts. This will allow for a cheaper, portable, and accurate method to analyze compounds in the field.

Tanouye, Jana
Exercise Science

Project Advisor:
Schot, P

Protective Headgear and Field Surface Effects on Head-Ground Impact Accelerations

Mild traumatic brain injury (MTBI) is alarmingly common in athletic activities from professional to youth sport levels. For US high schools, MTBI incidence is greatest in football and soccer for males and soccer and basketball for females. The consequences of MTBI for youth are especially

severe, so finding effective prevention strategies is critical. **Purpose:** This report is a portion of a combined study comparing impact attenuation effects of several anti-concussion headbands on different playing surfaces, focused on the soccer field component. **Methods:** A 5.9 kg headform instrumented with a 3-d accelerometer recording at 512 Hz was mounted on a portable inverted 1.85m tall pendulum. Six different headbands (prices ranging from \$60 to \$17) and a control condition were tested on 4 different playing surfaces (grass, two artificial turfs and a wooden basketball court). The mean peak transverse plane acceleration from 5 head/ground impacts under each condition was analyzed via a 7x4 ANOVA with repeated measures. **Results:** A significant interaction was revealed. While it is not possible to offer a general conclusion about the effectiveness of the various headgear products, the soccer field results were clear: head impacts on an artificial turf fields were 2.3 times more severe than on grass (75 versus 170 g's). It is also interesting to note that the basketball court impacts were indistinguishable from the artificial turf conditions.

Toothaker, Lauren
Public Health

Project Advisor:
McGrath, M.M.

Pregnancy and Oral Health Program - Oregon

One in every eight babies born each year in the United States is affected by preterm birth. Preterm birth accounted for 35% of all infant deaths in 2009 and is the leading cause of long-term neurological disabilities among children (CDC, 2013). This problem is exacerbated by myths believed by providers and parents alike, but resources provided to pregnant women are equally effective as information received directly from their primary provider (Ershoff et al, 1999). The Pregnancy and Oral Health Program of Oregon (POHP-Oregon) will improve communication between healthcare providers and patients who are pregnant or trying to conceive (TTC) about the importance of regular dental visits by educating providers about the myths versus realities of prenatal dental care. POHP-Oregon will provide a lunch-hour training session for providers, motivational interviewing sessions between providers and patients, and educational materials for provider offices. The results will include, but are not limited to, more pregnant women receiving routine dental care and increased communication between patients and providers.

Grandinetti, Riley
Lawrence, Jakob
Torii, Kaela
Business

Project Advisor:
Ramaya, K.

HIJACK CAMERAS

We at Hijack Cameras sell our products in North America, Europe-Africa, Asia-Pacific, and Latin America. At Hijack Cameras we offer a variety of cameras that are both multi-featured and entry-level. We pride ourselves in being a good corporate citizenship and won the gold star award for our efforts. We continue to search for new ways to grow and add value for our customers with our exciting products.

Tran, Huyen
Bioinformatics

Project Advisor:
Ryan, D.

Analyzing algorithms to advance the development of antibiotics

Bacterial infections are slowly becoming untreatable for some people due to the rise of antibiotic resistance in bacteria. Without effective antibiotics, more people will suffer from infectious diseases that could otherwise be treated. Therefore, scientists are searching for new antibiotics produced by bacteria in nature. One of the challenges that researchers are facing is sequencing a newly discovered antibiotic. Having the correct antibiotic sequence is very important because it

can help scientists recognize the interaction between the amino acid sequence and the antibiotic's mechanism which helps researchers target the right infectious bacteria. Using Python, I implement and analyze algorithms for finding the antibiotic sequence from the mass spectrometry spectrum data focusing on the complexity and the correctness of the antibiotic sequence. The mass spectrum data can have a wide range of noise and errors which I will duplicate as I analyze various algorithms. As a result, scientists can compare which algorithms are going to work the best depending on the percentage of noise in the spectrum.

Treadway, Kyle
Politics and Government

Project Advisor:
Boykoff, J.
Van Dyk, R.

Cocaine and Performance-Enhancing Drugs: The National Pastime

This study looks at the media framing of three separate prominent drug scandals in Major League Baseball, the Pittsburgh Cocaine Scandal and Trials of 1985, the BALCO scandal in San Francisco of 2003, and the Biogenesis Scandal in Miami of 2013. The aim of the study was to specifically examine the differences of coverage between mainstream media and sports media outlets as well as the differences between local and national media sources with an emphasis on how blame for the materialization of these scandals, as well as their negative effects, was directed by the media. The study was designed to systematically code articles dependent upon which frames they produced and the data was gathered from media sources including the New York Times, Toronto Star, Sports Illustrated, ESPN.com, Sporting News, and a local source for each scandal. It was found that blame was most frequently placed upon the players and the dealers involved in the scandals, though over time an increased frequency of blame was placed on the culture of baseball and the management including franchise owners and officials of Major League Baseball. It was also found that sports media outlets tended to be relatively more sympathetic to the players than mainstream media outlets, though that was the only clear difference that was found between the two sources. The difference that was found between local and national sources was that local sources directed increased blame towards the dealers involved in the scandal, but otherwise there were no other clear differences between the two source types.

Tuffey, Emily
Sociology

Project Advisor:
Eisen, D.

Game Changers: The Positive Impact of Fans

My capstone project examines why fan attendance seems to impact players' perceptions of their team's performance. More specifically, this study provides insights into the role fans have in creating the spectacle of sports and how the rituals that fans engage in change the way players experience, understand and interact with the game. Data for this study were collected through interviews with current Pacific's athletes and observations at sporting events in the winter and spring. The interview data enables an analysis of how players view the importance of fan attendance, while the observation data helped uncover the rituals fans engage in, when they engage in these rituals, and what the effects of these rituals are on the players. I used deductive coding to analyze my interviews and found that players view fans as an extension of their team—a type of support system that encourages and energizes the team throughout the game. Ultimately, the presence of vocal and enthusiastic fans creates collective effervescence and brings an energy to the game that profoundly effects the way players experience the game.

