URSA ENGAGE

FACULTY MENTOR SUMMARIES
2017-2018
TABLE OF CONTENTS

Division of Student Affairs................................................................. p. 2
Libraries and Press........................................................................... p. 3
College of Agricultural Sciences....................................................... p. 4
College of Business........................................................................ p. 27
College of Earth, Ocean, and Atmospheric Sciences............................ p. 31
College of Education....................................................................... p. 37
College of Engineering.................................................................... p. 38
College of Forestry.......................................................................... p. 58
College of Liberal Arts.................................................................... p. 65
College of Public Health and Human Sciences................................. p. 91
College of Science.......................................................................... p. 100

Last edited: 11.08.17
DIVISION OF STUDENT AFFAIRS

**Mentor:** Dr. Erich Pitcher

**Department:** Diversity & Cultural Engagement (Division of Student Affairs, Corvallis campus)

*able to mentor Ecampus students

**Research Focus:** Minoritized students’ experiences on campus, faculty/staff experiences with fatigue.

**Potential Student Project:** A current project that is ongoing is a photovoice project featuring the experiences of students of color. Students interested in joining the ongoing team would be able to conduct interviews, analyze data, and develop papers and presentations.

Any student-driven project that aligns with diversity and social justice issues could be supported and developed via this program.

**Attributes/skills/background sought in undergraduate:**
- Students with backgrounds in the social sciences and humanities would be a good fit
- No prior research experiences are required.
- Curiosity and a desire to learn are required
- The ability to work with a team and independently is required.

**Mentoring Plan:** I tend to meet with mentees once a week when we are first beginning to work together. After we develop a project, we meet bi-weekly to check in and make sure the project is running smoothly. For E-campus students, I would meet over the phone or via Zoom. My graduate student would also meet with the student as needed.

**Workshop Dates:** November 16, 5:00 to 6:30 PM

**Contact:** [erich.pitcher@oregonstate.edu](mailto:erich.pitcher@oregonstate.edu) / 541-767-3765
LIBRARIES AND PRESS

Mentor: Laurie Bridges

Department: Libraries and Press, Corvallis campus
*able to mentor Ecampus student

Research Focus: I'm a librarian and I'm currently researching linguistic diversity and the internet.

Potential Student Project: 1) Research and identify ways that people are working to make the internet more linguistically diverse. This includes gathering statistics and investigating non-profit and library efforts. The ability to speak a second language (Spanish, Arabic, or Chinese preferred) would also be especially useful because the student could identify efforts being made beyond the English-speaking world.

2) Research the linguistic diversity of Wikipedia including efforts to diversify.

Attributes/skills/background sought in undergraduate:

- Must love doing online research.
- Interest in languages.
- Ability to use google and library databases (but previous experience with library databases is not necessary) for research purposes.
- The student will learn to use Zotero, citation management software, as part of the project, and save articles and other related information to Zotero.

Mentoring Plan: I would meet with the intern weekly in Java II. An Ecampus student is fine, as long as we can interact over Skype.

Workshop Dates: November 16, 5:00 to 6:30 PM

Contact: laurie.bridges@oregonstate.edu / 541-737-8821

Last edited: 11.08.17
**Mentor:** Dr. Dominique Bachelet

**Department:** Biological and Ecological Engineering (College of Agricultural Sciences, Corvallis campus)

* able to mentor Ecampus students

**Research Focus:** Climate change impacts, particularly fire projections, globally, & importantly science communication

**Potential Student Project:**
1) Help organize a conference on climate change impacts communication linking arts and sciences: helping with contacting local schools to get students to provide art pieces reflecting their interpretation of climate change results; helping organizing a joint Ted Talk-like series by eloquent climate change scientists;

2) Help design web tools to share research results with 3D designs, videos, maps ...

3) Help develop modules for the dynamic global vegetation model on its particularly weak aspects

**Attributes/skills/background sought in undergraduate:**

**Required:**
- Good communication skills and enthusiasm
- Willingness to work hard

**Preferred:**
- Programming skills

**Mentoring Plan:** 5 hours a week could be met by meeting, in person or virtually twice a week for 2-2.5 hours to keep track of progress.

**Workshop Dates:** November 16, 5:00 to 6:30 PM

**Contact:** bacheled@oregonstate.edu / 360-870-5782

*Last edited: 11.08.17*
**Mentor:** Dr. John Selker

**Department:** Biological and Ecological Engineering (College of Agricultural Sciences, Corvallis campus)

*not able to mentor Ecampus students*

**Research Focus:** The development of novel, transformative tools for environmental observation and sensing.

**Potential Student Project:** Refine the "Evaporometer," an electro-mechanical device used to measure the rates of rainfall and evaporation.

**Attributes/skills/background sought in undergraduate:** Curiosity, interest in mechanical design, interest in electronic design, good team working skills, focus on quality of work, abilities in data analysis (spreadsheets, and beyond). Background in robotics, computer programming, 3-D printing all helpful, but can also be learned on the job. Interest in environmental processes is also important to this opportunity.

**Mentoring Plan:** I (Dr. Selker) am the PI of the Open-Sensing.org lab, with lab Director Dr. Chet Udell. The student would meet with eery two weeks, while the student would meet with Dr. Udell or the lead graduate student for their project at least once a week, but more likely on each visit to the lab. The undergraduate would complete weekly blog descriptions of their work, and take part in the weekly lab meetings of the team in Dr. Selker's laboratory.

**Workshop Dates:** November 16, 5:00 to 6:30 PM

**Contact:** John.Selker@Oregonstate.edu / 541-737-6304
Mentor: Dr. Brian Sidlauskis

Department: Fisheries and Wildlife (College of Agricultural Sciences, Corvallis campus)  
*not able to mentor Ecampus students*

Research Focus: The evolution and function of the bony weapons found on the heads of sculpin fishes.

Potential Student Project: Project 1: use molecular tools to infer the evolutionary relationships of the so-called “bug-eyed” sculpins (genus Enophrys). This involves tissue preparation, DNA-extraction, sequence amplification, molecular sequencing, and phylogenetic inference software.

Project 2: use data from micro-CT scans to reconstruct 3D models of sculpin skeletons, then use geometry to compare their shape across species. The involves digital “dissection” 3D shape software, and 3D printing.

Attributes/skills/background sought in undergraduate: Our lab focuses on fish biodiversity and evolution. Students with enthusiasm for those subjects are strongly preferred. After that students with some prior knowledge and demonstrated interest in genetics or anatomy are preferred. Finally, the ability to carefully follow step-by-step directions and some degree of fine motor skills are essential for virtually all potential projects in the lab.

Mentoring Plan: PI Sidlauskas will meet with the undergraduate mentee once monthly, including an lab orientation at the start of the project that will include a discussion of lab safety. The undergraduate mentee will work closely with PhD student Thaddaeus Buser throughout the research project, with at least weekly meetings. If the mentee chooses a project suitable for independent work, the weekly meeting will the form of step-by-step training in early weeks, or opportunities to discuss data analysis in later weeks. If the mentee chooses a project that requires the use of some of our more technical materials (e.g., DNA-based work, 3D imaging hardware and software, etc.) much of the work would be done in a shared office or lab setting, under the direct supervision more than once per week.

Workshop Dates: November 16, 5:00 to 6:30 PM

Contact: thaddaeus.buser@oregonstate.edu

Last edited: 11.08.17
**Mentor:** Dr. Don Lyons

**Department:** Fisheries and Wildlife (College of Agricultural Sciences, Corvallis/Newport campuses)

*able to mentor Ecampus students*

**Research Focus:** We focus on seabirds as indicators of ocean health at Yaquina Head Outstanding Natural Area in Oregon

**Potential Student Project:** 1) “Food on the fly: provisioning rates of common murre chicks” This project entails diving into the activity watch dataset, which details the rate Common Murre parents return food to their chicks, on a second-by-second basis over the course of a 24-hour period.

2) “Eagle apocalypse: where and when to nest to not get eaten” The project analyzes common murre reproductive plot data and eagle disturbance data to assess whether certain offshore rocks or locations on those rocks fair better than others

**Attributes/skills/background sought in undergraduate:**

**Required:**
- Valid driver’s license (US, any state)
- Team player, good communicator, excellent attention to detail
- Enthusiasm for field work in all weather conditions
- Physical ability to lift 30 lbs, climb several flights of stairs, use optical equipment

**Preferred:**
- Background in wildlife/animal sciences/biology/marine biology or related field
- Prior experience with databases (e.g., MS Access) and spreadsheets (e.g., MS Excel)

**Mentoring Plan:** I plan to meet one-on-one with the student for 30-minute weekly meetings approximately 1 Feb to 15 June 2018. Additionally, the student will be part of the 2-hour field season kick-off meeting, approximately 1 May. During the field season (approx. 15 May-15 June) the student will interact with graduate students and postdocs part of this project on a near-daily basis. This entire team plans to work with the student to fill out a learning contract identifying specific personal, professional, and academic goals, including how our team can help the student achieve these. Finally, in preparation for either (or both) of the OSU-sponsored undergraduate research symposia (Undergraduate Summer Research Symposium - Sept, Celebrating Undergraduate Excellence - May) I plan to interact via email and in-person up to 5 hours/week during the two weeks leading up the symposia.

**Workshop Dates:** Neither

**Contact:** don.lyons@oregonstate.edu

*Last edited: 11.08.17*
**Mentor:** Dr. Bruce McCune

**Department:** Botany and Plant Pathology (College of Agricultural Sciences, Corvallis campus)  
*not able to mentor Ecampus students*

**Research Focus:** Speciation in lichens; DNA sequencing, evolutionary trees, and secondary chemicals

**Potential Student Project:** Use DNA sequencing and phylogenetic reconstruction to reevaluate which species in a closely related group of the genus *Stereocaulon* occurs in the Pacific Northwest. Studies in coastal Alaska revealed that what we considered just one species is actually two. What is the identity of the one on the rare species lists for Oregon and Washington? One or the other or both of the Alaskan species? A species of lichen occurs in two chemical races, one northern/inland and one coastal. Two species or one?

**Attributes/skills/background sought in undergraduate:**
Required:
- Interest in a biological science
- Basic laboratory skills (e.g. high school or college chemistry and biology)

Preferred:
- Interest in natural history
- Identification of species
- Outdoor activities
- College chemistry lab class

**Mentoring Plan:** Weekly meetings with McCune to review progress, discuss and amend goals, review products. Laboratory work in McCune lab (Note: this precludes ecampus students). Consulting with various people in my lab (graduate students, technicians) during laboratory work during the award period. Weekly participation in the Lichen and Bryophyte Research Group seminar during spring term (BOT 507). Option to attend the NW Scientific Association meeting in Olympia, WA, for 3 days during spring break, 2018. This includes opportunities to attend oral presentations, poster sessions, workshops, and field trips.

**Workshop Dates:** Neither

**Contact:** mccuneb@oregonstate.edu / 541-737-1741
**Mentor:** Dr. Jan Spitsbergen

**Department:** Microbiology (College of Agricultural Sciences, Corvallis campus)
*able to mentor Ecampus students*

**Research Focus:** Goal: define host resistance, host range, life cycle of new protozoan parasite of zebrafish eggs.

**Potential Student Project:** 1) Clarify role of maternal immunity in resistance of zebrafish eggs to new protozoan parasite. Antibodies as well as innate immune factors may play roles in the host resistance to this parasite.

2) Clarify environmental reservoirs of new protozoan parasite of zebrafish eggs. Distribution of this organism and related protists in aquatic habitats near affected laboratories is important to understand.

**Attributes/skills/background sought in undergraduate:** Basic training in chemistry (required), biochemistry (preferred) or microbiology (preferred) are desirable. Experience with fish is desirable but not required.

**Mentoring Plan:** In our initial discussions, the student and I will define a realistic project for them to complete during their undergraduate program. Typically I meet twice weekly or more with students to review research planned and conducted recently, examine findings and discuss logical next steps for the project they have chosen. I collaborate with molecular parasitologist Dr. Stephen Atkinson, who will assist in supervision of molecular investigations of parasites and immune responses.

**Workshop Dates:** December 1, 5:00 to 6:30 PM

**Contact:** jan.spitsbergen@oregonstate.edu / 541-905-6808

*Last edited: 11.08.17*
Mentor: Dr. Carlos Ochoa

Department: Animal and Rangeland Sciences (College of Agricultural Sciences, Corvallis campus)
*not able to mentor Ecampus students

Research Focus: Ecohydrology: Land use effects on water quality/quantity issues in watershed & riparian systems.

Potential Student Project: These two potential projects are part of a broader research initiative going on in the Oak Creek Watershed, which includes OSU property along Oak Creek, from its tributaries in the MacDonald-Dunn Forest to its confluence with Marys River.

Project 1. Water Quality Indicators (temperature, nitrates) as affected by agriculture-related activities.

Project 2. Creativity, Innovation, and Technology: Think out of the box to solve environmental problems of concern. (Teams of 2-3 students are desired

Attributes/skills/background sought in undergraduate:

- Responsible, hardworking, familiar with computers (Word, Excel) - required skills
- Creative solution solver, interested in the environment, interested in both outdoor and lab work - desired attributes.
- These are some of the general activities student will be involved in, so any background on it is a plus: Assist with scientific equipment installation and lab/field data collection. Help with data organization and preliminary analysis and graphing using Excel. Assist and will be responsible for his/her own report preparation related to this research involvement. Participate in creative thinking sessions aimed to develop different ways of solving an issue.

Mentoring Plan: The mentee and I will meet on a weekly basis to evaluate research progress and to determine if changes are needed. The mentee will be in constant communication and collaboration with several of the graduate students in my lab. The mentee will meet once a week with at least one of the graduate students. Also, he/she will participate as part of the team in the monthly lab meetings we have to discuss various research project activities.

Workshop Dates: November 16, 5:00 to 6:30 PM

Contact: carlos.ochoa@oregonstate.edu
**Mentor:** Dr. Michelle Kutzler

**Department:** Animal and Rangeland Sciences (College of Agricultural Sciences, Corvallis campus)  
*able to mentor Ecampus students*

**Research Focus:** My research focuses on companion animal (dog and cat) reproduction and veterinary science.

**Potential Student Project:** As a veterinarian, I am very interested in researching clinically relevant topics. I am interested in discussing other options, but here are a few ideas: 1) Brucella canis is a zoonotic disease in dogs that was rare in Oregon but has been reported with increased frequency over the past 10 years due to the importation of shelter dogs into Oregon from other countries. 2) On average, 20% of all newborn kittens and puppies will die in the first 3 weeks of life without a cause of death identified.

**Attributes/skills/background sought in undergraduate:** Undergraduate mentees should be honest and dependable (required) with a basic knowledge of companion animals and mechanisms of disease (preferred).

**Mentoring Plan:** I will work closely with the undergraduate mentee, meeting at least once weekly to review progress, set goals, and develop timelines for completion. The mentee will have my cell phone number so that he/she may call/text me any time with concerns or questions. In addition, I will meet with the mentee and other students working in my laboratory 5 times each term during regularly scheduled lab meetings. On a daily basis, the mentee will also be able to interact closely with other undergraduates and graduate students working in the lab.

**Workshop Dates:** December 1, 5:00 to 6:30 PM

**Contact:** michelle.kutzler@oregonstate.edu / 541-737-1401
Mentor: Dr. David Williams

Department: Environmental and Molecular Toxicology/Linus Pauling Institute (College of Agricultural Sciences, Corvallis campus)
*not able to mentor Ecampus students

Research Focus: The focus is on chemical carcinogens in the environment and the protective effect of phytochemicals.

Potential Student Project: 1) Zebrafish as a model to study growth of human tumors.

2) Pregnant mice in the study of transplacental carcinogens and how the fetus can be protected in utero by supplementing the maternal diet.

3) Study the absorption, metabolism and excretion of chemical carcinogens in humans.

4) Epigenetic mechanisms of cancer prevention.

Attributes/skills/background sought in undergraduate:

Required:  
- Motivation
- Dependability
- Integrity

Preferred:
- Some analytical skills
- Organic chemistry and or biochemistry

Mentoring Plan: I have no set office hours and undergraduates are encouraged to engage me often especially at the beginning of a project. The entire laboratory personnel meet weekly to discuss research progress. Undergraduates currently are being trained by Ms. Beth Siddens, a Senior Faculty Research Assistant and she spends a significant amount of time training students (undergraduate and graduate).

Workshop Dates: Neither

Contact: david.williams@oregonstate.edu

Last edited: 11.08.17
**Mentor:** Andrew Ross

**Department:** Crop and Soil Science/Food Science and Technology (College of Agricultural Sciences, Corvallis campus)

*not able to mentor Ecampus students*

**Research Focus:** The science and craft of milling and baking whole-grains, including wheat and barley breeding

**Potential Student Project:** 1) The impact of whole-wheat flour age on the vigor, chemistry, and flavor and aroma of whole-wheat sourdough starters and breads.

2) The impact of barley protein concentration on the use of whole-grain naked barley in breadmaking with composite flours.

3) The impact of flour temperature in stone-mills on gluten protein characteristics (HPLC, FTIR, electrophoresis) and baking quality of flour

**Attributes/skills/background sought in undergraduate:**

- Interest in foods and grain-based foods (required)
- Interest in chemistry (required)
- Reasonable understanding of high school or freshman level chemistry and biology (preferred)
- Experience in baking (would be really useful but not essential)

**Mentoring Plan:** Professor meets student weekly (except where travel commitments preclude) to provide background and context for experiment[s] and training in baking techniques if applicable. Research Associate meets weekly to provide training in analytical and flour functionality tests and is responsible for oversight of lab activities. Ecampus is not included as hands-on lab work will be a substantial component of the work. The labs are facilities that handle and process wheat: we recommend that individuals with celiac disease or suspected wheat sensitivities do not apply.

**Workshop Dates:** Neither

**Contact:** andrew.ross@oregonstate.edu
**Mentor:** Dr. Fiona Tomas Nash  

**Department:** Fisheries and Wildlife (College of Agricultural Sciences, Corvallis campus)  
*not able to mentor Ecampus students*  

**Research Focus:** Ecology and conservation of estuarine habitats  

**Potential Student Project:** 1) Assessing epifaunal communities in eelgrass communities of Oregon estuaries.  
2) Monitoring bird communities associated with seagrass beds in Oregon estuaries.  