Turley, Ashley
Social Work

Project Advisor:
Ritter, J.

Military Suicide Prevention:

A Proposed Education and Training Program for Service Members

Since the beginning of the wars in Iraq and Afghanistan, the rate of suicides in veterans has increased significantly. Approximately 6,500 veterans commit suicide each year, and, in 2012, 349 service members committed suicide compared to the 295 who were killed in combat. In 1981, the Air Force created and implemented the Air Force Suicide Prevention Model, which has been shown to help decrease the suicide rate. One vital component of this model is prevention education that is provided during pre-deployment and deployment phases. The education component consists of suicide prevention education and training, recognition and response training, awareness programs, and ways to overcome barriers. It is built around a community effort and uses military leaders and role models with the objective to decrease stigma surrounding mental health struggles and suicide. This Senior Capstone project examines a suicide prevention model that could be utilized by all 4 branches of the military service during pre-deployment and deployment to decrease stigma and increase help-seeking behaviors among veterans.

Tyner, Michael
Politics and Government

Project Advisor:
Seward, J.
Van Dyk, R.

Race in the Media: A Frame Analysis of NFL and NBA Athletes

A newsprint frame analysis of four different case studies was conducted for this thesis. Each case study involved either a NBA or NFL high profile athlete that had been accused of a crime. Two black athletes; Kobe Bryant and Gilbert Arenas, and two white athletes; Ben Roethlisberger and Brett Favre were chosen to see if there would be a difference in media coverage based on the race of the athlete. After the dominant frames were determined, they were then categorized as either positive, negative or neutral frames. I found that neutral frames appeared most often in three of the four cases, with the Arenas case being the exception. Arenas was the only case where negative frames were the most common. Race was also mentioned far more often in the cases regarding the black athletes than the white athletes.

Uehara, Jessica
International Studies and Japanese

Project Advisors:
Greer, A.
Osada, K.

A Critical Analysis of Japan's English Education System

Although Japan is a leading economy and political power in the world today, Japanese students lack English fluency even after years of English education in both primary and secondary school. My thesis examines this issue by first describing the current situation of Japan's English education system, then points out problems that other scholars have noticed about the system, and finally offers some suggestions to more efficient methods of English learning that I have found through research and personal experience. To acquire the information necessary to fulfill this project, I interviewed Japanese University students currently studying English at Pacific University about their English education experiences in Japan. I also analyzed data I gathered from my time in the Japanese education system, as well as academic research of other scholars who have previously studied this subject. This thesis incorporates themes such as language acquisition and linguistic anthropology and how these ideas affect language learning of the Japanese students. This research is important for international studies because it looks at the relationship between not only two languages but two cultures and how differences in cultures affect learning.

Ulrich, William
Physics

Project Advisor:
Butler, J.

Exploring Perpetual Motion

A perpetual motion machine is a device that continues indefinitely without any external source of energy. Such a machine is impossible to build due to the laws of physics, but modern day inventors still apply for patents for devices that they claim achieve perpetual motion. I found two of these alleged machines and used physical methods and computer analysis to reveal the flaws that prevented perpetual motion. The first was a machine that uses a magnet and a ball bearing to turn an unbalance wheel and the second is a device that relies on falling water to turn itself. Finally, I will reveal my own perpetual motion machine based on an unbalanced wheel. This allows the audience to witness first-hand a failed attempt at perpetual motion and be able to tangibly see some of the physical properties involved.

Utamaru, Aiko
Environmental Studies: Policy, Culture, and Society

Project Advisor:
Ilea, R.

Japan's Invasive Species Act:

Conflict between Animal and Environmental Consideration

This paper explores an ethical conflict between animal and environmental consideration under the Invasive Alien Species Act (IASA) in Japan. Under this law, many animals have been killed for the sake of biodiversity and human economic activities. In this paper, I will especially focus on three monkeys listed in the IASA and investigate their treatment from various philosophical views: Kantian, Utilitarian, Animal Rights, and anti-anthropocentrism. I will also analyze how we conceptualize the idea of nativeness and non-nativeness and how it influences decisions regarding non-native species in Japan. Although non-native species are often regarded as troublemakers while receiving less attention as a moral concern, I would like to claim that they also have interests in themselves and should not be killed for the sake of biocontrol. In the last section of this paper, I will suggest ways in which environment and animal consideration can be compatible.

Vadino, Sophia
Creative Writing

Project Advisor:
Postma, K.

Retelling Fairy Tales: Giving Old Stories New Lives

My creative writing thesis consists of the prologue and first two chapters of a novel. *Floating Heavy* is a retelling of three Hans Christian Andersen fairy tales; "The Little Mermaid," "The Snow Queen," and "The Red Shoes." I took my favorite themes from each story and wove them together to create a fairy tale of my own. The protagonist of my novel, Celine, was a member of a corps de ballet with a professional company. Deeply disappointed in herself and her imperfections as a dancer, Celine attempts to commit suicide by drowning herself in the sea. In my fictional world, the sea is a safe haven for those who commit suicide, a place for them to heal before returning to live on land again. Under the water, Celine forms a close friendship and bond with Linn, who upon recovering her mental health leaves the sea and Celine behind. Unready to face the world above the water, Celine still follows Linn because she cannot bear to be without her. Celine believes she needs her friend to emotionally survive. Through the course of the novel and during her quest for her friend, Celine will come to realize that she does not require another person in order love herself. She gains the strength to heal and deal with her own challenges.

Van, Evangeline
Media Arts: Integrated Media

Project Advisor:
Geraci, M.

How Not to Starve as a Starving Artist: Developing Artist Portfolios for the 21st Century
According to a recent *Forbes* article, *Why Every Job Seeker Should Have a Personal Website, and What It Should Include*, “56% of all hiring managers are more impressed by a candidate’s online portfolio than any other personal branding tool. However, only 7% of job seekers have created an online portfolio.” For my project, I coordinated, designed, and implemented three distinct brand identities including online portfolios for performing artists in voice, dance, and theatre. The goal was to develop a brand for each client that is memorable, recognizable, fits the unique style of the individual performer; and provides them with the assets to compete in a competitive job market. In my presentation, I will discuss the process I used in creating dynamic user-friendly websites and brand identities for three clients with unique styles and requirements.

Gallagher, Austin,
Lukose, Namitha,
Van, Evangeline
Business

Project Advisor:
Ramaya, K.

IMAGENIE INC.

Imagenie Inc. strives to foster relationships with consumers and communities through the launch of innovative products with an emphasis on profitable solutions and services. We aspire to become a leader in the global camera industry by creating products that enrich lifestyles while fulfilling our social responsibility as good citizens.

Vance, Olivia
World Languages and Literatures: Spanish

Project Advisor:
Wilson, J.

Entertainment or Education? The Ever Important Role of Narco Cinema

With so many films releasing that present Mexican drug cartels and the extent of their power throughout Mexico and into the United States, this project aims to analyze the implications these films portray to their viewers about drug cartels, gender roles, and Mexico- U.S. relations. While film is often meant for entertainment, how can directors maintain the educational component of a piece on drug cartels rather than solely dedicate fame to the incredulity of current events? Is film reflecting real events or encouraging the events to happen in the first place? This project analyzes the portrayal of narcos and narcotrafficking narco-traffic? in the T.V. series *Breaking Bad*, Luis Estrada’s *El Infierno*, and Oliver Stone’s *Savages* as well as interviews with the directors and scholarly articles in order to identify what messages the directors send with their pieces and whether or not any of the directors are able to send an empowering message to the viewers to invoke social change, rather than glorify the cartels. **Presentation in Spanish.**

Vick, Bonnie
Media Arts: Integrated Media

Project Advisor:
Geraci, M.

Online Presence and Branding: Funky Finds Décor and Johnson’s Roofing Inc.

Funky Finds Décor is a local furniture studio in Forest Grove, Oregon where owner Debi Cisneros sells her most recent creations. Debi ‘up-cycles’ furniture using her creative and unique style, and she needed both a website and branding that reflected her quirky design aesthetic. Johnson’s Roofing Inc. is a local roofing business also in Forest Grove. Greg Johnson has worked in the area since 1981 and his business is dependable and well-established. Greg also needed branding and a website to represent his business. During my presentation, I will discuss how I designed and implemented the deliverables tailored to these vastly different clients.

Villarreal, Moses
Public Health

Project Advisor:
McGrath, M.M.

Fitness program to reduce obesity rates among Latinos in Forest Grove, OR

Obesity is a major issue in the United States because of its high prevalence and consequence for health and well-being. Due to high rates of obesity, Latinos are twice as likely to develop diabetes as non-Hispanic Whites, and a higher percentage of Mexican Americans are diagnosed with diabetes than other ethnic groups (Toda, 2014). The fitness program addresses obesity in Latinos in Forest with exercise sessions 3-5 times a week for 60 minutes of moderate/vigorous physical activity. Sessions include aerobics, lifting weights, and video game-based exercises for children. Physical activity is the most variable component of energy expenditure and therefore has been the target of behavioral interventions to modify body weight (Jakicic & Otto, 2005). Results will show a decrease in body mass index (BMI) and an increase in physical fitness as well as decreased diabetes risk.

Volk, Libby
English Literature

Project Advisor:
Pagan, D.

Man's Best Friend: Altering Anthropomorphism in Contemporary Literature

Given the title of "man's best friend," dogs are a significant part of many people's lives. Yet despite how much people connect with and coddle dogs, they are still considered animals, on a lower level than humans. The literature under investigation in this thesis is written from the perspective of dogs and shows a trend in which pets have emotions and thoughts similar to humans. As evidenced by *Rose in a Storm* by Jon Katz and *The Art of Racing in the Rain* by Garth Stein, the belief in the humanity of dogs is not simply anthropomorphism, but a fundamental shift in peoples' perception of the consciousness of animals.

Voss, Jason
Politics and Government

Project Advisors:
Boykoff, J.
Van Dyk, R.

Domestic Terrorism

Domestic Terrorism has been a key issue in politics and in society since September 11, 2001. There have been many prosecutions since that fateful day. My project investigated 100 prosecutions from 2002-2012 to look for specific trends. I examined the various definitions used by departments involved with the definition of terrorism, I looked into the application of the Domestic Terrorist labeling, and the ideology of those who have been claimed to be domestic terrorists inside the United States. I also investigated claims by activists of ideological targeting of the terrorism label that is being called the Green Scare. After looking at claims of corruption and abuse I found certain terrorism training manuals to feature rhetoric used by a 1960's intelligence program called Cointelpro. Cointelpro was a top secret program run by the FBI in the 1960-1970's to disrupt dissident activists. My results lead to a conclusion of specific ideological targeting, as well as a problem with the states definitions of what Domestic Terrorism is, and lastly issues concerning the concept or set up of Domestic Terrorism prosecutions.

Wagner, Daniel
Exercise Science

Project Advisor:
Jackson, B.

Can Feedback Affect One's Perception of Target Size and Distance?

Research has shown that perception of task variables can be affected by expectation of the effort required to perform the task, and previous performances of the task (e.g., Witt, Linkenauger, & Proffitt, 2012). In research done by Witt and Proffitt (2005), softball hitters who had a higher batting average perceived the ball as being bigger than did participants who had lower batting

averages. In a similar study, golfers with lower scores (better performance) perceived the hole as larger than those golfers with higher scores, regardless of skill level (Witt, Linkenauger, Bakdash, & Proffitt, 2008). When a person is motivated to achieve a goal object, the object becomes perceptually accentuated, causing it to stand out in the environment. This occurrence is derived from the functional perception theory, which states that the intention (or motivation) to achieve a goal affects the perception of the object relevant to achievement of that goal (Canal-Burland & Van Der Kamp, 2009). One of the more popular methods for increasing one's intention/motivation on a task is to provide augmented feedback. **Purpose:** The purpose of the current study was to further examine the relationship between perception and performance, and determine whether those perceptions can be manipulated by augmented feedback. **Method:** Pacific University students were randomly assigned to one of three groups (Control, Positive Feedback, Negative Feedback), and were tasked with tossing a bean-bag underhand over a curtain to a floor target. Participants performed five blocks of 3 trials, and were provided visual feedback of their results after each block. Those in the Control group were shown their exact results; those in the Positive Feedback group were shown results that were better than their actual performance; and those in the Negative Feedback group was shown results that were worse than their actual performance. Following the performance trials, participants were asked questions about the perceived size of the target, distance of target, height of curtain, and distance of curtain. **Data analysis:** Data was analyzed to determine whether the feedback condition had an effect on the perceptions of ability and task variables. **Conclusion/Results:** Will be presented as to how one's perceptions are affected by augmented feedback and their belief of task success.