Eelgrass (Zostera marina) forms rich underwater forests in estuaries along the Oregon coast that provide food and habitat for numerous species. While very important ecologically, these ecosystems remain largely understudied and so we aim to characterize some of the animal communities associated with them.  

**Attributes/skills/background sought in undergraduate:**  
- Good organization skills  
- Good communication skills  
- Background in invertebrate or bird taxonomy and ecology preferred  
- Being comfortable in the laboratory as well as in the field (e.g. cold days out collecting animals or counting birds)  

**Mentoring Plan:** Depending on the student schedule (whether they are doing the 5 hours one day a week, or they spread them throughout the week), the meeting calendar would change but, a priori, I would mentor students via a weekly meeting, although I would be available when needed for urgent matters. I would also have one graduate student that would closely mentor and supervise the student as necessary (presumably on a more daily basis at the beginning of the internship and potentially on a weekly basis later on)  

**Workshop Dates:** November 16, 5:00 to 6:30 PM, December 1, 5:00 to 6:30 PM  

**Contact:** fiona.tomasnash@oregonstate.edu
**Mentor:** Dr. Jeff Chang

**Department:** Botany and Plant Pathology (College of Agricultural Sciences, Corvallis campus)  
*not able to mentor Ecampus students*

**Research Focus:** We work on understanding mechanisms, evolution, and ecology of plant-microbe interactions.

**Potential Student Project:** 1) We have identified strains of bacteria that show antagonistic activities against plant pathogenic organisms. A student working on this project has an opportunity to study fundamentals on competition between bacteria, while at the same time, developing a potential product that could be deployed in an agricultural setting.

2) We are also characterizing the microbial communities associated with diseased plants. Students can learn about cutting edge technology and microbial ecology.

**Attributes/skills/background sought in undergraduate:**
- Attributes: persistence, willingness to be challenged, willingness to be guided, no fear of asking questions or making mistakes, excellent work ethic.
- Skills: strong quantitative skills (math/statistics/computer science).
- Background: no preference.

**Mentoring Plan:** Undergraduate students are paired with a senior scientist, typically a postdoc and will interact daily with their mentor. As the student gains more confidence and independence, we are less stringent and let the student decide when guidance is needed. In addition, students are expected to present their work at lab meetings. I have an open door policy and have ad hoc meetings with the students to assess their progress. I am not interested in mentoring an Ecampus student. The daily interactions are critical for social learning and gaining experience in communication and team work. It is also important for me to know them and in the future, write meaningful letters of support.

**Workshop Dates:** Neither

**Contact:** changj@science.oregonstate.edu
**Mentor:** Dr. Massimo Bionaz

**Department:** Animal and Rangeland Sciences (College of Agricultural Sciences, Corvallis campus)

*not able to mentor Ecampus students*

**Research Focus:**
Nutrigenomics, milk and human, dairy cows welfare/management, systems biology

**Potential Student Project:** Evidence suggests that milk contains exosomes transporting micro RNA (miRNA) that can have affect on human health. It has however not been definitively demonstrated that the miRNA from milk exosomes can cross the intestinal barrier and get into the circulation. The objective of this project is to determine if miRNAs present in cow’s milk exosomes are horizontally transferred into the blood stream through intestinal absorption. This will be done using stable isotope tracing in vivo.

**Attributes/skills/background sought in undergraduate:**

**Required:**
- Motivation
- Determination
- Work ethic
- Good understanding of physics and biochemistry

**Preferred:**
- Availability of time spanning several hour in one day (or alternatively willing to work during the week-end or vacation time)

**Mentoring Plan:** I plan to meet once for 2h to talk about the project, expectations, and strategic planning. Afterwards, I expect to meet once every other week for 1h to talk about progress, issue, or any need of the student. During that meeting I expect the student to discuss accomplishment during the last two weeks and propose a plan for the next 2 weeks with clear milestone to be accomplished. I also expect the student to help writing the manuscript for publication in peer-reviewed journal and, if opportunity arise, also to present results in a conference.

**Workshop Dates:** November 16, 5:00 to 6:30 PM

**Contact:** massimo.bionaz@oregonstate.edu / 5417379507

_Last edited: 11.08.17_
**Mentor:** Dr. Massimo Bionaz

**Department:** Animal and Rangeland Sciences (College of Agricultural Sciences, Corvallis campus)

*Not able to mentor Ecampus students*

**Research Focus:**
Nutrigenomics, Milk and Human Health

**Potential Student Project:** The objective of this project is to characterize cells magnetically isolated from cow milk using an antibody against bovine mucin 15. In particular the student will 1) test the mucin 15 antibody custom-produced by a company; 2) characterize in vitro the cells magnetically isolated using the antibody; and 3) compare the cells positively and negatively isolated from milk using the antibody.

**Attributes/skills/background sought in undergraduate:**

Expected:
- Motivation
- Very good work ethic

Preferred:
- Knowledge on cell biology

**Mentoring Plan:** I expect to meet for 2h with the student to discuss about the project in details and produce a strategic plan. I will expect the student to attend our lab meeting held once every other week. I plan to meet with the student to check for progress and discuss about the project 1h every other week.

**Workshop Dates:** November 16, 5:00 to 6:30 PM

**Contact:** massimo.bionaz@oregonstate.edu / 5417379507
**Mentor:** Dr. Susanne Brander

**Department:** Environmental and Molecular Toxicology (College of Agricultural Sciences, Corvallis campus)

*not able to mentor Ecampus students*

**Research Focus:** Dr. Susanne Brander studies hormone disruption due to pollutant exposure in aquatic organisms.

**Potential Student Project:** Project 1: Student will assist a technician at the Hatfield Marine Science Center with maintenance of broodstock (inland silversides). The broodstock offspring will be used to test the effects of aquatic pollutants on endpoints such as gene expression, reproductive capacity, and development.

Project 2: Student will assist a Ph.D. student in the processing of fish samples collected from a multi-generational exposure experiment. Endpoints of interest include DNA methylation and gene expression.

**Attributes/skills/background sought in undergraduate:** Students with previous experience maintaining aquaria, either at home or professionally, are preferred for project #1, but this is not an absolute requirement. For project #2, students should at least have some experience from lab courses using pipettes and working in a lab setting, but said experience need not be extensive.

**Mentoring Plan:** The undergraduate mentee would meet biweekly (7-8 times) with Dr. Brander, and on at least weekly basis with a PH.D. student and / or post-doc (15 - 20 times). Meetings with the Ph.D. student and/or post-doc would be brief, occurring prior to beginning work for the day, and may occur more than once weekly depending on the mentee's lab schedule. The student would need to be physically present in the lab to conduct the work described below.

**Workshop Dates:** December 1, 5:00 to 6:30 PM

**Contact:** susanne.brander@oregonstate.edu / 707-227-0384
**Mentor:** Dr. Laurent Deluc

**Department:** Horticulture (College of Agricultural Sciences, Corvallis campus)

*not able to mentor Ecampus students*

**Research Focus:** The mentee will join a team studying the regulation of the fruit ripening in grapevine.

**Potential Student Project:** Several of our research objectives are well advanced including transient assays on strawberry to evaluate the function of one candidate gene.

Under supervision of a post-doc, the undergraduate will be involved in measuring the impact of constitutive expression of a regulatory protein on gene expression. This will include Real-Time PCR assay.

The undergraduate will also be involved in the genetic engineering of a grapevine system to gain or lose the function of candidate genes.

**Attributes/skills/background sought in undergraduate:** The undergraduate should be motivated and eager to learn new technics in sciences mostly in molecular biology and plant physiology as part of its career plan. The background in biochemistry and/or in biology is required.

**Mentoring Plan:** The mentee will be under the direct supervision of the post-doctoral and the progress on the tasks for the undergraduate will be evaluated every week when the post-doc, the mentee and the PI will meet.

**Workshop Dates:** Neither

**Contact:** laurent.deluc@oregonstate.edu / 541-737-4356
Mentor: Dr. Jennifer Parke

Department: Crop and Soil Science/ Botany and Plant Pathology (College of Agricultural Sciences, Corvallis campus)
*not able to mentor Ecampus students*

Research Focus: Ecology of plant-associated soil microbes; plant diseases.

Potential Student Project: A. Study biological control of a plant pathogen. Phytophthora cinnamomi is a plant pathogen that causes root rot disease on blueberry. We will study how a biocontrol fungus, Trichoderma harzianum, interacts with Phytophthora and determine whether this interaction influences the microbial community around roots.

B. Phytophthora ramorum is a plant pathogen that causes sudden oak death. In lab experiments, we will determine the limit of detection for P. ramorum in soil using real-time PCR.

Attributes/skills/background sought in undergraduate: High school biology (required); college introductory biology (preferred); hard working, enthusiastic, reliable (required)

Mentoring Plan: Dr. Neelam Redekar, my postdoctoral scholar, will be supervising the project, and training the URSA Engage student mentee under my guidance. The student mentee and the postdoc mentor will spend their first week designing the experiment, and preparing for the planned research activities. Student mentee will receive required training and educational resources prior to the experiments. Once the training is finished, the student mentee will perform research activities independently. The student mentee and mentor will meet at least once per week (15 meetings at minimum) to discuss work progress, troubleshoot current experiments, and plan future events. In addition, the student mentee can interact with the mentor in the lab, via email, or in the mentor’s office.

Workshop Dates: December 1, 5:00 to 6:30 PM

Contact: Jennifer.Parke@oregonstate.edu

Last edited: 11.08.17  20
Mentor: Dr. James Myers

Department: Horticulture (College of Agricultural Sciences, Corvallis campus)  
*not able to mentor Ecampus students*

Research Focus: Develop improved cultivars with virus resistance, better seed color and size of Peruano dry beans.

Potential Student Project: The student research program would be part of a larger project to develop improved Peruano (yellow seeded) dry bean cultivars. The mentee would learn how to use marker assisted selection for virus resistance to combine these traits with improved seed color and seed size in a set of double cross populations. Activities would take place in the greenhouse and laboratory.

Attributes/skills/background sought in undergraduate:

Required:
- Interest in plant breeding
- Curiosity
- Commitment to following through on a project

Preferred:
- Knowledge of plant genetics
- Laboratory experience

Mentoring Plan: Activities would take place in laboratory and greenhouse. I will meet with mentee once a week to monitor progress with activities. My two faculty research assistants would interact with the mentee on a daily basis to supervise seed production activities in the greenhouse and DNA isolation/amplification/marker assisted selection activities in the lab.

Workshop Dates: Neither

Contact: james.myers@oregonstate.edu
Mentor: Dr. Susan Tilton

Department: Environmental and Molecular Toxicology (College of Agricultural Sciences, Corvallis campus)
*not able to mentor Ecampus students

Research Focus: We use systems biology/genomics and computational approaches to understand chemical risk to humans.

Potential Student Project: Reliable human-based in vitro systems are essential for predictive toxicology. (1) We will use a 3D reconstructed human respiratory model to test chemical toxicity compared to traditional cell culture in 2D monolayer. We propose to test sensitivity for toxicity among several endpoints, including cytotoxicity, oxidative stress, inflammation, genotoxicity and metabolism. (2) We can compare endpoints between normal and diseased lung donors to evaluate pre-existing disease as a risk factor.

Attributes/skills/background sought in undergraduate: Strong interest in laboratory research, interest in toxicology/biochemistry/genomics, excellent written and oral communication skills.

Mentoring Plan: I will plan to meet with the mentee through weekly meetings that include personal 1-on-1 meetings about their project and group lab meetings with other members of my lab. I also have a senior faculty research assistant who will work very closely with the undergraduate mentee in the lab on various molecular techniques. My lab meets weekly to discuss ongoing research projects and allows each student to provide a more in-depth presentation of their lab work 1-2 times per term.

Workshop Dates: Neither

Contact: susan.tilton@oregonstate.edu

Last edited: 11.08.17
Mentor: Dr. John Chapman and Dr. Sarah Henkle

Department: Fisheries and Wildlife (College of Agricultural Sciences, Hatfield Marine Science Center)
*able to mentor Ecampus students

Research Focus: Seasonal growth of invertebrates below the surface coastal thermocline.

Potential Student Project: 1) Measure the diameters of small clams collected from below the coastal thermocline to estimate of their growth over time. Their growth patterns can be used to test whether the deep living organisms starve in summer, when the famous up-welling conditions occur, and possibly feast in winter, when the less well known down-welling conditions occur.

2) Measure photo images of deep water clam growth rings to compare with their changes in diameter in different seasons.

Attributes/skills/background sought in undergraduate: Interest in biology, ecology and conservation required. Also, rudimentary knowledge of word processing and spread sheets required. All other skills will be introduced in the course of the project.

Mentoring Plan: I would consider mentoring ECampus student willing to communicate by Skype, Webex or other teleconference venue but a student willing to visit the HMSC campus at least twice for hands on experience would be preferred.

Workshop Dates: Neither

Contact: John.Chapman@OregonState.Edu / 541 867-0235
**Mentor:** Dr. Melanie Link-Perez

**Department:** Botany & Plant Pathology (College of Agricultural Sciences, Corvallis campus)  
*not able to mentor Ecampus students*

**Research Focus:** I am broadly interested in the evolution & diversification of plants, with a strong focus on ferns.

**Potential Student Project:** One project is focused on using molecular techniques (DNA, polymerase chain reaction) to address a conservation problem surrounding the endangered native Gentner's Fritillary (wildflower). This species often grows in mixed populations with another Fritillary and the two are indistinguishable when not in flower. We'll develop tools to help conservationists assess population size of this listed species.

Another project will examine & describe 15 Brazilian fern species for their online flora.

**Attributes/skills/background sought in undergraduate:** Students should have an interest in plants (required for fern project, preferred for molecular project) and at least one biology course (required). Student must be able to focus on details, follow protocols, obtain measurements, and keep accurate records. Ability to take direction and seek help when needed is of critical importance. I will train, so no prior experience in the molecular lab or in plant morphology is needed.

**Mentoring Plan:** I will meet with mentee each week to discuss progress of the work and plan the week’s activities. During the first few weeks, we will work side by side so I can train the mentee.

**Workshop Dates:** November 16, 5:00 to 6:30 PM

**Contact:** melanie.link-perez@oregonstate.edu
Mentor: Dr. Linda Hardison

Department: Botany & Plant Pathology (College of Agricultural Sciences, Corvallis campus)  
*not able to mentor Ecampus students

Research Focus: We study Oregon plants and their distribution, details, and how they integrate into agricultural lands.

Potential Student Project: We’re interested in how native plants & habitats can integrate into agricultural lands; e.g., determine best practices for selecting appropriate native species, then introduce & maintain them as cover crops between berries or grapevines. Another study is how to restore wetlands in pastures and use controlled grazing to maintain them to the benefit of plants and animals. We’re also developing a detailed web resource (a flora) about Oregon plants that includes tools for gardening with natives.

Attributes/skills/background sought in undergraduate: An interest in learning about biology and/or botany (required).

Mentoring Plan: I will meet with mentees weekly. One of the described projects would have the undergraduate under the direct supervision of one of my staff members (Ph.D. research associate); therefore, that student would also interact weekly with the staff member.

Workshop Dates: November 16, 5:00 to 6:30 PM, December 1, 5:00 to 6:30 PM

Contact: hardisol@science.oregonstate.edu / 541-737-4338

Last edited: 11.08.17
Mentor: Laurent Deluc

Department: Horticulture (College of Agricultural Sciences, Corvallis campus)
*not able to mentor Ecampus students

Research Focus: This project focuses on genetic and physiological characterization of Brachypodium mutant lines.

Potential Student Project: The undergraduate student will be involved in two projects.

The first project consists of the observation of Brachypodium lines deficient for Strigolactone synthesis and signaling, a plant hormone involved in root growth, under different growing conditions. Assessing plant architecture, shoot and root biomass at maturity, number and size of the reproductive tissue, gas exchange measure.

The second project will focuses on PCR tests to determine where the mutation is located in the mutants.

Attributes/skills/background sought in undergraduate: The undergraduate students should be interested in plant physiology and genetics. A background in botany or biochemistry is preferred.

Mentoring Plan: The undergraduate student will be under the direct supervision of the PI with one hour individual meeting to define the tasks on the bench on a weekly basis. During the first month, the undergraduate mentee will get hands-on by the PI on basics for molecular biology (DNA extraction, PCR assays) and plant physiology (preparation of nutrient solution).

Workshop Dates: Neither

Contact: laurent.deluc@oregonstate.edu / 541-737-4356
**Mentor:** Dr. Jimmy Yang

**Department:** Finance (College of Business, Corvallis campus)
*able to mentor Ecampus student*

**Research Focus:** International financial markets; financial market regulations; global financial crisis

**Potential Student Project:** 1) What have we learned from the global financial crisis?
2) The effectiveness of financial market regulations that are designed to stabilize the markets

**Attributes/skills/background sought in undergraduate:**
- Strong interest in the financial markets

**Mentoring Plan:** Once a week. For Ecampus students, WebEx can be used.

**Workshop Dates:** Neither

**Contact:** jimmy.yang@bus.oregonstate.edu
**Mentor:** Dr. Jonathan Kalodimos

**Department:** Finance (College of Business, Corvallis campus)

*not able to mentor Ecampus student*

**Research Focus:** I focus on the interplay between corporate governance and financial regulation.

**Potential Student Project:** 1) One project is joining a team studying if climate change is a systemic risk to the financial system.

2) A second project involves setting up the technological "back end" in order to support interactive large-ish (~1Tb) data analysis in finance.

**Attributes/skills/background sought in undergraduate:**
- Student motivation is all that is required. Experience with programming would be helpful.

**Mentoring Plan:** I would meet with the mentee once a week and incorporate them into my finance research agenda.

**Workshop Dates:** November 16, 5:00 to 6:30 PM

**Contact:** jonathan.kalodimos@oregonstate.edu / 541-737-6027
Mentor: Dr. Shan He

Department: Finance (College of Business, Corvallis campus)
*able to mentor an Ecampus student

Research Focus: Security issuing, institutional investors, corporate restructuring & governance, artificial intel.