Wagner, Kaitlyn
Exercise Science

Project Advisor:
Schot, P.

Motion Analysis Lab Modules for Biomechanics

Educational research reveals that introductory physics and kinesiology students often face difficulty learning basic kinematic concepts and that discovery-based instruction using video motion analysis results in superior understandings. Given the complexity of human movement, it is prudent that biomechanics classes traditionally include a video motion analysis assignment. **Purpose:** To expand the array of movement task recordings supporting a motion analysis lab exercise for an undergraduate biomechanics course. **Methods:** High speed (100 Hz) digital videos were made under optimal conditions including reflective markers strategically affixed to the model(s) facilitate anatomical landmark identification. Instrumentation constraints made it necessary to limit the functional movement tasks selected for the project to be planar. A custom Excel application was developed to enable students to perform all steps of the analysis independently and conveniently. **Aims:** All modules address the following objectives: (1) understand how video motion information is gathered, (2) offer hands-on experience performing the processing steps needed to obtain quantitative linear and angular position information, and (3) apply and understand the limitations of the first central differences technique to derive velocity and acceleration patterns. The modules also incorporate either an ergonomic cycle analysis or a compare/contrast analysis component designed to connect qualitative and quantitative understandings. **Results:** Example modules will be shared at the presentation.

Waldron, Synclaire
Media Arts (Journalism)

Project Advisor:
Cassady, D.

Behind the Title

The purpose of this film is for students to see behind the scenes of professor's life styles. Pacific creates the idea that students and professors have a close relationship, yet that only happens potentially in the classroom and in office hours. This film is intended to help students to understand that professors have gone through a lot to get where they are. No matter their PhD,

masters degree or ‘title’ that they have, they are just like students in the sense that they worked hard and went through a lot that no one knows. It might have taken professors five years to finish undergraduate work, or they may be a recovering addict or are married to another professors on campus. This film hopes to show that students can relate in some way on various different levels to their professors and learn a little bit more about their chosen life styles.

Wall, Anuheia
Psychology

Project Advisor:
Burns-Glover, A

Does Collectivism Protect Extraverts? Culture, Personality, and Academic Performance.

Research indicates that Extraversion has negative effects on college GPA. Extraverts are more talkative, sociable, and affectionate, which can be important coping skills during college. Collectivists report less loneliness and are more cooperative. Studies also indicate that there are geographic and cultural differences in the expression of these traits. I tested how the cultural and personality trait of other-orientation (*aka.*, Allocentrism or Collectivism) is related to Extraversion. I was interested in how Collectivism might moderate the negative effects of Extraversion on academic performance. Forty percent of students in the course identified as being from typically collectivist ethnicities (e.g., Asian, Native Hawaiian, American Indian, and Hispanic/Latino), but there was no effect on course grade or fall GPA for race/ethnicity itself. There were no gender differences in course grade, fall GPA, or the Extraversion/Collectivism trait measures. I found that Extraversion and Collectivism were significantly positively correlated ($r=.42$; $p=.00$). I found that Extraversion alone *negatively* affected course grade ($r=-.23$; $p=.04$) and overall fall GPA ($r= -.31$; $p=.02$). Collectivism had no significant, direct correlation with course performance, but when it was held constant the negative Extraversion correlation increased ($r= -.33$; $p =.008$). This same pattern held for the zero-order ($r= -.29$; $p=.02$) and partial correlation effects of holding Collectivism constant and calculating the effects of Extraversion on fall overall GPA ($r= -.35$; $p=.004$). Results will be discussed in light of emerging research on moderating effects of culture on trait effects on academic performance.

Watkins, Tyler
Sociology

Project Advisor:
Eisen, D.

The New 1984: The Presentation of Identity on Facebook

This study examines the relationship between managing an online social media profile and the embodiment of status preservation behaviors. More specifically, this study examines how the aspects of this relationship intersect to form a system of online social control, leading individuals to engage in very concrete identity management practices. Using data collected through in-depth interviews with individuals who use Facebook from Pacific University, this research explores how an individual first engages with social media, how social control and surveillance exerts itself online, and the specific impression management tactics individuals use within this system. Analysis shows that an online system of social control is created through the aggregation of all of one’s social networks in a single “friends list,” allowing a large group of people to observe an individual’s profile content. The collapsed context confines individuals into posting content that won’t create negative social consequences with anyone in their entire social network, limiting the depth at which they are able to present their identity online. This research will highlight the way in which individuals understand and express their identity in social media spaces.

**Watters, Matt
Cooper, Scott
Zhong, Lin
Business**

**Project Advisor:
Ramaya, K.**

BELOVED CAMERAS

Our Beloved Cameras is competing with other rival companies in the digital camera industry for global market leadership. Our company assembles all of the cameras in Taiwan and ships them directly to camera retailers all over the world. Beloved Cameras specializes in both high-end digital cameras as well, carrying several smaller cameras for different price points. Our strategy will make us a leader in the global marketplace without compromising our values as a socially responsible organization.

**Weimar, Christian L.
Biology Department**

**Project Advisor:
Ruppell, J.**

Dominance Maintenance and Reproductive Success: Does the Dominant Male Mountain Gorilla Have the Edge?

Mountain Gorillas are extremely endangered and are the verge of extinction. Conservation and repopulation are the keys to helping this animal regain a foothold on the slippery slope of elimination. Primate hierarchies commonly have a dominant individual and numerous subordinate individuals. Mountain gorillas follow the same pattern by having one or more dominant males. In this paper we ask the question: Do the benefits of being the dominant male silverback gorilla outweigh the costs of being dominant? This will be determined by examining reproductive success of dominant and non-dominant males, the physiological stress of being dominant and social stressors on the dominant males. The results of this analysis showed that dominant males have a higher reproductive success overall and suffer equal amounts of stress compared to non-dominant males. This information helps to show that the dominance hierarchies of the mountain gorilla have an effect on reproduction of offspring and this knowledge can support reestablishing the species at an effective level.

**Westfall, Camielle
Environmental Science: Biology**

**Project Advisor:
Van Buskirk, R.**

Timber Harvest Impacts on Rough Skinned Newt Populations in the Tillamook State Forest

Amphibians are one of the fastest declining groups of species on the planet. In most cases, there are significant detrimental impacts on amphibians from habitat loss, pollution, and climate change caused by humans. In the Pacific Northwest, rough skinned newt (*Taricha granulosa*) populations are steady, but they too are greatly affected by habitat changes and habitat loss brought on by timber harvesting and other human land uses. Oregon's Forest Practices Act requires that timber harvest operations on state forest retain stream buffer and coarse woody debris in order to regulate and preserve habitat near streams and waterways. My project consisted of performing observational population surveys of rough skinned newts in breeding ponds near recently clearcut forest areas compared with ponds in unharvested forest in the Tillamook State Forest to determine the effects of timber harvests on rough skinned newt populations. I surveyed 21 ponds and collected water quality samples for variables such as weather, vegetation, quadrat water depth, pond area, water temperature, air temperature, pH, turbidity, dissolved oxygen, and nitrate levels. For the ponds near clearcuts, I investigated the size of each buffer on all sides of the pond. To perform my observational survey, I used a 100 square foot floating PVC quadrat where I watched for 30 minutes and counted each newt that surfaced for air within the quadrat. My statistical findings were then compared to previous

studies on timber harvest and human land use impacts on amphibians in the forests of the United States. With this project, I hope to yield information on land use, water quality, and newt populations to demonstrate the need for changes to the Forest Practices Acts in order to preserve fragile rough skinned newt and amphibian habitat to help improve amphibian conservation.

Wettig, Mitchell
Exercise Science

Project Advisor:
Henry, S.

Improving Health and Wellness of Local Firefighters

Sudden cardiac death is the leading cause of on-duty death in United States firefighters. Nearly 50% of these on-duty deaths are from coronary heart disease and related cardiac issues. In part, this phenomenon is attributable to the nature of firefighter duties. Episodic, extremely physically-demanding work becomes a risk factor for myocardial infarctions. To minimize this risk, it is imperative for firefighters to be physiologically healthy. Furthermore, an appropriate level of physical fitness enables firefighters to conduct work-related tasks more effectively and with greater safety. To enhance the work-related health and fitness of local firefighters, my project had three general goals. Firstly, The Hillsboro Fire Department requested assistance with conducting baseline stress tests for their career firefighters. To accomplish that goal, I successfully administered baseline graded exercise tests for the entire department of line firefighters. The second goal of my project was to establish baseline physical fitness testing for the Forest Grove and Cornelius Fire Departments. I successfully coordinated with the Forest Grove and Cornelius Fire Departments to complete a battery of health/fitness pretesting of the firefighters who volunteered for the project. Firefighters were pre-tested in five aspects of physical fitness: flexibility, body composition, muscular strength, muscular endurance, and aerobic capacity. The third goal of my senior project was to create an exercise regimen, supplemented with nutrition recommendations, to enhance and maintain an adequate degree of physical fitness. I created a two-month workout program, with nutrition recommendations, for local firefighters to follow in an effort to improve their health. Post-testing of the firefighters will occur later this spring, with the hope that the firefighters show improvement in the assessed areas of health/fitness.

White, Austin
French

Project Advisor:
Purdy, J.

French Wine Industry Confronts Globalization: Tradition vs. Innovation

Wine is as closely linked with France as the Eiffel Tower and fine cuisine, and its tradition of strict regulation in wine production has inspired vintners around the world. However, recent developments in the international market have called into question the global marketability of French wine. This paper discusses opposing views on the issue of traditional production and marketing techniques of French wine in an emerging international market that rewards innovation. Furthermore, it will explore a compromise that will allow France to retain its traditional production while adapting to the demands of new-world consumers.

Whitehead, Sarah
Dance Department

Project Advisor:
Camp, J.

The Conceptualization and Creation of the choreographic work *It was just a Dream*.

It is commonly thought that a choreographer is a director and that is true. However, a choreographer is responsible for multiple aspects of production of a dance work, in addition to creating the movement. This includes choreographing movement, teaching, scheduling, lighting and costuming. To create *It was just a Dream* I researched and conceptualized the story, held an audition, cast dancers, choreographed and staged it, scheduled rehearsals, designed costumes and lighting to portray the various sections of the piece. *It was just a Dream* explores the ideas

behind Lucid Dreaming by telling a story of a girl who goes to bed and starts to have a nightmare only to realize she is dreaming. She realizes she can take control of her dream and she decides travel on a journey to various dreamlands only to have her nightmare slowly creep back in. *It was just a Dream* was presented as a full-length work in the Tom Miles Theatre at Pacific University on November 13, 14, 15, 2014. The purpose of *It was just a Dream* was to create an original narrative, entertain the audience and inspire people's imagination.

Whitehead, Hilary
Politics & Government

Project Advisor:
Boykoff, J.
Van Dyk, R.

Defending the Voiceless or Barring Progress?

A Chronological Media Analysis of the Environmental Protest in the U.S.