Potential Student Project: 1) Apply machine learning technology in trading data to detect informed trading--such a project require higher skill sets in machine learning, programming languages, security trading, pricing, and performance measure. Will consider only if candidate possess relevant skills and are extremely motivated

2) A survey study on people's financial service accessibility and its social impact

3) News, fake news, and social media on security price

Attributes/skills/background sought in undergraduate:
- Understand basic financial concepts and has deep interest in learning more, motivated. Communicate ideas and concept well in writing. Have good intuition on data and able to collect, organize, process, and analyze data for research purpose.

Mentoring Plan: Depending on stages of the research, meeting once or twice per week supplemented with email communications are expected. Meeting may take place either in person or online via online tools such as Skype or WebEx, etc.

Workshop Dates: December 1, 5:00 to 6:30 PM

Contact: shan.he@oregonstate.edu
**Mentor:** Dr. Andrea Marks

**Department:** Design Programs (College of Business, Corvallis campus)

*not able to mentor Ecampus students*

**Research Focus:** How do students from differing majors synthesize/problem-solve using design thinking methodologies?

**Potential Student Project:** I am working on one specific study that I am interested in having a student work with me on and the research will take place during winter term, 2018. I am collecting research from 2 sections of a course I teaching on Design Thinking and I am interested to see how students from differing majors (in the College of Business Design Programs) utilize design thinking methods in solving problems.

I will be administering several Qualtrics surveys and looking at student's process binders for results.

**Attributes/skills/background sought in undergraduate:** Ideally, a student who has basic skills using Excel (as that is where we will collect the Qualtrics data) and good organizational skills. There will be 40-45 students total (split between 2 sections) and there will be 3 times during the spring term where I will be looking at process binders and analyzing results of student's process throughout one of the projects.

The undergraduate mentee would also have to be certified through CITIE to work on IRB approved research. This is an online course that is a good experience for any undergrad to go through (it does not take long). Certification is good for 3 years. One does NOT have to be certified before getting in touch with me about mentoring.

**Mentoring Plan:** I expect to meet with my mentee once a week or every other week for 20-30 minutes (or as needed) in my office in Austin 340 and the mentee would most likely spend an average of 5 hours a week on the project for 15 weeks.

**Workshop Dates:** Neither

**Contact:** [andrea.marks@oregonstate.edu](mailto:andrea.marks@oregonstate.edu) / 541-737-1120
**COLLEGE OF EARTH, OCEAN, AND ATMOSPHERIC SCIENCES**

**Mentor:** Dr. Shan de Silva

**Department:** Geology and Geophysics (College of Earth, Ocean, and Atmospheric Sciences, Corvallis campus)

*able to mentor Ecampus students*

**Research Focus:** I am interested in how volcanoes on the Earth and other terrestrial planets work.

**Potential Student Project:** 1) How do the magmas that erupt explosively form?

Volcanism on the Earth ranges from passive lava effusions like in Hawaii, to catastrophic explosive eruptions like at Mt St Helens, in 1980. Why do we get such a range of eruptions?

2) How does crystal-rich magma erupt?

Magma cannot move when it has lots of crystals in it and it is generally accepted that once a magma has 50% crystals in it, but many recent eruptions violate that rule. Addressing this paradox is critical to predicting eruptions

**Attributes/skills/background sought in undergraduate:**

- Good communication and writing skills
- Two terms of math, physics, and chemistry or permission of mentor.
- Introductory Geology
- Students should have completed the introductory field course (GEO 295)

**Mentoring Plan:** Mentoring will be for on-campus students primarily, although e-campus students may be considered.

1) Weekly group meetings for my lab group that the mentee will be part off

2) Individual meetings to set goals for the week and track progress.

3) Training in required skills and techniques by mentor and graduate students

4) After training upto 10 hours per week of supervised and then unsupervised work in the lab

**Workshop Dates:** Neither

**Contact:** desilvas@geo.oregonstate.edu / 5417371212

*Last edited: 11.08.17*
Mentor: Dr. Alyssa Shiel

Department: College of Earth, Ocean, and Atmospheric Sciences (Corvallis campus)
*not able to mentor Ecampus students*

Research Focus: Dr. Shiel investigates sources, transformations, transport, and fate of metals in the environment.

Potential Student Project: Several potential projects in Dr. Shiel's lab focus on air quality in natural and urban environments. Potential projects include an investigation of lead sources in forests across the Pacific Northwest. These projects use moss and lichens as archives of atmospheric metal deposition. Other potential projects will be centered on improving our understanding of the uptake and loss of metals from moss and lichen tissues through lab and field experiments.

Attributes/skills/background sought in undergraduate: Students should be enthusiastic about the research projects available. Students should enjoy spending time both in the lab and the field and be interested in gaining hands-on experience with analytical techniques. General chemistry and an interest in chemistry are required.

Mentoring Plan: At the start of the project, Dr. Shiel and the mentee will develop the project goals and a timeline together. Dr. Shiel and the mentee will meet one on one each week to discuss plans for the week, progress, and challenges. The mentee will attend the biweekly lab group meeting to interact with the other students in Dr. Shiel's lab group. Dr. Shiel, senior graduate students, and the lab manager will all participate in the training of the mentee.

Workshop Dates: Neither

Contact: ashiel@ceoas.oregonstate.edu / 541-737-5209
**Mentor:** Dr. Jennifer McKay, Dr. Jennifer Fehrenbacher

**Department:** College of Earth, Ocean, and Atmospheric Sciences (Corvallis campus)
*not able to mentor Ecampus students*

**Research Focus:** We develop and use proxies for reconstructing past ocean circulation, temperature and chemistry.

**Potential Student Project:** Foraminifera, single-celled animals that live in the ocean, make shells of calcium carbonate. These shells record information about the seawater in which the foraminifera live and are an important tool in paleoceanography. A number of projects that utilize foraminifera are available. E.g., in sediment cores from the N. Atlantic a species of cold-water foraminifera disappears during warm times over the past 120,000 years. The question is, were waters too warm or did the foraminifera dissolve.

**Attributes/skills/background sought in undergraduate:**

**Required:**
- Detail oriented
- An ability to handle tedious tasks
- Excellent manual dexterity

**Preferred:**
- An interest in the oceans and/or earth sciences

**Mentoring Plan:** One or both of the mentors (Jennifer McKay or Jennifer Fehrenbacher) will meet with the undergraduate mentee on a weekly basis. These meetings will involve training the student to conduct lab work and assisting with data collection when needed. Toward the end of the project these meetings will focus on data interpretation and preparing their poster presentation for the Summer Undergraduate Research Symposium.

**Workshop Dates:** November 16, 5:00 to 6:30 PM

**Contact:** mckay@coas.oregonstate.edu or fehrenje@coas.oregonstate.edu

*Last edited: 11.08.17*
**Mentor:** Dr. Andreas Schmittner

**Department:** College of Earth, Ocean, and Atmospheric Sciences (Corvallis campus)  
*not able to mentor Ecampus students*

**Research Focus:** My research focuses on better understanding the role of the global ocean in the climate system.

**Potential Student Project:** 1) Analysis of a series of computer climate model simulations investigating how atmospheric CO2 concentrations affect ocean circulation. The student would learn to work on a UNIX/LINUX environment using the software FERRET for the model analysis and visualizing results.

2) Compiling and analyzing reconstructions of Holocene (last 10,000 years) climate variations on hundred-year to thousand-year timescales from public data repositories.

**Attributes/skills/background sought in undergraduate:** Good math and physics skills. Interest in climate science.

**Mentoring Plan:** I do not have a rigid schedule of meetings and prefer to be flexible considering the needs of the student. As a rule of thumb I suggest weekly meetings. During the early stages of a project more frequent meetings may be necessary, whereas during later stages less frequent meetings may be required. Initially it may be useful to schedule regular meetings. I practice an open-door policy, which means that during regular office hours I'm available in my office most of the time as signaled by an open office door. This gives the student the opportunity for unscheduled meetings most of the time. I'm committed to at least weekly meetings and in the case I should be traveling the student can meet with my postdoc Juan Muglia.

**Workshop Dates:** November 16, 5:00 to 6:30 PM

**Contact:** [aschmitt@coas.oregonstate.edu](mailto:aschmitt@coas.oregonstate.edu) / 541 737 9952
**Mentor:** Peter Ruggiero

**Department:** College of Earth, Ocean, and Atmospheric Sciences (Corvallis campus)
*not able to mentor Ecampus students*

**Research Focus:** My research group is focused on understanding the ecomorphodynamics of coastal sand dunes.

**Potential Student Project:** Pacific City Dune Project: The town of Pacific City is updating their dune management plan which dictates policies about when and where they can grade dunes and how often to plant stabilizing grasses. This project will involve data collection and modeling to aid the city.

South Beach State Park Dunes: A new dune is being constructed and beach grasses planted to stabilize blowing sand. This project will involve data collection (possibly with drones!) and analysis to assess the project.

**Attributes/skills/background sought in undergraduate:**

**Required:**
- Hard working
- Enthusiastic
- Interest in coastal change

**Preferred:**
- Quantitative
- Experience with coding and data analysis
- Surfer

**Mentoring Plan:** I will meet with the undergraduate mentee at least once every other week (>5 times per term). In addition, my graduate students will meet with the undergraduate mentee once a week (10 time per term). In fact, the undergraduate mentee will have the opportunity to participate in a very dynamic lab environment with as many as 8 graduate students, 1 or more other undergraduates, 2 technicians, and additional faculty beyond myself.

**Workshop Dates:** December 1, 5:00 to 6:30 PM

**Contact:** pruggier@coas.oregonstate.edu / 541-737-1239
**Mentor:** Dr. Justin Wettstein

**Department:** College of Earth, Ocean, and Atmospheric Sciences (Corvallis campus)

**Research Focus:** I focus on planetary-scale climate variability and change in both basic and applied projects.

**Potential Student Project:** Ex. 1 (basic): Connections between the tropics, midlatitudes, and polar regions. Climate variability and change in one area can pervade across broad climate regions. Several known connections are poorly understood and need attention.

Ex. 2 (applied): Both conventional and renewable energy supply and demand are influenced by climate variability and change. Wind, sun, and stream discharge temperature control or influence supply. Changing temperatures influence demand. Which is more important?

**Attributes/skills/background sought in undergraduate:**

- The most important attribute is that the student researcher is genuinely interested in getting a realistic taste of cutting-edge science research and making a contribution on a particular clearly identified topic (definitely not restricted to the two required examples provided).
- It is helpful to have a background in a scientific, technical, or otherwise analytical field or be interested in pursuing one, but this is not necessary.
- Particular skills that can make analytical research more efficient, productive, and rewarding include technical computing skills and quantitative analytical skills (e.g., statistics), but these are also not necessary as we can together identify a research topic well-suited for you, the student researcher.

**Mentoring Plan:** My mentoring plan for URSA Engage student researchers is to meet twice in the first week, the first as an introduction, to clearly define the goal and boundaries of the student research, and to clarify any other expectations the student or I might have.

Later in the first week and for each subsequent week, we will have set weekly meetings to review progress as well as new opportunities and challenges. The last week will also have two set meetings so that we can take the extra time to draft and review the results from the research. Extra meetings are possible if needed, but the research meetings described above are the minimum expectation.

**Workshop Dates:** November 16, 5:00 to 6:30 PM

**Contact:** justinw@coas.oregonstate.edu / 541-737-5177 (e-mail preferred)
**COLLEGE OF EDUCATION**

**Mentor:** Dr. Shawn Rowe

**Department:** Oregon Sea Grant Free-Choice Learning/Science and Math Education (Research Office, College of Education, Corvallis/Hatfield Marine Science Centre campus)
*able to mentor Ecampus students

**Research Focus:** I do research on how people of all ages learn when they aren't in school -- cognition in the wild.

**Potential Student Project:** Because we run the museum at Hatfield Marine Science Center, we have multiple research projects related to how exhibits, live animals, and programs communicate science. Each of these has excellent options for discreet research projects that could be done in 15 weeks related to learning.

We do eye-tracking research (a machine that tracks where your eyes go and how long they stay there when you are looking at something) and have a project on how people understand scientific posters.

**Attributes/skills/background sought in undergraduate:**
- Outgoingness -- we have to recruit participants in public spaces
- Familiarity with excel
- A science background is helpful but not necessary
- An interest in social science research is necessary
- Experience with prior research is not necessary, but a willingness to learn research methods is
- Experience doing a basic literature search is necessary
- Ability to travel to Newport (by car or public transportation or carpool) is required

**Mentoring Plan:** I have a weekly lab meeting for all students working with me. An URSA undergraduate student would be folded into those 1.5 hour meetings each week, and if necessary, we would have a 1 hour meeting separately.

I am glad to host an Ecampus student as I have advised ecampus masters students. We would meet once a week on Skype or Zoom meeting, and the student would be invited to the lab meetings as each week we host them on Zoom as well.

**Workshop Dates:** December 1, 5:00 to 6:30 PM

**Contact:** shawn.rowe@oregonstate.edu / 541-867-0190
**Mentor**: Dr. David Ullman

**Department**: School of Mechanical, Industrial, and Manufacturing Engineering (College of Engineering, Corvallis campus)
*able to mentor Ecampus students*

**Research Focus**: Assist in taking wind tunnel data on advanced distributed electric propulsion configurations.

**Potential Student Project**: See mentoring plan.

**Attributes/skills/background sought in undergraduate:**

**Required:**
- Interest in aviation
- Ability to make things work
- Model airplane or drone experience helpful but not necessary
- Ability to manage their own time (this project could suck a student in to the detriment of other classes)
- 5 wheels to travel to Independence because that is where the equipment is

**Mentoring Plan**: Meeting to assist me in taking and reducing wind tunnel data on advanced distributed electric propulsion configurations. I have my own, dedicated wind tunnel to use. The configurations to be tested are being 3-D printed in my lab and there is lots of data to take. Involvement in this project will require traveling to Independence (25 miles north of Corvallis) at least once a week to assist as that is where the tunnel is located. You will get to learn about wind tunnel testing, data taking and reduction, aerodynamics (a little), and the future of electric propulsion. More than one awardee is possible. Note that I am an Emeritus Professor (i.e. retired) and do not have an office on campus.

**Workshop Dates**: Neither

**Contact**: ullman@davidullman.com
Mentor: Dr. Yong Bakos

Department: Computer Science (College of Engineering, Cascades campus)
*not able to mentor Ecampus students*

Research Focus: Software development solving meaningful problems in a variety of disciplines. I love code.

Potential Student Project: I would prefer students propose their own project. Some examples of my students' past and current work include:
- Ecotone (http://ecotone.osucascades.edu) and mobile app. Collaboration with CS and Biology. Tracking local plants and plots. QR codes in the field.
- Rapid Restoration. Web application for tracking artificial beaver dams for river restoration.
- Exhibit X. An interactive art installation with Processing / OpenFrameworks and sensors.
- More.

Attributes/skills/background sought in undergraduate:
- Passionate about high quality code, ecological subject areas, TDD, Ruby, Elm, and Elixir.
- Most important are creativity, professionalism, and excellent writing skills.

Mentoring Plan: Frequency depends on the project and how well the student crushes it. Collaborate online, via phone and in person. Accountability, reliability and strong communication are critical if working remote. I use modern comm and project management tools including Discord, Basecamp, and GitHub. I also encourage applications from a cs student paired with a non-cs student for cross-disciplinary work.

Workshop Dates: Neither

Contact: yong.bakos@osucascades.edu / 541-322-2060

Last edited: 11.08.17
Mentor: Dr. Elain Fu

Department: Bioengineering, School of Chemical, Biological, and Environmental Engineering (College of Engineering, Corvallis campus)
*not able to mentor Ecampus students

Research Focus: My lab makes portable sensors for use in field settings for global health applications.

Potential Student Project: Potential project 1: Design, fabricate, and test cards to perform automated sequential processing. Design in DraftSight, fabricate using wax patterning and/or cutting via a carbon dioxide laser, and characterize using mock sample fluids and image acquisition.

Potential project 2: Investigate the preservation of reagents for eventual in-device storage. Characterize the effects of additives on the functionality of reagents as a function of storage time/conditions using established assays.

Attributes/skills/background sought in undergraduate: Required attributes are being (i) enthusiastic about the research topic, (ii) detail-oriented, (iii) interested in learning about laboratory procedures and protocols, and (iv) dedicated to working with other researchers to perform high-quality research.

Mentoring Plan: I would be the student’s mentor along with a graduate student in my group. The graduate student mentor would provide day-to-day support for the student in making progress on their lab project and would meet at least once a week with the student. I would meet with the student once every two weeks. I would request that the student come prepared with a document that outlines the status of their current work and would eventually include (i) a statement of the research question and assumptions, (ii) an overview of methods, experimental results, analysis, and interpretation, and (iii) next steps. This document would serve as the basis of our discussions and would be extended and revised throughout the quarter. The student would also be expected to attend my group meeting. In group meeting, students take turns presenting on research progress or critiquing an article from the literature.

Workshop Dates: Neither

Contact: elain.fu@oregonstate.edu

Last edited: 11.08.17  40
**Mentor:** Dr. Jonathan Hurst

**Department:** Robotics (College of Engineering, Corvallis campus)
*not able to mentor Ecampus students*

**Research Focus:** We design, build, and control walking and running robots.

**Potential Student Project:** Applicants will work with our graduate students to find a project that matches interest and expertise. Example projects:

1) Work in a team to design and build prototype feet for Cassie, our bipedal robot. We may partner with Adidas or other footwear manufacturer.

2) Work in a team to conduct tests identifying the dynamic properties of Cassie's legs; help to modify our test rig, and conduct experiments.

3) Assist in experiments with Cassie, in lab and outdoors.

**Attributes/skills/background sought in undergraduate:**

**Required:**
- Experience building something: model airplane, Arduino software, anything.

**Preferred:**
- Experience with hardware
- Experience programming in Matlab
- Experience building robots

**Mentoring Plan:** The undergraduate mentee will be invited to our weekly lab meetings, and will be actively managed by Jesse Rond, my Master's student who has experience managing teams. I can meet with the student individually a few times, as needed.