Through a content analysis of newspaper articles during and after a series of anti-logging protests in the late 1980's, and a series of protests against the extension of the Keystone XL pipeline in early 2014, several frames were found in three overarching categories; *positive*, *neutral*, and *negative*. In addition this study shows the frequency in coverage over time, and considers whether each protest and corresponding issue underwent attention cycles. Finally, the study considers the differences in media coverage between the movements and analyzes them.

Wightman-Massey, Ginny
Exercise Science

Project Advisor:
Dolphin, K.

The influence of sleep habits and emotional state on diet and exercise behaviors

Certain characteristics of our everyday lives lead to natural motivation and increase the likelihood that individuals will choose healthy behaviors. It seems that while there is a push towards healthier lifestyles, the practice of unhealthy behaviors has not been deterred by these efforts. Not much research has been done to monitor individuals' ability and efforts to be healthy. **Purpose:** The focus of this study was on whether or not diet and exercise behaviors are associated with sleep habits and emotional state, and the likelihood of individuals choosing adequate exercise and well-balanced diets over unhealthy habits. **Methods:** Participants ($n \sim 200$) were asked to report their current sleep habits, emotional states, health-related knowledge, and diet and exercise choices through an anonymous online survey. Data were analyzed using multiple regressions on SPSS. **Results:** Findings will be presented on Senior Projects Day.

Wilcox, Marcia
SDIM

Project Advisor:
O'Day, T.

Non-Profit: EdenAcres Environmental Education

Sustainable development, as defined by the Brundtland Commission, is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." The phrase, "think globally, act locally" urges us to "consider the health of the entire planet and take action in our own communities and cities." According to the United Nations Educational, Scientific, and Cultural Organization (UNESCO), education for sustainable development is essential to foster these attitudes in the general public. When children are engaged in active sustainability education, they form valuable connections with their environment, preparing them to make more informed decisions and contribute to more sustainable communities. Although the Oregon Department of Education has a well-developed environmental literacy plan called No Child Left Inside, there are barriers to its full implementation. One barrier is lack of educator training in delivering environmental literacy content. Other barriers are lack of funding, transportation and appropriate outdoor classrooms. My project is to establish an environmental education nonprofit in Forest Grove that will provide experienced outdoor educator services, offer training and certificates to educators, develop

outdoor learning curriculum for students, help secure funding for place-based education and coordinate visits and programs at diverse outdoor learning environments in our local region.

Wildgrube, Rana
Sociology

Project Advisor:
Whitehead, J.

**Pushing the Commodity Frontier to New Limits: Professional Cuddling,
and a Paid Form of Platonic Touch**

This inductive, qualitative sociological study examines professional cuddling as a form of commoditized intimacy. Professional cuddlers offer a new and increasingly popular intimate service that allows people to get the platonic touch they are missing in their lives. In-depth interviews with professional cuddlers and their clients, along with a content analysis of professional cuddlers' websites reveal a set of informal codes and formal rules that allow professional cuddlers to engage in emotion work. Emotion work is the regulation or management of emotions within particular environments in order to create a certain type of interaction in a specific space. In cuddling, the professionals use emotion work to make the clients safe and to create an authentic experience. This research adds to the academic literature of emotion work by focusing on a professional practice that has been understudied.

Willeford, Alexander
Economics

Project Advisor
Haag, J.

**The Impact and Implications of Reduced Interest Rate Sensitivity on Durables
Consumption in the United States**

Despite an unparalleled degree of monetary policy accommodation in recent years, including the Federal Reserve's zero interest-rate policy, I document that the speed of the current economic recovery in the United States has been restrained, relative to past recoveries. Next, I document that one of the factors responsible for the lagged recovery is the reduced stimulative effect that a decline in interest rates typically has on aggregate demand, and especially on consumer durables spending. The durables sector of the U.S. economy is much more interest-rate sensitive, relative to the non-durables sector, as durable goods purchases include spending on vehicles, residential investment, household goods, and other interest-sensitive components of spending. Diminished spending on durables, due to weakened interest-rate sensitivity, may be an important consideration for policymakers. Monetary policy effects economic activity predominantly through its guidance over interest rates, so a reduction in interest-rate sensitivity could imply a reduction in the effectiveness of monetary policy in the most recent recovery.

Williams, Kayla
Public Health

Project Advisor:
McGrath, M.M.

Got Stress? Addressing Pacific University, Oregon students and stress

College students experience high levels of stress from social, academic, and personal factors. The proportion of students who reported feeling overwhelmed by academics and responsibilities increased from sixteen percent to twenty-seven percent from 1985 to 2002 (Watson, 2012). Consequences become evident in their social lives, mental health, physical health, and academic success. College campuses already offer resources for students dealing with stress, but these resources are not fully utilized by the student body. Got Stress? will educate Pacific University students about campus resources and management techniques. Six weekly one-hour events will be coordinated by the university's dining, counseling, wellness, academic enrichment, and residence life offices. Topics include physical, mental, academic, and social repercussions of stress as well as self-management techniques. Anonymous surveys given after each session will measure the event's effectiveness and students' stress levels. Increasing awareness of pre-existing resources and diversifying programs offered to students in the spring semester of the

academic year will decrease student stress and its negative health effects. Attendees will be more familiar with campus resources, more comfortable with asking for help, and more capable of managing stress independently.

Williams, Sarah N.
Public Health

Project Advisor:
McGrath, M.M.

The Family Nutrition and Fitness Program: A rec center-based program for low-income families in Hillsboro, Oregon

Due to limited financial resources and educational attainment, the low-income population has a higher burden of obesity than other socioeconomic groups (Drewnowski & Spector, 2004). Within Hillsboro, Oregon, the Shute Park Aquatic and Recreation Center is located within a predominately low-income neighborhood, but does not see much participation from this demographic. The Family Nutrition and Fitness Program (FNFP) will collaborate with the Hillsboro School District and Head Start program to recruit low-income families and educate parents and their children about nutrition and fitness. The FNFP will consist of eight one-hour long sessions. A pre-test in the first week will assess the parent's knowledge and attitudes towards nutrition and fitness, and a post-test in week eight to assess changes. Based on research that demonstrates the use of incentives as a successful way to reach the low income population (Ziebarth et al., 2012), the FNFP will use a reduced membership rate to encourage participation and promote behavior change after the program ends. The FNFP will improve the health and well-being of Hillsboro's low-income families, and will encourage their participation in the community.