**Workshop Dates:** November 16, 5:00 to 6:30 PM

**Contact:** jhurst@oregonstate.edu / 541-737-7010
Mentor: Dr. Brian Fronk

Department: School of Mechanical, Industrial, and Manufacturing Engineering (College of Engineering, Corvallis campus)
*able to mentor Ecampus students

Research Focus: We work on making thermal energy systems more efficient, including solar and building systems.

Potential Student Project: 1) Learn to use a laser based system that can measure temperature in a fiber optic cable and make measurements of a 3D printed heat exchanger.

2) Make measurements using a high-speed camera to understand flow distribution in solar thermal heat exchangers.

Attributes/skills/background sought in undergraduate:

Required
- Interest in energy systems.
- Willing to work hard and ask questions.

Preferred
- Comfortable or willing to learn to use basic hand tools to build experimental setups.
- Ability to use or learn SolidWorks.

Mentoring Plan: Individual meeting with faculty every other week on Mondays to update on progress, discuss challenges and plan next two weeks. Group meeting every other week on Monday (opposite individual meeting). If Ecampus student, same meeting schedule as above, but meetings held via Skype/WebEx.

Workshop Dates: December 1, 5:00 to 6:30 PM

Contact: brian.fronk@oregonstate.edu / 541-737-3952
Mentor: Dr. Karl Haapala

Department: School of Mechanical, Industrial, and Manufacturing Engineering (College of Engineering, Corvallis campus)
*not able to mentor Ecampus students*

Research Focus: My research aims to assist engineers in the sustainable design and manufacturing of products.

Potential Student Project: Potential project 1: Energy efficient, low cost additive manufacturing (3D printing) using a computer-numerically controlled (CNC) milling machine. Student will assist in collecting energy data and improving the design of the manufacturing equipment. Potential project 2: Development of an online learning tool for sustainable product design and manufacturing. Student will assist in developing learning materials and the disassembly and analysis of toy products, such as drones.

Attributes/skills/background sought in undergraduate: MS office software (Excel is strongly desired), writing skills, use of hand tools and machine tools.

Mentoring Plan: As advisor, I will meet with the student about once per month and as needed beyond that. I’ll meet with the graduate student mentor on a weekly basis to discuss progress. The graduate student mentor will work directly (face-to-face) with the mentee on average 5 hours per week in the laboratory setting.

Workshop Dates: Neither

Contact: brian.fronk@oregonstate.edu / 541-737-3952

Last edited: 11.08.17  43
Mentor: Dr. Rebecca Hutchinson

Department: School of Electrical Engineering and Computer Science (College of Engineering, Corvallis campus)

*able to mentor Ecampus students

Research Focus: Building machine learning models to predict species distributions from imperfect data.

Potential Student Project: 1) Help assemble a dataset of satellite images to use as input to a species distribution model. This would involve learning to write scripts for Google Earth Engine to extract images at points that correspond to species observations.

2) Beta test code for methods developed by the group. This would involve learning the R programming language and providing feedback on code and documentation.

Attributes/skills/background sought in undergraduate:

Required:

- Attention to detail
- Ability to work independently but ask for help when needed

Preferred:

- Programming experience (esp. in R)
- Experience with Google Earth Engine (or GIS programs)

Mentoring Plan: I’d like the undergraduate to have at least weekly contact with my graduate student and/or myself. I meet weekly with my students for an hour each, so one potential vision for this would be for me to meet with my graduate student for 45 minutes, have the undergraduate join us for the last 15 minutes, and then have the two students continue the meeting on their own to follow up on any loose ends. This applies to on-campus and Ecampus students (via e.g. Skype). In some terms, I also hold research group meetings with paper discussions and/or research presentations; the undergraduate would be welcome to join these.

Workshop Dates: Neither

Contact: rah@oregonstate.edu
Mentor: Dr. Zhenxing Feng

Department: Bioengineering, School of Chemical, Biological, and Environmental Engineering (College of Engineering, Corvallis campus)
*able to mentor Ecampus students

Research Focus: Energy storage (battery, supercapacitor), and in situ analysis using scattering and spectroscopy.

Potential Student Project: One potential project for the student who is interested in battery. We are working on the solid-state battery and use solution-based methods for electrode/electrolyte synthesis. The second project is focused on reaction cell design. Preference will be given to students who have Solidworks or AutoCAD experience. The student will help design battery and electrochemical cells that will be used for in situ tests.

Attributes/skills/background sought in undergraduate: Familiar with Solidworks software (for cell design project).

Mentoring Plan: URSA undergraduates will involve in experimental research in my groups. In particular, they will work closely with my PhD students to finish a project together. The student will need to attend my weekly group meeting for project discussion and process reports. Especially the URSA students will be part of the subgroup team for another meeting for the project he/she is working on. Presentations are needed to give a summary in front of all other group members. In additions, the undergraduate will meet with me to discuss the progress and make detailed plans.

Workshop Dates: November 16, 5:00 to 6:30 PM

Contact: zhenxing.feng@oregonstate.edu / 541-737-0508

Last edited: 11.08.17  45
**Mentor:** Dr. Skip Rochefort

**Department:** Bioengineering, School of Chemical, Biological, and Environmental Engineering (College of Engineering, Corvallis campus)

*not able to mentor Ecampus students*

**Research Focus:** Projects involve applications of polymers (plastics) in biomedical and sustainability research.

**Potential Student Project:** All the projects involve applications of polymers in materials, biomedical, and environmental research. Many projects are industry/product based. Solving a problem.

- Hawaii Project Plastic Wood from Palm Fronds
- Haiti Project - recycled plastics for building insulation
- Equine Synovial Fluid Characterization- treatment of Lameness in Horses
- Hydrogel/Foam Composites for Spinal Disc Replacement
- Bovine Spinal Disc Rheology
- 3D printing new materials
- Hydrogel Burn Therapy Bandages

**Attributes/skills/background sought in undergraduate:**

**Required:**
- Interest in Chemical, Biological, or Environmental Engineering or at least in an engineering major
- Commitment (dedication) to the project and enthusiasm for the research opportunity
- Ability to work in teams

**Preferred:**
- Time management skills (we can work on this)
- Pleasant disposition - we are a fun/supportive group and would like to keep it that way!

**Mentoring Plan:** Our research group as a whole meets weekly. In addition I also meet with each research project team weekly. The student will work as part of a research team (depending on project selected typically 3-5 UG/G students at various stages of their education) that typically meets 5-hrs per week (or more if needed) in the lab. Students are always at least paired when doing lab research (never alone in lab).

**Workshop Dates:** December 1, 5:00 to 6:30 PM

**Contact:** skip.rochefort@oregonstate.edu

_Last edited: 11.08.17_ 46
**Mentor:** Dr. Kyle Niemeyer

**Department:** School of Mechanical, Industrial, and Manufacturing Engineering (College of Engineering, Corvallis campus)

*able to mentor Ecampus students*

**Research Focus:** Computational modeling of fluid flows, including combustion and the ocean; also chemical kinetics.

**Potential Student Project:** One example project would involve a student helping use and develop our software for simplifying complex models for fuel combustion, pyMARS (https://github.com/Niemeyer-Research-Group/pyMARS). This package was written exclusively by undergrad research assistants.

Another example would be running simulations of detonations to help understand how the chemistry of fuels affects their behavior.

**Attributes/skills/background sought in undergraduate:**

Preferred:
- Python programming
- Preferred background: mechanical engineering, chemical engineering, oceanography, or computer science.

**Mentoring Plan:** I meet with undergraduate students working in my group the same frequency as my graduate students: we have a face-to-face meeting at least once a week, either in a group meeting or individual one-on-one meeting. My group also interacts via Slack, a real-time chat application where students can ask me questions and get immediate feedback.

**Workshop Dates:** November 16, 5:00 to 6:30 PM, December 1, 5:00 to 6:30 PM

**Contact:** kyle.niemeyer@oregonstate.edu
**Mentor:** Dr. Thomas Miller

**Department:** School of Civil and Construction Engineering (College of Engineering, Corvallis campus)

*not able to mentor Ecampus students*

**Research Focus:** Structural engineering of buildings. Wood structure design. Seismic performance of buildings.

**Potential Student Project:** 1) Examine buildings at OSU and help in the preparation of analysis and design calculations on these structures that they see and work in every day. These would be used in the teaching of undergraduate and graduate structures courses to make them more "alive" and relevant for the students.

2) Assist in testing of cross-laminated timber (CLT) structures having the potential to revolutionize tall timber buildings in U.S. 3 graduate students working on physical testing and computer modeling.

**Attributes/skills/background sought in undergraduate:**

- Have been very successful in statics (required) and strength of materials (preferred) courses.
- Ability to work with tools (required).
- Experience in reading building plans (preferred).
- Strong interest in a structural engineering career (required).

**Mentoring Plan:** I will meet with the student 1-2 hours per week during the two terms on the teaching portion of the project. One of my 3 graduate students will work with the student 2-4 hours per week on the experimental testing of structures as their work reaches that stage.

**Workshop Dates:** Neither

**Contact:** thomas.miller@oregonstate.edu / 541-737-3322
Mentor: Dr. Cory Simon

Department: School of Chemical, Biological, and Environmental Engineering (College of Engineering, Corvallis campus)
*not able to mentor Ecampus students*

Research Focus: I use molecular models and simulations to predict gas adsorption properties of nanoporous materials.

Potential Student Project:
- Using machine learning algorithms to predict electrostatic properties of nanoporous materials
- Using molecular models and simulations to predict the adsorption of radon in nanoporous materials

Attributes/skills/background sought in undergraduate:
- Programming skills
- Mathematical ability
- Enthusiasm for project
- Willingness to learn
- Persistence on solving difficult problems

Mentoring Plan: I plan to meet with each undergraduate student once per week for at least 30 min. At first, he/she will start with simple exercises to illustrate core principles.

Workshop Dates: December 1, 5:00 to 6:30 PM

Contact: Cory.Simon@oregonstate.edu
Mentor: Dr. Tala Navab-Daneshmand

Department: School of Chemical, Biological, and Environmental Engineering (College of Engineering, Corvallis campus)
*not able to mentor Ecampus students

Research Focus: Persistence of enteric bacteria in the environment and associated treatment processes.

Potential Student Project: 1) Impact of irrigation with wastewater or fertilizing with sewage sludge on survival of antibiotic-resistant bacteria on crops in a greenhouse study on campus.

2) Drinking water treatment with UV-ozonation using microfluidic devices. We will develop a technology to inactivate Cryptosporidium - a microscopic parasite of concern present in surface waters such as in Portland drinking water resources.

Attributes/skills/background sought in undergraduate:

Required: enthusiastic, motivated, eager to learn.

Mentoring Plan: I will meet with the undergraduate mentee weekly to discuss the progress of the project. The student mentee will also have regular meetings (several times a week) with the graduate students working in the lab. The grad students will train the undergrad mentee for the lab protocols with me overseeing the training. In addition, we hold weekly group meetings, where students present their work once a term. In these group meetings we review recently publish journal papers and students present summaries of the readings each week. The undergraduate student will be precipitating in the meetings and presentations to gain oral presentation skills.

Workshop Dates: December 1, 5:00 to 6:30 PM

Contact: tala.navab@oregonstate.edu / 5417370552
Mentor: Dr. Hector Vergara

Department: School of Mechanical, Industrial and Manufacturing Engineering (College of Engineering, Corvallis campus)

*not able to mentor Ecampus students*

Research Focus: Design, analysis, and optimization of systems that produce and deliver goods and services.

Potential Student Project: Disaster Relief Logistics: Making sure that supplies reach those who need them the most after a disaster is critical. In this research, models to design distribution networks for aid are tested computationally.

Blockchain in Supply Chains: Technology is disrupting how supply chains are traditionally managed. This study explores how a new cloud computing technology affects decision making in supply chains.

Attributes/skills/background sought in undergraduate:

Required: Good mathematical and computer skills

Preferred: Familiarity with coding/computer programming

Mentoring Plan: For the duration of the URSA Engage award, I will be responsible for mentoring the student in a one-on-one setting. We will meet on a weekly basis to review accomplishments, discuss challenges and plan next steps. The student will have to write a meeting report in advance to the meeting and come prepared with additional materials such as research notes, reviewed journal papers, analytical models, computer code, etc. A Gantt chart showing the timeline and precedence relationships of the research activities related to this project will be created in the first two weeks. Progress will be evaluated throughout the duration of the project based on the Gantt chart and adjustments will be made as needed. I will share suggestions on how to perform certain research tasks and inform the student of available resources. The student will write a final report summarizing research activities and results. The writing of the report will start relatively early in the project and drafts will be reviewed by me in a bi-weekly basis. The student will receive timely feedback on the content and style of the report. Finally, the student will have the opportunity to interact with graduate students and learn about their research and experiences.

Workshop Dates: Neither

Contact: hector.vergara@oregonstate.edu / 5417370955
Mentor: Dr. Raffaele De Amicis

Department: Electrical Engineering and Computer Science (College of Engineering, Corvallis campus)
*not able to mentor Ecampus students

Research Focus: My Research focuses on Virtual and Augmented Reality in the area of design and creativity.

Potential Student Project: My Mixed Reality Space - Building inspirational virtual environments: Students will be involved in the design and building of an inspirational & inclusive virtual environment that fully supports human well-being. We will aim to create a completely new relationship with human surrounding digital space.

OSUTopia - Designing and sharing your very large 3D urban environments: Students will be involved in the design and build in a procedural 3D realistic virtual reality urban environment.

Attributes/skills/background sought in undergraduate: This experience is for beginner to intermediate students. No prior programming knowledge is required, and any experience you have will only help. No prior AR/VR experience and knowledge needed.

Further information is available at the following link:
http://eeecs.oregonstate.edu/people/de-amicis-raffaele

Mentoring Plan: I plan to assist students through a dynamic and nurturing mentoring program. Students will experience the latest technologies provided by top companies, as provided through a dedicated educational program. Through project-based training, students will learn the skills needed to create spectacular virtual and augmented experiences. We will explore industry best practice methodologies and concepts to create spectacular virtual and augmented experiences. This way students will build a knowledge and direct experience of real-world contexts and links to the creative industries. Students will be given the necessary support - including the necessary HW and SW, to ensure a fruitful use of the software tools needed to implement the project. In this regard, I will offer two weekly meeting: each meeting will stand for 3 hours. The 6 hours per week interaction minimum would be maintained throughout the 15 weeks. Students will be highly encouraged to participate in the Celebrating Undergraduate Excellence event on the OSU campus.

Workshop Dates: November 16, 5:00 to 6:30 PM, December 1, 5:00 to 6:30 PM

Contact: raffaele.deamicis@oregonstate.edu

Last edited: 11.08.17  52
**Mentor:** Dr. V John Matthews

**Department:** Electrical Engineering and Computer Science (College of Engineering, Corvallis campus)
*not able to mentor Ecampus students*

**Research Focus:** Writing computer programs to collect, analyze and process: video images, EMG and acoustic signals.

**Potential Student Project:** (1) Information extraction from video streams. Researcher will design experiments to collect video data and write computer programs to detect movement in video images, detect objects and shapes and perform online tracking of human hands.

(2) Health of structures. Project aims to detect damages in aircraft structures. Researcher will perform data collection of acoustic emissions using piezoelectric sensors and develop computational methods for extracting damage information from acoustic signals.

**Attributes/skills/background sought in undergraduate:** 1) Basic knowledge of computer programming (C++ or Python) - required;

2) College calculus - required;

3) Experience with software for data collection and analysis (MATLAB, LabVIEW) - preferred;

4) Concepts of circuit analysis - preferred

**Mentoring Plan:** Mentor and undergraduate mentee will meet every week a tour research lab. Work is to be developed mostly at the lab since projects will require use of lab equipment for data collection and use of the programming environments. Mentee will have opportunity to interact with other researchers in the group during the time of the project.

**Workshop Dates:** December 1, 5:00 to 6:30 PM

**Contact:** daniel.montezano@oregonstate.edu
**Mentor:** Dr. Yong Bakos

**Department:** Computer Science (College of Engineering, Cascades campus)

*not able to mentor Ecampus students*

**Research Focus:** Software engineering, generative art, and distributed operating systems. [code](https://github.com/ybakos)

**Potential Student Project:** Example 1: Ecotone.

Ecotone is a Rails application and iOS application for recording data about biodiversity on the OSU Cascades campus. Students can enter sample data, analyze the data, and scan QR codes at campus plots to see information about each plot.

Example 2: Exhibit X.

Exhibit X is an interactive digital media installation within Tykeson Hall. A concealed computer and sensors (eg Kinect) detect different user/environmental events, and project interactive animations on a concrete wall.

**Attributes/skills/background sought in undergraduate:** Required: You hustle. You know how to communicate professionally. You are accountable. You have a GitHub profile. You love code. You do not use Windows.

I have many more projects besides the examples provided, and can work with you if you have your own project proposal.

**Mentoring Plan:** I will meet weekly in person with mentees. The plan is to guide the student in an iterative, professional-level software development lifecycle. I also use online project management and communication tools to frequently interact with mentees.

**Workshop Dates:** Neither

**Contact:** [yong.bakos@osucascades.edu](mailto:yong.bakos@osucascades.edu) / 541 322 2060

*Last edited: 11.08.17*
Mentor: Dr. Julie Adams

Department: Electrical Engineering and Computer Science (College of Engineering, Corvallis campus)
*not able to mentor Ecampus students

Research Focus: Research interests are: improving how robots interact with humans and building intelligent algorithm

Potential Student Project: Project 1 focuses on implementing real-time capabilities into a developed machine-learning algorithm, that classifies workload levels using physiological signals, e.g., heart-rate.

Project 2 focuses on implementing an activity recognition algorithm, that determines what task a person is completing at a given moment.

Undergraduates will learn about machine-learning, artificial intelligence, human-robot interaction, sensor processing, and human factors research.

Attributes/skills/background sought in undergraduate: Programming (required): C++ and/or Python (preferred); Strong understanding of Mathematics (preferred); Interest in Robotics or Artificial Intelligence Research (required); Prior experience with robots (preferred, but not necessary); Problem solving skills (required); Willingness to learn (required); Good communication skills (required); Organized (required)

Mentoring Plan: The faculty mentor (Dr. Julie A. Adams) will meet with the undergraduate every 1-2 weeks, depending on availability. The undergraduate will be directly mentored by a senior graduate student, who will meet with the undergraduate at least once a week. The graduate student has previously served as the direct mentor for another undergraduate student, who is co-author on a conference paper submission based on the research the undergraduate performed in Dr. Adams’ group. The faculty mentor and graduate student will be available to answer questions via email and in-person.

The faculty mentor meetings will focus on creating overarching research goals and check on progress towards those goals. The graduate student meetings will create small weekly goals to ensure progress towards the research goals from the faculty mentor meetings. The graduate student meetings will also go over any background information, e.g., programming, check for current understanding, and help with any problems that arise.

Workshop Dates: November 16, 5:00 to 6:30 PM
Contact: julie.a.adams@oregonstate.edu

Last edited: 11.08.17
Mentor: Dr. Joshua Gess

Department: School of Mechanical, Industrial and Manufacturing Engineering (College of Engineering, Corvallis campus)
*not able to mentor Ecampus students*

Research Focus: Applied high performance electronics cooling studies with fundamental experiments in heat transfer.

Potential Student Project: Determination of quenching fluid flow paths and coolant requirements to two-phase heat transfer processes. Fluorescent laser-based Particle Image Velocimetry (PIV) and two-color thermal-Laser Induced Fluorescence (LIF) will be used for the hydrodynamic and thermal characterization.

Determination of liquid profiles measuring the microstrain deflection of thin condensate layers using stereo Digital Image Correlation (DIC) techniques.

Attributes/skills/background sought in undergraduate: Self-Motivated - Must be willing to reach their own goals of undergraduate publication.

Creative - Must be willing to look at new and innovative ways to take measurements

Driven - I tell my students all the time, you are going to spend 75% of your thought and time putting together the experiment, 15% getting data, and 10% telling people about it in publications. You must be willing to accept this and not get discouraged when experimentation takes a long time.

Mentoring Plan: My graduate student will be the primary point of contact, but I will meet with the undergraduate student once every three weeks to manage progress toward the student's stated research goals and relationship with the graduate student mentor. The undergraduate will meet with the graduate student mentor once a week to assess progress toward research goals. The undergraduate will be expected to publish at one conference with the graduate student where modelled and empirically derived limits to the intermediate data are collected. The undergraduate student will be a co-author on both of the conference papers published. The goal here is that the undergraduate research is in-line with the graduate student's research so that research goals are supported and driven by the graduate student leader.

Workshop Dates: November 16, 5:00 to 6:30 PM

Contact: joshua.gess@oregonstate.edu / 5417377034
**Mentor:** Dr. Jinsub Kim

**Department:** Electrical Engineering and Computer Science (College of Engineering, Corvallis campus)

*not able to mentor Ecampus students*

**Research Focus:** Data science methods that are resilient to partial data corruption; applied to smart grid.

**Potential Student Project:** "Data Integrity Attacks on Smart Grid": What would happen if an adversary of cyber attack manipulates sensor values of power grid to mislead power system operators with an incorrect system condition? In this project, we study vulnerability of power system operations to such attacks and how to mitigate impact of such data falsification.

"Adversarial Load Variation in Power System": what could happen if some portion of customer demand behaves in an adversarial way to disrupt grid operations?

**Attributes/skills/background sought in undergraduate:** Familiarity with MATLAB or willingness to learn it (required); Matrix algebra (preferred)

**Mentoring Plan:** There will be a graduate student mentor with whom the undergraduate mentee will work closely with. In the first meeting, the mentee, the graduate student mentor, and I will meet to discuss the research plan, expectation, and logistics. After the first meeting, the undergraduate mentee will meet with me twice per month to discuss the research progress; the mentee is welcome to set up an additional appointment if needed. The mentee will also be able to ask questions to and get help from the graduate student mentor in weekly meetings.

**Workshop Dates:** November 16, 5:00 to 6:30 PM

**Contact:** jinsub.kim@oregonstate.edu / 541-737-3304
Mentor: Dr. David Stemper

Department: Forest Ecosystems & Society (College of Forestry, Corvallis campus)
*able to mentor Ecampus students

Research Focus: I work in natural resource education & environmental interpretation (public communication).

Potential Student Project: 1) Design of interpretive materials (e.g. posters, displays) for Willamette and Deschutes National Forests (Central Cascades). 2) Design of interpretive materials (e.g. posters, displays) for Siuslaw National Forest on the Oregon Coast. 3) Design of natural resource education activities for Oregon State University's McDonald-Dunn Research Forest. 4) Design of natural resource education activities for Oxbow Farm and Conservation Center outside of Seattle, Washington. 5) Other opportunities term by term...

Attributes/skills/background sought in undergraduate:

Preferred:
- Interest in environmental interpretation, or...
- Interest in formal or informal education.
- Interest in flexing one's creative skills and expressing ideas.
- No strict requirements

Mentoring Plan: I am very flexible with regard to meeting with an undergraduate mentee. I am based in Portland, as I teach primarily via Ecampus. That said, I often travel to campus for departmental meetings and other functions. As such, it is likely that I could mesh with a student's schedule in order to set up face to face meetings.

Though the actual number of meetings would depend on details of the particular project, in the past I have typically met with students once every two weeks.

As I teach primarily Ecampus courses, I am very willing to mentor Ecampus students. I have done so in the past, and can meet over the phone, via email, WebEx, or other Canvas-related portals. I've found that coordinating with Ecampus students is relatively easy.

Workshop Dates: December 1, 5:00 to 6:30 PM

Contact: stemperd@onid.orst.edu / 503-828-6347
Mentor: Dr. Michelle Maller

Department: Wood Science & Engineering (College of Forestry, Corvallis campus)  
*able to mentor Ecampus students

Research Focus: My research interests are primarily around student success for underserved students.

Potential Student Project: In my department we are implementing a recruitment plan that involves many facets, but would include traveling and speaking to high school and community college students, meeting with clubs and other departments on campus, and being involved in student activities on campus with a goal of increasing our student population. The projects that would be highlighted are:

High School Connection - students and teachers  
OSU Community Relationship Building

Attributes/skills/background sought in undergraduate:

Required:
- Comfortable Speaking in Public

Preferred:
- Knowledge of Microsoft Office Suite  
- Ability to work independently if needed  
- Student with a background in community building, networking, and/or outreach  
- Someone who wants to have fun

Mentoring Plan: I would plan on meeting with the student at least once a week for the length of the 15 weeks, establishing rapport and helping to guide them through the transition into college. Because of my background in student services and academic advising, I know how important it is for students to be able to have a person on campus that they can meet with regularly to connect themselves to the educational culture. For me, I think that this means meeting frequently, and as we build a relationship, leaving the frequency up to the student's needs.

With an ecampus student, I would modify my plan slightly to use technology such as webex or zoom, as well as phone calls and texts if needed. Because of the distance relationship, I would emphasize more meetings/connections as the personal face-to-face element would be lost. The ecampus student would be more of a challenge, but with a little more effort and time, the mentoring relationship would eventually be built and strengthened.

Workshop Dates: Neither

Contact: michelle.maller@oregonstate.edu / 541-737-4259

Last edited: 11.08.17  59
Mentor: Dr. Jim Rivers

Department: Forest Ecosystems & Society (College of Forestry, Corvallis campus)
*not able to mentor Ecampus students

Research Focus: Assessing how mason bee offspring production differs across a gradient of wildfire severity.

Potential Student Project: Project 1. The student will assist with a study that is evaluating reproductive activity of solitary bees by quantifying the number, quality, and size of bee offspring via x-rays of bee nests.

Project 2. The student will assist with preparing slides for pollen identification as part of a study to assess how wildfire influences the food that solitary bees feed to their young.

Project 3. The student will assist in creating a reference collection of bees from forested areas of western Oregon.

Attributes/skills/background sought in undergraduate:
- No special skills are required, but students must be hard-working, self-motivated, adopt a task-oriented approach to their work, be good communicators, and have a strong curiosity to learn about the natural world.

Mentoring Plan: Along with my postdoctoral research associate, we will initially meet with the student to discuss their interests and how they best align with the project's goals. We will then train the students in the techniques needed for the position, and ensure they understand what is expected of them. Thereafter, we will hold weekly meetings with the student to outline expectations, discuss progress, troubleshoot issues that may arise, and answer questions. We will also support the student's participation in regular research meetings of the OSU Pollinator Research Group held during fall and winter terms.

Workshop Dates: Neither

Contact: jim.rivers@oregonstate.edu
**Mentor:** Dr. Mariapaola Riggio

**Department:** Wood Science and Engineering (College of Forestry, Corvallis campus)

*able to mentor Ecampus students*

**Research Focus:** Integrate architecture, engineering and wood science for advanced uses of wood products in buildings.

**Potential Student Project:** Renewable Material Website:
Project consisting of the design and implementation of a website on renewable construction materials. The goal of the website is twofold: a decision-making tool for designers, and a didactic tool for students.

Monitoring data displays:
Development of visual, interactive media to interpret, represent and communicate monitoring data from innovative timber buildings.

**Attributes/skills/background sought in undergraduate:** Accountability, interest and curiosity. Basic knowledge of visual language tools.

**Mentoring plan:** By working on this project, the student will be exposed to a wide range of engineering and architectural design solutions as well as applications of different renewable materials and engineered wood products.

During the first term, I’ll work together with the URSA mentee/s, and my grad students, to define a taxonomy of the investigated products and their technical properties, application and performance.

Throughout the school year, I’ll facilitate communication and interaction between the student and companies manufacturing or dealing renewable construction materials, and/or designers. so that the student can directly source information. This way the student will build a knowledge and direct experience of real-world contexts and links to the creative industries.

The student will be given the necessary support to ensure a fruitful use of the software tools needed to implement the project.

The student (if not Ecampus) will also be included in group meetings among my students that take place during the school year. The 5 hours per week interaction minimum would be maintained throughout the school year. The student will be encouraged to participate in the Celebrating Undergraduate Excellence event on the OSU campus.

**Workshop Dates:** November 16, 5:00 to 6:30 PM

**Contact:** mariapaola.riggio@oregonstate.edu / 541.737.2138

_Last edited: 11.08.17_
Mentor: Dr. Matthew Betts

Department: Forest Ecosystems and Society (College of Forestry, Corvallis campus)
*not able to mentor Ecampus students

Research Focus: How do human activities (deforestation, forest management) affect pollinators and plant pollination.

Potential Student Project: The lab has various exciting project opportunities relating to research in both Oregon and Costa Rica. Some potential options include: 1. Seed germination experiments to examine importance of alpine meadow fragmentation. 2. Looking at effects of intensive forest management on pollination of experimental blueberries. 3. Examining responses of plant-hummingbird networks in Costa Rica to loss of keystone species.

Attributes/skills/background sought in undergraduate: We are looking forward to working with a keen and highly motivated student. Patience and attention to detail are important, but no special skills are required. This project will provide the student with an opportunity to develop new skills relating to the field, precise lab work, and data manipulation.

Mentoring Plan: At project inception the student will receive 2-5 hours of hands-on individual training in practical research methods relating to the project. After this we expect that the student will work ~5 hours/week. Of these the student will have approximately 1 hour per week of direct mentorship discussing the student’s research project and 1 hour of group scientific discussion with other students and faculty. This undergraduate will be part of an interdisciplinary team, including: Matt Betts (Associate Professor in FES focusing on landscape wildlife ecology), Adam Hadley (postdoctoral researcher focusing on behavioral ecology), Urs Kormann (postdoctoral researcher focusing on pollination), Kara Leimberger (PhD student studying pollination in Costa Rica) and Dusty Gannon (PhD student studying pollination in Costa Rica and Oregon). This undergraduate will have access to all members of the team if they have questions and work closely with the graduate students on a daily basis. This student will be welcomed to the Betts lab as a regular member. The Betts lab has weekly lunch meetings to discuss topical scientific papers, often on topics relating to conservation.

Workshop Dates: November 16, 5:00 to 6:30 PM, December 1, 5:00 to 6:30 PM

Contact: matt.betts@oregonstate.edu

Last edited: 11.08.17
**Mentor:** Dr. Michael Wing

**Department:** Forest Engineering, Resources, and Management (College of Forestry, Corvallis campus)

*able to mentor Ecampus students

**Research Focus:** The application of unmanned aircraft systems (UAS, also called drones) to conduct remote sensing.

**Potential Student Project:** We are currently analyzing data from an Oregon vineyard to determine whether we can detect the Red Blotch virus with a multi-spectral camera before it is visible to the naked eye. These results may help vineyards in Oregon and elsewhere to better manage this vineyard threat.

Another project involves search and rescue data that we collected with the Coast Guard. Of interest is how close our quad copter needs to be from a potential person in the ocean, before our camera can detect that person.

**Attributes/skills/background sought in undergraduate:**

Required: The interest and ability to learn and apply technical tasks quickly. This experience will involve UAS aircraft building and maintenance, computer software applications with flight planning and remote sensing packages, and the ability to perform technical writing about our processes and results.

Preferred skills: Software programming, UAS build experience, Remote sensing

**Mentoring Plan:** I will meet with the student on a weekly basis. A PhD student housed in the AIS Laboratory will meet with the student more frequently and as needed.

**Workshop Dates:** November 16, 5:00 to 6:30 PM

**Contact:** michael.wing@oregonstate.edu / 5417374009

*Last edited: 11.08.17*
Mentor: Dr. Bogdan Strimbu

Department: Forest Engineering, Resources, and Management (College of Forestry, Corvallis campus)
*able to mentor Ecampus students

Research Focus: Modeling trees using UAV, multiseptral images, and neural networks, and fractals.

Potential Student Project: The projects on which the student will be involved are focused on data acquisition and processing using consumer grade equipment. The student will work on several directions: 1) assessment of tree identification algorithms from point clouds and multiseptral images, 2) estimation of tree attributes from point cloud and multispectral images, and 3) identification of the maximum flying parameters for two multi-rotors drones; 4) estimation of stand fractal metrics.

Attributes/skills/background sought in undergraduate: To perform the required tasks the student have to be familiar with GIS (any software) and Remote Sensing (any software). Additionally, considering that the students will work with UAVs it is preferred to have some computer gaming experience, understanding of mechanical and electric principles, as well as desire to operate flying objects.

One characteristic of this work is that the student will spend a significant amount of time in front of the computer processing images and analyzing 3D objects, which require patience.

Mentoring Plan: To ensure the successful completion of the project, understood not only by its deliverables, but also by the interaction between mentor and mentee, a minimum of 2.5 hours / week is expected to be spent discussing project’s development and facets of scientific investigation. At least 45 min/week will be dedicated for assessment of project’s progress, specifically details regarding forest type selection, additional assumptions made during the measurement or assessment stages, and time needed to complete a task. Additionally, approximately 45 min/week will be spent discussing issues, possible solutions, and associated rigor posed by the project. I expect that I will train the student for at least 5 hours in the first week when a new direction starts.

To provide the student with a full mentorship experience I will spend approximately 1 hour / week working alongside with them. This will build trust, will enhance the relationship mentor-mentee, and will provide interaction opportunities in a semi-formal environment.

Workshop Dates: November 16, 5:00 to 6:30 PM, December 1, 5:00 to 6:30 PM

Contact: bogdan.strimbu@oregonstate.edu / 5417371604
Mentor: Dr. Rebecca Olson

Department: School of Writing, Literature, and Film (College of Liberal Arts, Corvallis campus) *not able to mentor Ecampus students

Research Focus: I am overseeing the first student-edited, free online textbook of Shakespeare's Romeo and Juliet.

Potential Student Project: As an editor, I need a lot of information! Undergraduates could help with fact checking of our footnotes and introduction and could research aspects of the play's critical, textual, and performance history (using online sources and library databases).

Attributes/skills/background sought in undergraduate:

- Attention to detail (required)
- Ability to meet deadlines (required)
- Experience finding scholarly sources through databases (preferred)
- Experience with theater (attending or performing) or creative writing (preferred)
- Comfortable talking to new people via email and telephone (preferred)
- Has read Romeo and Juliet at least once (preferred)

Mentoring Plan: I would plan to meet with the mentee for a half hour once a week; some weeks, pending student availability, we might need to meet for an hour.

Workshop Dates: December 1, 5:00 to 6:30 PM

Contact: rebecca.olson@oregonstate.edu / 541-737-1631
Mentor: Dr. David Bernell

Department: School of Public Policy (College of Liberal Arts, Corvallis campus) *able to mentor Ecampus students

Research Focus: U.S. energy policy

Potential Student Project: A project I'm working on involves looking at the energy supply chain in the United States. The focus is the role of policy on markets, technologies, and the people who do the work of bringing energy to consumers.

I also work with students who identify their own research interests.

Attributes/skills/background sought in undergraduate:

- All I need is for someone to be conscientious in their work.

Mentoring Plan: When I work with students on research or independent study projects, we meet/talk once a week to discuss the work done thus far and plan next steps. This is the same for students on campus or online.

Workshop Dates: Neither

Contact: david.bernell@oregonstate.edu
Mentor: Dr. Sarah Dermody

Department: School of Psychological Science (College of Liberal Arts, Corvallis campus)
*not able to mentor Ecampus students

Research Focus: Risk factors for nicotine and alcohol use\dependence, including gender and sexuality differences.

Potential Student Project: 1. Use an existing dataset to examine what factors protect sexual minorities from problematic substance use, such as social support and coping skills.

2. Use an existing dataset to examine how smoking and drinking relate to each other when receiving treatment for an alcohol use disorder.

3. Conduct a literature review of published studies to determine what substance use interventions already exist for individuals who identify as sexual minorities (e.g., gay, lesbian, bisexual, transgender).

Attributes/skills/background sought in undergraduate: In addition to the skills listed below, an undergraduate mentee would really benefit from an interest in substance use/dependence related research and/or health disparities research.