Williams, Teresa
Bellwood, Kori
Exercise Science

Project Advisor:
Alstot, A.

The Effects of Immediate Video Feedback Using a Pico Pocket Projector to Enhance the Accuracy of Volleyball Skills

The National Association for Sport and Physical Education (NASPE) suggests integrating technology within sports and physical education to aide in the instruction of athletes and students. One such technology, the Pico pocket projector, is a small video projector that can connect to a handheld device (such as a smartphone or an iPad); coaches can video their athletes' performance using their device and immediately display the video using the projector to provide immediate feedback for the athletes. The purpose of this study was to examine the effects of the Pico Projector as a form of augmented video feedback on the performance of two volleyball skills (passing & setting) performed by 6th-8th grade volleyball players. Six healthy volleyball players participated in this study and completed 10 sessions of 10 trials each for two volleyball skills (passing & setting) and alternated between baseline, where no video feedback was given, and video phases, where the iPad and Coach's Eye application were used to provide feedback to the performers. Researchers gave verbal feedback to the participants while they both viewed the video feedback after every third trial. Results indicated that augmented video feedback showed a slight positive effect on the performance and accuracy of passing and setting volleyball skills.

Yamamoto, Colby
Biology

Project Advisor:
Clark, K.

Investigation of the 4977-bp common deletion of Pearson Syndrome mitochondrial disorder: diagnosis, and treatment management

Pearson Syndrome (PS) is a multisystem genetic disorder associated with mitochondrial DNA (mtDNA) rearrangements and is often fatal in infants. A specific mtDNA deletion of 4977 base pairs (bp) is common in most patients. PS is characterized by sideroblastic anemia and exocrine

pancreas dysfunction, but many other symptoms are associated due to the complexity of this mitochondrial disorder. This meta-analysis investigates the 4977-bp common deletion in PS by answering the question: What is the connection between the common deletion and prognosis and how can we diagnose patients earlier? Many studies have shown the correlation between presence of mtDNA deletions in tissues with high-energy demand and PS suggesting potential targets to be used during newborn screening for early diagnosis. However, one case study demonstrated that other mtDNA mutations, such as duplications, may also contribute to PS. There are currently no cures for PS, but only treatment therapies to help alleviate symptoms. Understanding the common deletion and biological and physiological systems it affects is essential for understanding diagnosis as well as prognosis.

Yamamoto, Carli
Oshiro, Kylee
Exercise Science

Project Advisor:
Jackson, B.

What Makes an Effective Team?

Social Facilitation's Effect on Teamwork and Performance Effort

Social facilitation has been a popular topic of research for over a century, suggesting that the presence of someone can have an effect on task performance. The term *social facilitation*, coined by Robert Zajonc (1965), states that having an audience enhances performance on simple or well-known tasks. This result can be explained by the co-action effect because the audience is performing the same task and at the same time as the performer. It is believed that teams with better team “chemistry” will perform at a higher level. This belief was supported a study examining high school basketball teams, which showed that as the players felt more attracted to the group as the season progressed, their individual performance improved (Bray & Whaley, 2001). The current study will help to provide further understand of social facilitation in a “team” environment. **Purpose:** The purpose of this study is to determine if one’s personality and connectedness to a teammate/co-actor has an effect on their performance in an effort-based task. **Method:** Volunteers from Pacific University were tested along with one participant whom they felt highly connected with (who they brought with them) and another participant with whom they were not highly connected (who were “connected” participants in another pair). Participants performed a plank task in each of the following conditions: alone, alongside their highly connected partner, at the same time (but not able to see) their highly connected partner, alongside a participant they are not highly connected to, and at the same time (but not able to see) a participant they are not highly connected to. In each of the partner conditions, pairs were told that they were competing against the other pair for the highest combined time in order to qualify for a drawing for one of four \$10 gift cards. The personality of each participant was measured using the Eysenck’s personality inventory, and connectedness to paired participants was determined by a connectedness questionnaire. **Data Analysis:** Data was analyzed to determine the effects of connectedness (high/low), personality (extraverted/introverted), and social facilitation (visible/ not visible) on task effort. **Results and Conclusion:** Will be presented as whether connectedness and personality affect the effort of performing a plank task in a social facilitated setting. These results will help to provide a better understanding the situations in which teams could expect the greatest effort to occur.

Yamazaki, Ayaka
Sociology

Project Advisor
Whitehead, J.

Should we still try to waste less in America?

This thesis demonstrates how Japanese students’ attitudes toward food waste are influenced by long-term exposure to American culture. As a background, rituals contribute to create social norms in society, which are shared by the population through their continuous participation in

the ritual. Moreover, the regular practice of the ritual helps individuals heighten a sense of belonging to the society. Rituals play a significant role in establishing social norms regarding eating practices. Traditionally, Japanese social norms stigmatize wasting food; in contrast, American society holds a more permissive attitude toward wasting food. After conducting in-depth interviews with Japanese students at Pacific, this research found that the students believe that Japanese society views people wasting food as culturally unacceptable. However, as a result of temporarily halted participation in the Japanese rituals, their attitudes toward food waste came to be more permissive after living in America for a long period. Especially, this research found that an environment at the UC has a considerable influence on the students' attitudes toward food waste, where they see food thrown away more frequently than in Japan. Although the students preserve the understanding that wasting food is undesirable, their effort to not waste food is presented at different levels depending on using the UC or not.

Yano, Jennifer
World Languages and Literatures: Spanish

Project Advisors:
Welsh, M.
Wilson, J.