Required skills:
- Completed undergraduate statistical courses or equivalent experience
- Experience using Microsoft Excel
- Completed coursework in Psychology or related disciplines

Preferred skills:
- Experience using SPSS
- Experience reading/reviewing scientific peer-reviewed research studies in the field of Psychology or related disciplines

Mentoring Plan: I will meet with the undergraduate mentee on a weekly basis. These meetings will typically occur one-on-one with myself, but could sometimes occur as part of a laboratory meeting.

Workshop Dates: Neither

Contact: sarah.dermody@oregonstate.edu
**Mentor:** Dr. Jason Fick

**Department:** Music/School of Arts & Communication (College of Liberal Arts, Corvallis campus)  
*able to mentor Ecampus students

**Research Focus:** My research focuses are in music technology, composition, production, synthesis,and electronic music.

**Potential Student Project:** Potential projects could include original music for acoustic instruments or technology. This could culminate as a three-to-five song EP written and mixed by the student. An interactive software environment and performance featuring synthesis and electronic music would also be welcomed. Other ideas involving intersections between technology and music are encouraged.

**Attributes/skills/background sought in undergraduate:** Creativity with technology is a must. Strong critical thinkers that are both independent learners and highly motivated individuals are desired. Music production/software skills are a benefit. I welcome potential inter-disciplinary projects that make connections between music and other areas (particularly science and new media).

**Mentoring Plan:** I plan to meet with potential undergraduate mentees face-to-face, for at least one hour per week to listen and evaluate projects. I will work with Ecampus students through Skype or FaceTime for the same time length. A graduate student could potentially work with me, and I would provide them 5, one-hour meetings per term.

**Workshop Dates:** November 16, 5:00 to 6:30 PM

**Contact:** jason.fick@oregonstate.edu / 541-737-2761
Mentor: Dr. Kenny Maes

Department: Anthropology/School of Language, Culture, and Society (College of Liberal Arts, Corvallis campus)

*able to mentor Ecampus students

Research Focus: Health, water access, and healthcare for vulnerable people in Oregon and Ethiopia.

Potential Student Project: 1) Analyzing quantitative survey data and qualitative interviews with health care workers and health care recipients in Ethiopia, focused on rural primary health care delivery, mental health, women's empowerment, and food insecurity.

2) Analyzing quantitative survey data and qualitative interviews with health care workers and health care recipients in Ethiopia, focused on water insecurity.

Attributes/skills/background sought in undergraduate:

Required

- Interest in determinants of health
- Dedication to values of health equity and social justice
- Attention to detail

Mentoring Plan: I can meet once per week with an undergraduate mentee. In some weeks, one of my graduate students may instead meet with the mentee. For E-campus students, I can also "meet" once per week via Skype.

Workshop Dates: November 16, 5:00 to 6:30 PM

Contact: kenneth.maes@oregonstate.edu
Mentor: Dr. Amy Koehlinger

Department: School of History, Philosophy, and Religion (College of Liberal Arts, Corvallis campus)  
*able to mentor Ecampus students

Research Focus: The history of the sport of boxing and its relationship to Catholic masculinity

Potential Student Project: 1) Research in Catholic magazines for boys in the 1930s, 40s, and 50s.

2) Research the history of Catholic boxing clubs in Portland, Mt. Angel, and Eugene in the early 20th century.

3) Research prizefighting in San Francisco in the late 19th century.

4) Research development of boxing as a form of conditioning and combat training in the US military.

5) Research all-male worker culture in West coast port cities (San Diego, San Francisco, Portland, Seattle).

Attributes/skills/background sought in undergraduate:  
● Intellectually curious (required)  
● Interested in history (required)

Mentoring Plan: I would like to meet with the mentee bi-weekly.

Workshop Dates: amy.koehlinger@oregonstate.edu / 541-737-3433

Contact: Neither
Mentor: Dr. Geoffrey Barstow

Department: School of History, Philosophy, and Religion (College of Liberal Arts, Corvallis campus)
*able to mentor Ecampus students

Research Focus: 1) The theory and practice of vegetarianism in Tibetan Buddhism

2) Guru Devotion in Tibetan Buddhism

Potential Student Project: 1) Reading through Tibetan biographical and autobiographical literature looking for interesting examples of the guru / disciple relationship.

2) Reading through similar material with an eye for interesting references to human / animal interactions.

In both instances, this would be archival work, looking to find broad patterns in a large body of literature. I should note that, assuming the student doesn't read Tibetan, the material they work with would all be in English.

Attributes/skills/background sought in undergraduate: Some background in Buddhism would be nice, but is not truly necessary. Much more important is curiosity and attentiveness to nuances in the stories contained in this literature.

Mentoring Plan: This will all depend on the particular project the student is working on. We'll meet and interact as much as we need to!

Workshop Dates: December 1, 5:00 to 6:30 PM

Contact: barstowg@oregonstate.edu

Last edited: 11.08.17
Mentor: Dr. Ron Mize

Department: School of Language, Culture, and Society (College of Liberal Arts, Corvallis campus)
*able to mentor Ecampus students

Research Focus: Toiling in the Shadows of Affluence is ongoing research on Latino immigrants working in the Rockies.

Potential Student Project: Students can participate in three projects: the first is the collection of U.S. Census data on the block, city, and county levels to ascertain the quality of life for Latinos and Latino immigrants residing in the Rockies resort destinations. The second is the collection of school data for the corresponding districts. The third project is a media analysis of how Latinos are covered by local newspapers and online news sources in the area.

Attributes/skills/background sought in undergraduate: Interest in social science research. Ability to use Microsoft Excel. Local connections to the region would be desirable. Bilingual and bicultural proficiency would be extremely desirable.

Mentoring Plan: Students would meet weekly for 1/2 hour (less once the work gets going and more independence is established). Students are compiling data from Census, school, and local newspaper coverage of Latino immigration to Rocky Mountain destinations. Excel spreadsheet will be the final result of the research. I am willing to work with campus students and I use Canvas extensively as a data and information sharing platform (Google Docs will work as necessary). Particularly willing to work with students located in eastern Idaho, Wyoming, Colorado, or Utah.

Workshop Dates: November 16, 5:00 to 6:30 PM

Contact: ron.mize@oregonstate.edu / 541-737-6803

Last edited: 11.08.17
Mentor: Dr. Tekla Bude

Department: School of Writing, Literature, and Film (College of Liberal Arts, Corvallis campus)
*able to mentor Ecampus students

Research Focus: Medieval literature

Potential Student Project: 1. The medieval in the modern world: how do contemporary television, movies, video games, literature, and creative roleplaying -- Game of Thrones, Lord of the Rings, the Legend of Zelda, LARPing -- draw on medieval literature and history for inspiration, and why?

2. Living Shakespeare: in-depth investigation into one Shakespeare play over the course of the award period, with screenings, live performance viewing, readings, and visits to special collections to work with Renaissance print texts.

Attributes/skills/background sought in undergraduate:
- An interest in reading (required)
- General interest in the medieval or Renaissance periods (required)
- Willingness to write a final essay/summary of findings, or present a final project in visual/written form (required)

Mentoring Plan: Over the course of Winter and Spring terms in 2018, I would meet with the student weekly in person (or via Skype if the student is an e-campus student) to discuss research and to field any questions the student might have. I would also ask for weekly or fortnightly written work, for which extensive comments would be given in written form.

Because my focus is medieval and Early Modern literature, manuscripts, and the early printed book, I would ensure that the student was introduced to the Valley Library Special Collections & Archives Research Center, and spend time training her or him in how to handle and work with rare materials and books that are, in some cases, over 400 years old.

Workshop Dates: December 1, 5:00 to 6:30 PM

Contact: budet@oregonstate.edu
Mentor: Dr. Kathryn Becker-Bleas

Department: School of Psychological Science (College of Liberal Arts, Corvallis campus)
*not able to mentor Ecampus students*

Research Focus: Collaborative, psychological, translational research for education, health & social justice.

Potential Student Project: 1) Health & scientific literacy focus: Building upon successful past student projects, create and test new ways of presenting complex health information to support shared health decision making with a wider population.

2) Psychological trauma focus: Conduct lit review and analyze previously collected data to better understand the academic, social, and mental health needs of students who have experienced military service, interpersonal violence, and/or other potentially traumatic events.

Attributes/skills/background sought in undergraduate:
- Quantitative skills or interest. We do rigorous, mostly quantitative work. Our work complements the skills taught in statistics and quantitative research methods classes. We train on the job; a willingness to learn is all that is required. Some stats/research classes preferred.
- Basic psychological science background. Completed General Psychology (PSY 201 and 202) preferred.
- "Nothing about us without us." - Lived experience with disability, medical conditions, and/or trauma a plus. This is a research lab, not a therapy or support group. The expertise of those who navigate complex health and educational systems helps us ask better questions, recruit more representative samples, interpret our results, and share them in ways that make a difference.

Mentoring Plan: Weekly lab meetings include undergraduate and graduate students. Lab meetings include planning new studies, discussing data collection and analysis in progress, and preparing for conference presentations. Undergrad students occasionally meet with grad students outside of lab meetings to learn skills, analyze data, write up reports, prepare conference presentations, etc.

Workshop Dates: Neither

Contact: raechel.soicher@oregonstate.edu

Last edited: 11.08.17
Mentor: Dr. Amy Below

Department: Political Science/School of Public Policy (College of Liberal Arts, Corvallis campus)
*able to mentor Ecampus students

Research Focus: Better understanding the foreign policy behavior of Latin American countries.

Potential Student Project: 1. Analyzing the continuity versus change in Cuban foreign policy (since the end of the Cold War). This project would involve using computer software to analyze the content of speeches made by Cuban diplomats at United Nations sessions.

2. Looking for trends and patterns in the behavior of Latin American countries in the global climate change regime, both over time and recently. I hope to investigate individual countries as well as the region as a whole.

Attributes/skills/background sought in undergraduate:
- An interest in Latin America and, potentially global climate change
- Interest/background in political science and international relations
- Good organizational skills
- Ability to read and/or speak Spanish is preferred, but not required

Mentoring Plan: While I prefer to collaborate with my mentee on a mentoring plan that best suits their learning/research needs and style, I imagine we can meet either on a weekly or bi-weekly basis for about one hour. There will likely be more meeting time towards the beginning of project and less as the research is underway. This time will be used for debriefing on our progress, asking questions/running tutorials, brainstorming and discussing steps forward.

Workshop Dates: November 16, 5:00 to 6:30 PM

Contact: amy.below@oregonstate.edu
**Mentor:** Dr. Cari Maes

**Department:** Women, Gender, and Sexuality Studies/School of Language, Culture, and Society (College of Liberal Arts, Corvallis campus)

*able to mentor Ecampus students

**Research Focus:** How have various First Ladies constructed political personas as mothers to offset authoritarianism?

**Potential Student Project:** 1. Engage in preliminary research that will lead to the writing and publication of an academic article, possible co-authorship for the mentee

2. Engage in preliminary research that will lead to the presentation of findings at an academic conference, possible presentation opportunity for the mentee

3. Engage in preliminary research that will lead to a blog post, development of curricular materials, educational event/exhibit, or other material for the National First Ladies' Library.

**Attributes/skills/background sought in undergraduate:**
- Archival research (online or brick and mortar)
- Spanish/Portuguese language skills (preferred)
- Interests in politics and history
- Media studies
- Experience using Chicago Manual of Style citation guidelines (preferred)
- Interest in academic publishing
- Self-starter

**Mentoring Plan:** I am happy to work with both campus-based and Ecampus students. This project will involve independent research by the student and weekly one-hour check-in and brainstorming sessions. For Ecampus students, these weekly meetings can take place virtually via Skype or Canvas or by phone. Campus-based students will meet in my office or in the library. Students may be required to meet with a subject library in addition to meeting with me. Ecampus students would also be able to meet with subject librarians virtually.

**Workshop Dates:** December 1, 5:00 to 6:30 PM

**Contact:** cara.maes@oregonstate.edu / 541-737-7812
**Mentor:** Dr. Julia Bradshaw

**Department:** Art and New Media Communications / School of Arts and Communication (College of Liberal Arts, Corvallis campus)

*able to mentor Ecampus students*

**Research Focus:** Survey of how photographic imaging is deployed in the sciences and engineering at Oregon State.

**Potential Student Project:** Data gathering of imaging projects within the sciences and engineering. How is photography/imagery in its broadest sense deployed (phone, digital camera, SLR, video, game camera, aerial photo, satellite, electron microscope, fiber optic, radiography (x-ray), MRI, luminescence, tomography, submarines, drones, etc.). Project will involve contact with faculty throughout campus, describing how imaging technology is used by that researcher, collating visual information, as well as an equipment list.

**Attributes/skills/background sought in undergraduate:**

**Required:**
- Curiosity
- Self-starter - ability to work independently
- Attention to detail
- Demonstrated interest in technology
- Polite and professional manner in written and interpersonal communication.

**Preferred:**
- Photography or video background

**Mentoring Plan:** Week 1 & 2: meeting for 2 hours a week

Weeks 3 - 15: meeting for 30 minutes to 1 hour

Undergraduate student is expected to work independently for 4 hours a week

**Workshop Dates:** November 16, 5:00 to 6:30 PM

**Contact:** julia.bradshaw@oregonstate.edu

*Last edited: 11.08.17*
**Mentor:** Dr. Hilary Boudet

**Department:** Sociology/School of Public Policy (College of Liberal Arts, Corvallis campus)  
*able to mentor Ecampus students*

**Research Focus:** Community-based interventions designed to encourage energy conservation.

**Potential Student Project:** Designing and piloting a curriculum to encourage 9 and 10 year old Girl Scouts in understanding and engaging with real-time household electricity usage data; making changes to save energy and shift peak usage to different times of day; and communicating with their family members to reach all members of the household.

Designing a competition between high school students to encourage energy savings and shifting in the same way.

**Attributes/skills/background sought in undergraduate:**

- Coursework in environmental education/psychology.
- Ease in working with children, designing activities for children.
- I would also be interested in working with computer science or engineering students on mobile app design specifications.

**Mentoring Plan:** My preference is for weekly team meetings to include all those engaged on the project. We would organize a mutually agreeable time for all those involved (undergrads, 2 masters of public policy students and eventually a postdoc) and discuss progress and issues at these meetings. Emails or phone calls would be used to communicate in between these meetings. I would be willing to mentor an Ecampus student, especially if they were located near the San Francisco Bay Area. Most of the work for my current project will be in Fremont, California.

**Workshop Dates:** Neither

**Contact:** hilary.boudet@oregonstate.edu / 541-737-5375
**Mentor:** Dr. Kristen Macuga

**Department:** School of Psychological Science (College of Liberal Arts, Corvallis campus)

*not able to mentor Ecampus students*

**Research Focus:** I use virtual reality to study how sensory feedback influences actions and contributes to learning.

**Potential Student Project:** Using virtual reality to selectively manipulate visual information and measure changes in motor performance and learning in a task such as ball catching.

Investigating how the visual display of information in graphical user interfaces (GUIs) influences human computer interaction with regard to decision making.

**Attributes/skills/background sought in undergraduate:**

- Ability to work well with others (required)
- Responsible and punctual (required)
- Motivated (required)
- Good written and oral communication skills (required)
- Some familiarity with the scientific method and experimental psychology (preferred)
- Computer programming and/or computer graphics/3D modeling (preferred)
- Statistics knowledge (preferred)

**Mentoring Plan:** I plan to meet with the student once per week. There may also be an opportunity to meet with a graduate student or other team members, depending on the selected project.

**Workshop Dates:** Neither

**Contact:** Kristen.Macuga@oregonstate.edu
**Mentor:** Dr. David Kerr

**Department:** Psychology (College of Liberal Arts, Corvallis campus)

*not able to mentor Ecampus students*

**Research Focus:** Effects of Oregon's legalization of recreational marijuana use on undergraduates' substance use.

**Potential Student Project:** Use Oregon university data to identify predictors of current marijuana and alcohol use, including:

1) marijuana and alcohol use during high school, and

2) the legal status of marijuana use when and where students graduated from high school.

**Attributes/skills/background sought in undergraduate:**
- Interests and skills in math and statistics.
- Good organization and time management.

**Mentoring Plan:** I will provide in-person supervision of at least 30 minutes per week for the 15 weeks; more initially, and more later as needed.

**Workshop Dates:** Neither

**Contact:** david.kerr@oregonstate.edu
**Mentor:** Dr. Trina Leah Hogg

**Department:** History, Philosophy, and Religion (College of Liberal Arts, Corvallis campus)

*not able to mentor Ecampus students*

**Research Focus:** I am a historian of colonialism and law in Africa. My research explores 19th century Sierra Leone.

**Potential Student Project:** (1) Students can assist me with qualitative research - particularly in the realm of historical transcription. I need several court cases transcribed.

(2) (If their skill are relevant) Students may assist me in creating a dataset of court cases that occurred from 1896-1915 in rural Sierra Leone.

**Attributes/skills/background sought in undergraduate:** Looking for people who are interested in African history and legal studies. You must be hard-working, have great attention to detail, and organized.

**Mentoring Plan:** I would be available to meet with students in my office once a week.

Please note, I will be on a research trip until mid-March-- so I would have to meet with all students virtually for the 5 weeks of the winter term.

**Workshop Dates:** December 1, 5:00 to 6:30 PM

**Contact:** trina.hogg@oregonstate.edu
Mentor: Dr. Dwaine Plaza

Department: School of Public Policy (College of Liberal Arts, Corvallis campus)
*able to mentor Ecampus students

Research Focus: My research focuses on Caribbean Migration. I also look at Women and Students of Color in STEM.

Potential Student Project: 1) Crime and the Culture of Fear among Caribbean Diaspora.
2) Migration to Canada a Socio-Demographic Profile.
3) Students of Color and women in STEM programs: Dealing with Stereotypes
4) The representation of women in Caribbean Party Flyers
5) Second Generation Caribbean men and women who experience Cultural Mourning
6) Offshore medical Schools and the students who attend them

Attributes/skills/background sought in undergraduate:
- Have an ability to visit Internet Web sites and collect data.
- Have an ability to write up results.
- Be able to use Qualtrics Data collection software
- Be able to go through the IRB process
- Have the ability to do content analysis of data.

Mentoring Plan: I like to meet with my students at least once per week. I can also meet with E-campus students using Skype. I will also be able to check in with students using email. Students are also encouraged to call me.

I expect students to regularly connect with me about their progress in collecting data.

Workshop Dates: November 16, 5:00 to 6:30 PM

Contact: dplaza@onid.orst.edu / 541-737-5369

Last edited: 11.08.17
Mentor: Dr. Andrew Valls

Department: School of Public Policy (College of Liberal Arts, Corvallis campus)  
*able to mentor Ecampus students*

Research Focus: As a political theorist, I am interested in issues of justice and democracy.

Potential Student Project: I could use some help with some books that I am finishing up. One is a book on racial justice, another on the philosophy of David Hume another on the thought of Iris Young. The student would read the manuscripts and help me with sources, references, proofreading, etc.

Attributes/skills/background sought in undergraduate:  
- I need a good writer, and someone who is detail-oriented (both required).

Mentoring Plan: I would meet with the student once a week. If an ecampus students, we could talk on the phone, email, or do an online video chat.

Workshop Dates: December 1, 5:00 to 6:30 PM

Contact: andrew.valls@oregonstate.edu
Mentor: Dr. Natchee Barnd

Department: Ethnic Studies (College of Liberal Arts, Corvallis campus)  
*able to mentor Ecampus students

Research Focus: Mapping forgotten locations & collecting stories of power and social justice activism in Portland.

Potential Student Project: 1) Interviewing community members/organizations to gather sites of social justice activism, or conversely of oppression (racism, sexism, etc.).

2) Identifying and conducting archival research on historical sites, events, and people.

Attributes/skills/background sought in undergraduate:

Required: problem-solving, initiative, self-motivation, organization, commitment to or interest in social justice (anti-racism, gender equity, indigenous rights, etc.)

Preferred: knowledge of Portland, background or experience with Ethnic Studies or related fields, archival research experience or interest, interview skills, history interest, occasional availability for travel to Portland for research trips

Mentoring Plan: I will meet (or have check-ins) with the student weekly or bi-weekly, depending on tasks and travel time. A good (but unspecified) percentage of the meeting time may include hands-on research trips to various community locations or archives in Portland.

Workshop Dates: December 1, 5:00 to 6:30 PM

Contact: natchee.barnd@oregonstate.edu / 541-737-1113
**Mentor:** Dr. Jenna Goldsmith

**Department:** School of Writing, Literature, and Film (College of Liberal Arts, Cascades campus)  
*able to mentor Ecampus students*

**Research Focus:** Genre writing; environmental writing; writing studies; publishing; creative writing; higher ed.

**Potential Student Project:** "Technical Writing in Motion: Establishing an Active Transportation Culture through Transit Communication."

"#HumansOfOregonState: Understanding Higher Education through Narrative."

**Attributes/skills/background sought in undergraduate:** I have no requirements, but I would prefer students who like to write and are interested in writing in their discipline. For example, I'm happy to work with engineering or hard sciences students, but only if they are committed to a rigorous practice of writing.

**Mentoring Plan:** I look forward to crafting a meeting plan with the student to find out what venues work best for us. If this student is on the Corvallis campus, we can plan to meet virtually once a week, and plan to meet in person once a term. If the student is in Bend, we can meet, in person, once a week, or we can choose to have virtual meetings. At any rate, I am committed to meeting with the student once a week to discuss their project.

I am willing to work with an Ecampus student.

**Workshop Dates:** Neither

**Contact:** goldsmith.jenna@gmail.com / 541-213-2840
Mentor: Dr. John Edwards

Department: Psychology (College of Liberal Arts, Corvallis campus)  
*not able to mentor Ecampus students*

Research Focus: Social/Personality psychologist specializing in social cognition.

Potential Student Project: 1) Effects of uncertainty on impressions of other people.  
2) The labels that people use to think about the situations that they are in.

Attributes/skills/background sought in undergraduate:

Required:
- Some psychology background
- Interest in empirical thesis (i.e., data collection)

Mentoring Plan: Undergraduate mentees would be part of my lab group, which meets at least every other week. Individual meetings with the mentee would typically occur during the "off" lab meeting weeks as needed.

Workshop Dates: Neither

Contact: edwardjo2@gmail.com / 541-737-1370
Mentor: Dr. Evan Baden

Department: Art, School of Arts and Communication (College of Liberal Arts, Corvallis campus)  
*not able to mentor Ecampus students

Research Focus: I am an artist/photographer working around themes of youth, technology, sexuality, and coming of age.

Potential Student Project: Long-form documentary photography series or project that delves into a social area of interest for the student.

An extended art project (in any medium) that explores issues in contemporary culture.

Attributes/skills/background sought in undergraduate:
- An art background (required)
- A student enrolled in the art department (preferred)
- A photography background (preferred)

Mentoring Plan: If my URSA Engage Awardee is selected I would plan on meeting with them once a week for 1-2 hours to review progress and address issues with any project they were engaged with. I have not graduate students, so the meetings would be with me, in a one-on-one environment.

These meetings would help guide the student in refining their art practice and refine how to communicate an idea or interest the student has to an unexpected viewer.

Workshop Dates: Neither

Contact: anita.cservenka@oregonstate.edu / 541-737-1366
**Mentor:** Dr. Anita Cservenka

**Department:** School of Psychological Sciences (College of Liberal Arts, Corvallis campus)  
*not able to mentor Ecampus students*

**Research Focus:** Substance Use, Personality Factors, and Neurocognition in Young Adults.

**Potential Student Project:** A potential project an URSA Engage student could work on would include the examination of how personality factors, such as impulsivity or sensation seeking are related to marijuana use in college students. In another project, a student might investigate how emotion regulation is related to patterns of marijuana use among college students. Both of these projects would allow the student to have experience with data management and statistical analyses.

**Attributes/skills/background sought in undergraduate:**
- Required: Introductory Psychology course taken either at OSU, other university/college, community college, or during high school.
- Preferred: Introductory Statistics course taken either at OSU, other university/college, community college, or during high school.
- Preferred: Biopsychology course (i.e. Brain and Behavior) taken at OSU, other university/college, community college, or during high school.

**Mentoring Plan:** I plan on meeting with the URSA student 1-2 times/week in person during their URSA Engage project, and will be communicating with him/her through email/phone in addition to the weekly meeting throughout the duration of the project.

**Workshop Dates:** Neither

**Contact:** anita.cservenka@oregonstate.edu / 541-737-1366
**Mentor:** Dr. Kryn Freehling-Burton

**Department:** Women, Gender, and Sexuality Studies, School of Language, Culture, and Society (College of Liberal Arts, Corvallis campus)

*able to mentor Ecampus students*

**Research Focus:** Qualitative research on women in mathematics & undergraduate learning online. Media analysis film/TV.

**Potential Student Project:** I am starting a research study on women in mathematics at OSU. Mathematics is a field with some of the lowest numbers of women majors and graduate students and is the base of so many other disciplines. This research is to partner with Oregon State ADVANCE to examine student experiences in higher education.

I am our online major coordinator and am interested in researching online learning in the field of Women, Gender, & Sexuality Studies, especially blending school, family, work, & activism.

**Attributes/skills/background sought in undergraduate:**
- Confidence, especially in learning new skills.
- Interest in applying research to societal change--at OSU and beyond.
- Independent worker.
- Good record keeper, especially with library research and notetaking during meetings, interviews, data analysis.
- These are all required skills but part of this process will be sharpening them so if a student has little experience, that is fine!

**Mentoring Plan:** I would meet weekly with the student for 30-60 minutes, either in my office or by skype/webex/phone (for distance students). For the first few weeks, we'll meet for an hour, but once the project is going, we will be conducting the research so a check-in meeting of 30 minutes is appropriate. Toward the end of the spring term, we will be researching less and our meeting time will increase to 60 minutes (or possibly more) for the data analysis and writing. The particular project will determine these times and we will schedule 2-3 weeks ahead based on what is left to accomplish.

I have a graduate assistant working with me if a student researcher wants to join one of my projects in process. The grad student would join our weekly/bi-monthly meetings and also be working on the research with us but I would be at all the meetings.

I will set up a google docs folder to work with students so documents can be shared and viewed as the project moves forward.

**Workshop Dates:** Neither

**Contact:** kryn.freehling-burton@oregonstate.edu
**Mentor:** Dr. Adam Schwartz

**Department:** School of Language, Culture, and Society (College of Liberal Arts, Corvallis campus)  
*not able to mentor Ecampus students*

**Research Focus:** I study the ways language, culture, identity and race are "bound up" in each other, esp. in the US.

**Potential Student Project:** My work and research is student-inspired: I like to learn about how and where students succeed and struggle in their education, and conduct research in response. I study language and language education-- I am a language teacher (Spanish) at heart. Recently I've been interested in understanding how spaces for learning (classrooms, schools, and less formal settings)--particularly Spanish language classrooms-- actively produce and reproduce racisms, White supremacy and systems of oppression.

**Attributes/skills/background sought in undergraduate:** You're eager to show up to produce new knowledge. You want to work with, and not work for. You want to make the world a more equitable place, and this might mean digging deep (personally) in order to examine your own prejudices, racisms and histories with systems of privilege and oppression.

**Mentoring Plan:** This should vary, depending on the needs and educational trajectory of the student.

**Workshop Dates:** Neither

**Contact:** adam.schwartz@oregonstate.edu
Mentor: Dr. Sam Logan

Department: Kinesiology, School of Biological and Population Health Sciences (College of Public Health and Human Sciences, Corvallis campus)
*not able to mentor Ecampus students

Research Focus: The role of independent mobility on the overall development of young children with disabilities.

Potential Student Project: The purpose of this project is to understand caregivers attitudinal factors that predict their provision of mobility via modified ride-on cars to their children with disabilities. Attitudes may influence provision of mobility, thus warrant investigation.

The purpose of the current study is to explore how demographic factors, contact with people with disabilities, attitudes towards people with disabilities, and disability models predict attitudes toward self-directed mobility.

Attributes/skills/background sought in undergraduate:

Required:
- Strong interest in the fields of kinesiology, child development, and/or rehabilitation.

Mentoring Plan: I will be directly responsibly for mentoring and directly interacting with the URSA-ENGAGE student during their research experience. I believe in using a scaffolding mentoring approach. I will ensure that the URSA-ENGAGE student completes research activities throughout the funding period that provide a “just right” challenge in order to provide opportunities for success, while simultaneously encouraging the student to expand their knowledge and research skill set. This will ensure the student has a positive experience that contributes to their professional development. The student and I will co-create a timeline of activities to be completed. The student will attend and participate in weekly lab meetings that includes myself, as well as graduate and undergraduate research assistants. This will provide the student with experience in a collaborative research setting and provide an opportunity for them to explain their progress since the last meeting, ask questions, and seek guidance. In addition, I will meet individually with the student on a bi-weekly basis to check in on their progress.

Workshop Dates: Neither

Contact: sam.logan@oregonstate.edu / 541-737-3437

Last edited: 11.08.17
**Mentor:** Dr. Diana Rohlman

**Department:** Environmental and Occupational Health (College of Public Health and Human Sciences, Corvallis campus)  
*able to mentor Ecampus students*

**Research Focus:** My research focuses on how our environment can impact our health, both negatively and positively.

**Potential Student Project:** 1) Reframing health: This project looks at how to include cultural and traditional practices into a definition of health, working with indigenous partners. Currently health measures do not include these factors.

2) Putting unknown chemicals into context: Some of my research is on polycyclic aromatic hydrocarbons. We are still finding out where they are coming from, and what effects they have on health. This information is needed by communities that live near fracking, oil spills and refineries.

**Attributes/skills/background sought in undergraduate:**

Attributes/skills:
- Efficient with attention to detail
- Familiarity with Microsoft office products (Word, Excel, Powerpoint) â€” required

Background:
- Familiarity with Microsoft office products (Word, Excel, Powerpoint) â€” required
- Basic knowledge of building tables, charts and graphs - preferred

**Mentoring Plan:** I like to meet weekly with students. At the beginning of the term (first 3 weeks), we will set up a timeline for the project, as well as the products that we hope to complete within that time frame. In following meetings, we will discuss the work completed in the previous week, and set goals for the upcoming week. These meetings will also cover topics necessary to complete the work. For example, primers on how to cite scholarly articles, or how to organize literature searches, or adhere to IRB guidelines. These topics will be identified in the first 2-3 weekly meetings, and can be added as needed throughout the project.

For eCampus students, meetings will be held initially via WebEx to allow video conferencing, and then will be a combination of telephone and video conferencing.

**Workshop Dates:** November 16, 5:00 to 6:30 PM

**Contact:** [diana.rohlman@oregonstate.edu](mailto:diana.rohlman@oregonstate.edu) / 541-737-4374

*Last edited: 11.08.17  92*
**Mentor:** Dr. Jay Kim

**Department:** School of Biological and Population Health Sciences (College of Public Health and Human Sciences, Corvallis campus)

*not able to mentor Ecampus students*

**Research Focus:** Study various physical exposures (e.g. vibration) that are associated with musculoskeletal disorders.

**Potential Student Project:** The mentee will be able to involve in two funded research projects:

1. Systematic Evaluation of Multi-axial Suspension to Reduce Whole Body Vibration Exposures in Heavy Equipment Mining Vehicle Operators to identify effective intervention to reduce musculoskeletal disorders among professional drivers.


**Attributes/skills/background sought in undergraduate:**

**Required:**
- Attention to detail
- Good communication skills
- Dependable
- Willingness to learn how to perform scientific research

**Preferred:**
- Computer programming skills
- Previous laboratory research
- Engineering background
- Sound and vibration
- Interest in occupational health/ergonomics

**Mentoring Plan:** We will plan to meet with the mentee once a month during individual weekly meetings as I usually do with my research assistants (both undergraduate and graduate students).

The mentee will meet with graduate students and postdoc at least once a week during our lab weekly meeting. A lot of my students actively interact with each other due to the nature of our research projects in the lab.

**Workshop Dates:** December 1, 5:00 to 6:30 PM

**Contact:** jay.kim@oregonstate.edu / 541-737-2166
**Mentor:** Dr. Megan McClelland

**Department:** Human Development and Family Sciences, School of Social and Behavioral Health Sciences (College of Public Health and Human Sciences, Corvallis campus)

*not able to mentor Ecampus students*

**Research Focus:** My research focuses on measuring & improving school readiness in preschool and kindergarten children.

**Potential Student Project:** Students have done projects related to:

1. Children who are English Language Learners and relations to self-regulation and school readiness

2. Relations between measures of children's self-regulation and academic achievement

3. Relations between teacher ratings of children’s self-regulation and social skills and direct assessments of self-regulation and academic skills.

**Attributes/skills/background sought in undergraduate:** Students need to be responsible, dependable, conscientious, excited about working with children and learning about the research process, have strong grades (especially in courses related to child development), and an interest in child development. Students must also be available during 4 hour morning or afternoon blocks of time at least 2 days/week and for a weekly lab meeting. Students must also have experience working with children.

**Mentoring Plan:** Meet weekly for lab meetings and work on research projects with graduate students and faculty mentor.

**Workshop Dates:** Neither

**Contact:** megan.mcclelland@oregonstate.edu
Mentor: Dr. Emily Ho

Department: School of Biological and Population Health Sciences (College of Public Health and Human Sciences, Corvallis campus)
*not able to mentor Ecampus students*

Research Focus: Nutrient/Gene interactions in human health and disease.

Potential Student Project: The overall goal of research is to understand the role of nutrition on chronic disease processes at the cellular and molecular level. We are interested in the impact of zinc status on the immune system and susceptibility to toxic environmental stresses. We are also interested in the effects of zinc on the microbiome and age-related immune dysfunction. The majority of work will performed in vitro and in vivo animal models. Projects will involve animal care, molecular biology and bioinformatics.

Attributes/skills/background sought in undergraduate:

Required:
- Good attention to detail
- Strong organization skills
- Some laboratory experience (ie previous lab-based class or experience)

Preferred:
- Pipetting experience
- Knowledge of molecular biology/bioinformatics and techniques

Mentoring Plan: Mentee will meet weekly with laboratory group at weekly meetings and meet with mentor for individual updates at least every 2 weeks. Day to day mentorship from postdoc in the lab will occur at each time in the lab, until mentee is comfortable working independently. Once working independently, meetings with postdoc will occur weekly.

Workshop Dates: Neither

Contact: emily.ho@oregonstate.edu
**Mentor:** Dr. Jessica Gorman

**Department:** School of Social and Behavioral Health Sciences (College of Public Health and Human Sciences, Corvallis campus)

*not able to mentor Ecampus students*

**Research Focus:** My current research focuses on improving health and quality of life for cancer survivors.

**Potential Student Project:**
1) A qualitative study to learn more about how couples, where one is a cancer survivor, talk with each other and their healthcare providers about reproductive and sexual health concerns.

2) Adaptation and implementation of a mindfulness-based program designed to meet the needs of female cancer survivors struggling with sexual health concerns.

3) Exploring HPV awareness and screening among college students.

**Attributes/skills/background sought in undergraduate:**

**Required:**
- Excellent written and verbal communication skills
- Strong organizational and interpersonal skills
- Competent in Word and Excel
- Completion or ability to complete human subjects protections training
- Interest in cancer survivorship and/or reproductive/sexual health

**Preferred:**
- Familiarity or experience with behavioral/social science research

**Mentoring Plan:** We will meet once per week.

**Workshop Dates:** December 1, 5:00 to 6:30 PM

**Contact:** jessica.gorman@oregonstate.edu
**Mentor:** Dr. Brianna Kothari

**Department:** Human Development and Family Sciences (College of Public Health and Human Sciences, Cascades campus)

*able to mentor Ecampus students*

**Research Focus:** Understanding factors that promote well-being & resilience with a focus on youth in foster care.

**Potential Student Project:** 1) Research Contexts, Experiences, and Relationships of Preadolescent and Adolescent Youth in Foster Care. Existing data were collected as part of a Randomized Clinical Trial (RCT) from youth, foster parents, caseworkers, teachers and administrative databases about their relationships, mental health, education and quality of life.