The Significance of Bilingualism in Hispanic-American Culture

The population of Hispanics in the United States has increased by nearly six times from 1970 to 2012 and the boosted presence of Spanish speakers calls for new foundations in education. Bilingual schools have come into prevalence and the ability to speak both English and Spanish has become not only a desirable trait, but also one that is valued and even required by many employers. Through interviews of Hispanic persons ages 18-87, I attempted to uncover the costs and benefits of Spanish/English bilingualism regarding social assimilation, acceptance, education, and success in the workforce. All participants were residents of Ontario, OR and the surrounding area and had lived and worked in the United States for varying amounts of time. They were asked about their work and educational history, their place of origin, the ways in which their ethnicity has affected their lives, their feelings of acceptance or lack thereof, and the changes they have seen for Latinos over time. They were also given time for any personal narratives they cared to share—an exercise based on the premise of the book *Mexicanos in Oregon* by Erlinda V. Gonzales-Berry and Marcela Mendoza. Hispanic persons are the largest ethnic minority in the United States, accounting for 17% of the total population and bilingualism must grow to reflect such cultural evolution. This presentation will be in Spanish.

Yasuoka, Matthew
Politics and Government

Project Advisors:
Boykoff, J.
Van Dyk, R.

Not in the Postcards:

Tourism, Representation, and Homelessness in the state of Hawaii.

The representation of Hawaii as a paradise and spot of touristic aspiration play a critical role in shaping the culture of Hawai'i. In this study, I explore how the focus on Hawaii as a vacation destination wonderland shapes the political reality, by looking at tourism and homelessness. The presence of homeless populations doesn't match with the expectations of visitors, who serve as the life blood of Hawai'i's economy. Thus, the politicians in Hawai'i, in the service of entrenched capitalistic and touristic interests, view homelessness as an economic threat. I argue that this devotion to recreating representation in order to placate the tourist industry leads to the implementation of anti-homeless legislation, even in the face of broad public opposition.

Yee, Vanessa
Exercise Science

Project Advisor:
Dolphin, K.

**Examining Diet and Performance in Highly Active Adults:
Low-Sodium and Gluten-Free Diets**

Gluten-free and low-sodium diets are increasing in popularity, both as a result of clinical needs and preference; however, there are no studies examining the effect of gluten-free or low-sodium diets on cognitive and physical performance in non-clinical and healthy, active adult populations.

Purpose: To increase the understanding of how increasingly popular diets affect both the physical and cognitive performance of active adults. **Methods:** Healthy, college-age participants ($n = 12$) were assigned to one of three groups: (1) low sodium diet; (2) gluten-free diet; or (3) control group. We then controlled the diet of the low sodium and gluten-free groups for one week, while the control group continued to consume their usual diet. All participants completed a pre-test, mid-week test, and post-test which included a one-mile run, 100-meter sprint, push-ups to fatigue, and a memory test of five random words. Data were analyzed using a repeated measures analysis of variance for each of the performance variables. **Results:** The physical and cognitive results and their implications will be presented on Senior Projects Day.

Yee, Vanessa
World Languages and Literatures: Spanish

Project Advisors:
Welsh, M.
Wilson, J.

Evaluating the Impact of Volunteers in the Bilingual Classroom

Although the United States of America is one big melting pot of cultures and languages, bilingual education is still not very prevalent in our society. Bilingual schools not only allow the students to explore two languages and cultures, they allow teacher and volunteers to do so as well. Volunteers gain perspectives about cultures other than their own, and at the same time, get to watch students grow and learn. Inspired by my own experience as a classroom volunteer, I wanted to see how the teachers and students benefitted by having a volunteer in the classroom. I surveyed five teachers at a local bilingual school, Echo Shaw, about the role of volunteers as well as how they think volunteers impact the classroom and student performance. I also analyzed how population make up effects how much time volunteers spend at the school by running a correlation between the percentage of Hispanic students at the school and how many hours volunteers spent at Echo Shaw each year. In my presentation, I will discuss this research as well as a reflection of my two semesters of service learning at Echo Shaw. The presentation will be in Spanish.

Young, Joshua
English, Creative Writing

Project Advisor:
Walls, D.

Poems by Joshua Young

The common thread running throughout these poems is the outsider's perspective: the conflicts that arise upon encountering insiders/normals/members of the herd; the strange paths which those who have rejected—or been cast out from—the general order find themselves on; such madness and/or salvation as might be found along the way.

Zane, Michael
Art Department

Project Advisor:
Anderson, A.

Body Suits

Our outward appearance is how we express ourselves to others, and how people judge us. The concept of my project is to explore individuality and the power of self-identity. I do so by creating life-sized body suits, for specific people, using traditional and original Polynesian patterns reflecting the participant's own unique characteristics. I will explain the unique designs

for each skin and how it reflects their personal history and power of identity. Symbols in both original design and traditional Polynesian tattooing will be discussed.

Cooper, Scott
Watters, Matt
Zhong, Lin
Business

Project Advisor:
Ramaya, K.

BELOVED CAMERAS

Our Beloved Cameras is competing with other rival companies in the digital camera industry for global market leadership. Our company assembles all of the cameras in Taiwan and ships them directly to camera retailers all over the world. Beloved Cameras specializes in both high-end digital cameras as well, carrying several smaller cameras for different price points. Our strategy will make us a leader in the global marketplace without compromising our values as a socially responsible organization.

Zuroske, Troy
Computer Science

Project Advisor:
Khoja, S.

GlassRx: A Google Glass Application

The Institute of Medicine states that studies show between 400,000 and 800,000 drug-related injuries occur every year, and that these are very likely underestimates. GlassRx is a Google Glass application targeted to help lower these statistics by helping everyday users identify their medications. The main features are pill and label identification, allowing a user to take a picture of any prescription pill or name and return vital information about the pill to the user. This includes composition, dosage size, DEA codes, and an accurate picture of the pill. Other features include an interactive map feature using MapQuest's software development kit to allow the user to find the nearest hospital, a camera zoom, and the vocalization of results to the user. Using Google Glass's voice feature, the application is almost completely hands free making use very easy. This presentation will cover the processes I went through to learn how to implement custom features on the Glass and the overall application. A short demonstration will also be given to show key features in action.