2) Examine Unique Needs and Experiences of Foster Children in Central Oregon.

**Attributes/skills/background sought in undergraduate:**

Required:
- Interest in child well-being and child welfare research
- Curiosity, attention to detail, motivation, organizational skills and ability to work independently as well as with a team
- Ability to review existing literature

Preferred:
- Experience working on research projects
- Coursework, experience and/or training in research methods and data analysis
- Ability to use Word, Excel, SPSS, Zotero

**Mentoring Plan:** I will meet weekly with undergraduate mentee which may involve a combination of one-on-one meetings and meetings with graduate students, colleagues and/or other collaborators. If mentee is an E-campus student, meetings may be arranged by phone, Skype, WebEx and/or utilizing other platforms of communication.

**Workshop Dates:** Neither

**Contact:** brianne.kothari@osucascades.edu / (541) 322-3186
**Mentor:** Dr. William Massey

**Department:** Kinesiology, School of Biological and Population Health Sciences (College of Public Health and Human Sciences, Corvallis campus)

*not able to mentor Ecampus students*

**Research Focus:** My work examines the quality of elementary school recess, and the implications on child health.

**Potential Student Project:** We are currently conducting a study that examines the quality of the recess environment in elementary schools. Students may have the opportunity to help with data collection, data management, data analysis, and policy briefs.

We are also planning to being a series of studies that will examine links between quality recess, physical activity, cognitive function, and positive youth development. Students may have the opportunity to help with data collection, management, and analysis.

**Attributes/skills/background sought in undergraduate:** Preferred background in kinesiology, psychology, and/or sociology.

Student should be organized, able to work independently, proficient working with databases (e.g., Microsoft excel), intellectually curious, and open to new ideas.

**Mentoring Plan:** Students will receive direct mentoring sessions from Dr. Massey one hour per week. This may include, but not be limited to, research training and supervision, lab meetings, and one-on-one discussions about future research careers.

**Workshop Dates:** Neither

**Contact:** [William.massey@oregonstate.edu](mailto:William.massey@oregonstate.edu) / 541-737-3226

*Last edited: 11.08.17*
**Mentor:** Dr. Shannon Lipscomb

**Department:** Human Development and Family Sciences (College of Public Health and Human Sciences, Cascades campus)

*not able to mentor Ecampus students*

**Research Focus:** Child care and early learning practices, with a focus on trauma-informed care.

**Potential Student Project:** Undergraduate students could participate in research focused on developing a new measure of adult-child interaction from both video and live observations in child care/preschool programs. Students would learn how to systematically code observations reliably. They could also assist with data entry, analysis, and presentation.

Students could also participate in an evaluation project of an online professional development program for children who experience early childhood trauma.

**Attributes/skills/background sought in undergraduate:**

Required: Careful attention to detail, responsible and reliable, professional.

Preferred: Some experience working with children, child care providers and/or teachers. Skills related to data entry and/or use of excel to summarize data visually.

**Mentoring Plan:** I would anticipate meeting with the student once per week during our regular team meetings. The student would also have additional meetings with either my Faculty Research Assistant or myself at least every 2 weeks to do more focused small group work.

**Workshop Dates:**

**Contact:** shannon.lipscomb@osucascades.edu / 541-788-7188

*Last edited: 11.08.17*
Mentor: Dr. Kristina Smith

Department: Biology (College of Science, Cascades campus)
*not able to meet with Ecampus students

Research Focus: I study gene regulation in a fungus, using molecular biology and chemistry lab techniques.

Potential Student Project: 1) Using genetic engineering to add fluorescent tags to proteins of interest, and using fluorescence microscopy to study the protein's function. This is part of a larger goal of understanding how certain genes in the fungus are never expressed except under specific growth conditions.

2) Isolating natural products from the fungus grown under different conditions to alter gene expression, with the goal of identifying new, potentially useful compounds.

Attributes/skills/background sought in undergraduate: Required attributes of mentees are curiosity and self-motivation. The mentee must be able to manage their own schedule to complete tasks. Biology majors are preferred.

Mentoring Plan: I plan to meet with mentees at least once per week or more as needed in order to allow them to complete 5 hours of work per week. I have no graduate students or post-docs but current undergraduates who have been working on the project for 1-2 years are available to train new mentees as needed. The current group of undergrad researchers typically meets twice per week for several hours depending on the time required to complete experiments.

Workshop Dates: Neither

Contact: Kristina.Smith@osucascades.edu
**Mentor:** Dr. Ann Petersen

**Department:** Integrative Biology (College of Science, Cascades campus)
*able to mentor Ecampus students*

**Research Focus:** Environmental Endocrine Disruption and Toxicology in Stickleback Fish in Central Oregon

**Potential Student Project:** 1) Measure hormone levels in fish from pristine and potentially polluted river sites in Central Oregon

2) Measure pathohistology of liver, gonad, brain, and heart of stickleback fish exposed to varying environmental challenges including parasites, pollution, and warm temperatures in the Deschutes River.

**Attributes/skills/background sought in undergraduate:**

Required:
- Attention to detail
- Ability to maintain a regular schedule

Preferred:
- Experience using a microscope
- Experience with general laboratory techniques learned in courses such as introductory chemistry and biology

**Mentoring Plan:** I will meet weekly with my undergraduate researcher, one on one. In addition, the undergraduate researcher will meet with other undergraduate researchers in the lab to work together and independently on their projects, under my supervision. In total, I will spend up to 5 hours supervising research, and 1 hour in meetings, with the undergraduate every week.

**Workshop Dates:** Neither

**Contact:** ann.petersen@osucascades.edu / 508-314-3365
**Mentor:** Dr. Michelle Dolgos

**Department:** Chemistry (College of Science, Corvallis campus)  
*not able to mentor Ecampus students*

**Research Focus:** Synthesis and characterization of lead-free piezoelectric materials

**Potential Student Project:** Piezoelectric materials are used in many electronic applications as sensors and actuators. My group aims to replace the lead-based materials that are currently the industry standard. The URSA Engage student will work on the synthesis and structural characterization of novel lead-free piezoelectric materials. The student will use traditional solid state synthesis methods and X-ray diffraction. Some example systems include (Na0.5Bi0.5)TiO3-BaTiO3-BiGaO3 and BaZrO3-NaNbO3.

**Attributes/skills/background sought in undergraduate:**

**Required:**
- Strong communication skills, dependable, perseverance, taken or currently enrolled in the general chemistry course sequence.

**Mentoring Plan:** The undergrad URSA Engage student will work directly in the lab with a graduate student in my group. The graduate student will train them in regards to safety and proper laboratory techniques, and be present when they are working in the lab, should they have any questions. I will meet with the URSA Engage student and their graduate student mentor once a week. In addition, I will request the URSA Engage student to attend our weekly group meetings if their schedule allows. At the end of their time in my lab, the student will be required to write a short paper about their research and present their results to my entire group. These activities provide additional experience to develop soft skills that they will need in any career. Should any other professional development opportunities arise, I will share them with the student. At the end of the student's time in my research group, if I find the student to have strong research skills, I will discuss the possibility of continuing research in my lab (paid or research credits).

**Workshop Dates:** Neither

**Contact:** michelle.dolgos@oregonstate.edu
**Mentor:** Dr. Ryan Mehl

**Department:** Biochemistry and Biophysics (College of Science, Corvallis campus)

*not able to mentor Ecampus students*

**Research Focus:** Our lab focuses on engineering proteins with genetic code expansion allowing use of any amino acids.

**Potential Student Project:** Our lab has four research areas, two will be described here.

1) Most diseases and develop proteins nitrated at tyrosine residues. One project will make these nitrated proteins and determine their role in disease states.

2) There are many reasons that researchers want to attach chemical functionality to proteins but the majority of these coupling reactions are slow. Here new amino acids will be made that have have the fastest known coupling chemistry and then evaluated for their reactivity.

**Attributes/skills/background sought in undergraduate:**

- Smart
- Motivated
- Work effectively with others
- Organized

**Mentoring Plan:** The undergraduate mentee will have meetings with me (Ryan Mehl) once per week. These meetings will be used to discuss results and plan future experiments. The mentee will organize an outline of the proposed work before starting and conclude the research period with a formal written document of the work.

The mentee will work closely with a graduate student or postdoc in the lab (lab mentor) until they are trained adequately to work independently. The mentee will be required to keep daily notes of the research progress which will be monitored and reviewed by both the me and the lab mentor.

**Workshop Dates:** Neither

**Contact:** ryan.mehl@oregonstate.edu
Mentor: Dr. Matt Graham

Department: Physics (College of Science, Corvallis campus)  
*not able to mentor Ecampus students*

Research Focus: We at look at exotic electron behaviors in new materials (lasers, electronics, solar, nanomaterials).

Potential Student Project: The proposed research resolves ultrafast (10 fs to 1 ns) electron dynamics on the ultrasmall (<1 um) length scales. (I.) What processes promote carrier dissociation in nanoscale solar cells? Students will acquire spectrally resolved absorption & photocurrent movies of nanomaterials. (II.) Organic solar cells have large spatial inhomogeneity in their electron relaxation and transport dynamics, how can we understand and boost device efficiency? Students will determine optoelectronic properties.

Attributes/skills/background sought in undergraduate:
- Motivated students who want a full immersion experience in the scientific process with a young & vibrant scientific team
- A basic understanding of light and electricity (preferred)
- Interest in microscopy, electronics, quantum mechanics and/or lasers (required)
- Comfortable with simple data analysis and graphing (required)
- Willingness to attend and present at our weekly group meetings (required)
- Ability to work both independently and as part of a large team of graduate students (required)
- Studying physics most appropriate

Mentoring Plan: Student(s) will formally meet with PI mentor every 1-2 weeks (although I am will often drop in on you in lab), and >2X times per week with your graduate student advisor. Group meetings are held weekly. The student will present a 5 min short outline of their project to the group, and give a 20-minute talk at the conclusion. Students are encouraged to make a 'work-schedule' with graduate students to ensure help is available.

There is a comprehensive list of safety training requirements, including laser safety training. All work in our lab in undertaken with the intent of eventual publication. In the past, these projects have continued on a summer research projects and help students fulfill the physics senior thesis requirement.

Workshop Dates: December 1, 5:00 to 6:30 PM

Contact: graham@physics.oregonstate.edu / 541-737-4386

Last edited: 11.08.17  104
Mentor: Dr. Rebecca Vega Thurber

Department: Microbiology (College of Science, Corvallis campus)
*not able to mentor Ecampus students

Research Focus: We explore the interactions among the environment and the microbiology and virology of coral reef.

Potential Student Project: The main project I have is to evaluate the viral biology and disease ecology associated with corals during a natural bleaching event. This work will require dedication and fortitude as the project will be difficult. The student will learn basic molecular biology bench work, advance virology techniques, high throughput sequencing technology methods, and aspects of bioinformatics and statistical analysis.

Attributes/skills/background sought in undergraduate: Determination. A can do attitude. Quantitative skills such as basic statistics. Any programming.

Mentoring Plan: As is custom in my lab I will meet with the student on a one-to-one basis every week to discuss and formulate ideas for the students project. Along with these meetings the student will be invited to join in my lab's weekly meeting to engage with the postdocs and graduate students while also learning the fundamentals of how we do microbiology.

Workshop Dates: Neither

Contact: Rebecca.Vega-Thurber@gmail.com / 541-737-1851

Last edited: 11.08.17
Mentor: Dr. Wei Kong

Department: Chemistry (College of Science, Corvallis campus)  
*not able to mentor Ecampus students

Research Focus: Develop a new approach to solve structures of proteins and nanomaterials.

Potential Student Project: 1) Measure the stability of proteins under different solvent conditions: pH values, salt concentration, organic solvents, and solution temperature using fluorescent proteins.

2) Measure the rate of denaturation of proteins under different conditions.

Attributes/skills/background sought in undergraduate:
- Basic understanding of chemistry including pH values
- Basic understanding of biochemistry: proteins and protein conformations
- Basic math skills: calculations of concentrations and dilutions
- Attention to details in experiment: solvent handling, preparation, measurements, etc.

Mentoring Plan: We have weekly group meetings for everybody to update his/her progress in the past week, to voice their concerns and problems, and to plan for the work in the coming week. In addition, the student is free to drop by my office whenever the need arises. There will be a necessary training period (~2 hours in total) to use a variety of instruments, including pH meters, UV/VIS spectrometers, and fluorimeters.

Workshop Dates: December 1, 5:00 to 6:30 PM

Contact: wei.kong@oregonstate.edu / 541-737-6714
Mentor: Dr. Sandra Loesgen

Department: Chemistry (College of Science, Corvallis campus)  
*not able to mentor Ecampus students*

Research Focus: Drug Discovery: We explore microbial natural products for their application against human diseases.

Potential Student Project: Project 1: We have received local endophytic fungi and would like to screen them for antibiotic activity. Students will grow the fungi on various media, explore their chemistry, test for antibiotic activity with cell based assays and establish the fungal taxonomy by genomic fingerprinting.

Project 2: We have isolated local soil bacteria and would like to screen them for antifungal, antibiotic, and anti-tumor activity. Students learn to culture bacteria, perform chemical and biological screens.

Attributes/skills/background sought in undergraduate:
- Strong work ethics (~8-10h week), interest in an individual project.
- Background in microbiology, chemistry.
- Skills: patience, curiosity, interest to work with microbes, interest in chemical identification and separations.

Mentoring Plan:

Individual mentoring and training: The student will be part of the Loesgen Lab, located Gilbert Hall, in the Department of Chemistry at OSU and closely working with Gisela, a second year graduate student in the Department of Chemistry and with the PI, Sandra Loesgen. The Loesgen Lab will train the student in all aspects on natural products chemistry: HPLC, LCMS, chromatography, NMR analysis.

Sandra Loesgen will work with the student to develop the scholar’s creativity, knowledge, communication skills, initiative, and perseverance, as these are the qualities that help scientists excel in their careers. Weekly 1:1 meetings, written term project goals as well as weekly group meeting with research presentations by all undergraduate and graduate students of the McPhail/Loesgen Labs will ensure timely research feedback and discussion. (UG students present twice a term). The PI will work closely with the student, instructing him/her in talk and poster preparations and on opportunities for outreach and engagement.

Training from OSU resources:
- Comprehensive laboratory orientation and safety training in Chemistry.
- Biosafety level 2 training and blood-borne pathogen training by EH&S.
- Extensive training in OSU’s NMR facility
- Web-based course in Ethics and Conduct in Research offered through the Research Office.

Last edited: 11.08.17  107
Anticipated Achievements of the URSA engage award:

Recent awardees (Cassie Lew, Nathan Coddington, Katie Chen, Molly Austin) are either in graduate or professional schools, or currently still in the lab, working on their individual projects.

**Workshop Dates:** December 1, 5:00 to 6:30 PM

**Contact:** sandra.loesgen@oregonstate.edu
**Mentor:** Dr. Malgorzata Peszynska

**Department:** Mathematics (College of Science, Corvallis campus)  
*not able to mentor Ecampus students*

**Research Focus:** Mathematical and computational modeling of real life phenomena.

**Potential Student Project:** Modeling biochemical reactions in Yellowstone or in deep ocean floor with differential equations in MATLAB. The student will read articles specifying the reactions, and implement their models in MATLAB software to predict how their lifecycle may change if climate changes.

Solving n-body problem (mini-molecular dynamics) for the formation of crystals. The student will read articles on how to describe the motion of molecules, and implement their models in MATLAB to predict the crystal formation.

**Attributes/skills/background sought in undergraduate:**

**Required:**
- Completed MTH 256 with a grade of A- and/or above.
- Interested in MTH or CS as a major.
- Completed some undergraduate Chemistry.

**Preferred:**
- Experience and interest in computing.
- Some experience with programming.

**Mentoring Plan:** Biweekly meeting one-on-one. Student would participate in my research group meetings (weekly).

**Workshop Dates:** Neither

**Contact:** mpesz@math.oregonstate.edu / 541-0737-9847
**Mentor:** Dr. Chong Fang

**Department:** Chemistry (College of Science, Corvallis campus)

*not able to mentor Ecampus students*

**Research Focus:** The Fang Lab develops and implements a laser technique to take molecular movies of colorful proteins.

**Potential Student Project:** Computer-based molecular dynamics simulations of the chromophore inside fluorescent proteins to reveal H-bonding network and close contacts around the active site. Such structural constraints provide a mechanistic understanding of the protein functions.

Measuring the fluorescence quantum yield of photosensitive molecules in solution. How bright can they be and how can we tune their colors?

**Attributes/skills/background sought in undergraduate:**

Required: Interest, self-motivation, inquisitive nature of knowing why, some chemistry, math, and physics background

Preferred: Knowing spectroscopy, making solution samples, computer software skills

**Mentoring Plan:** I plan to meet with the undergraduate mentee at least once a week (we have a weekly main group meeting on Thursday late afternoon and the undergraduate researchers are all regular attendees), and a graduate student will be the designated contact to manage the schedule of the mentee in the lab. A project will be discussed in detail at the beginning of the URSA Engage project, to be carried out realistically within the time schedule of the program, and to have mutual benefit. The undergraduate student will be encouraged to e-mail the graduate student mentor as well as myself if help is needed and when research milestones are achieved.

**Workshop Dates:** Neither

**Contact:** Chong.Fang@oregonstate.edu

*Last edited: 11.08.17*
Mentor: Dr. Bo Sun

Department: Physics (College of Science, Corvallis campus)
*not able to mentor Ecampus students*

Research Focus: We are interested in the chase-and-run interactions of immune cells and tumor cells.

Potential Student Project: Project 1: We would like the students to characterize the 3D migration of T cells using time lapse confocal imaging and simple image analysis.

Project 2: We would like the students to establish a set of basic rules determining the kinetics of interacting T cells and tumor cells.

Attributes/skills/background sought in undergraduate: We welcome self-motivated, hardworking, and truly interested students with good math/physics skills (to the level of calculus-based physics, or being able to self-learn necessary knowledge).

Mentoring Plan: The student will work closely with a graduate student on a daily basis. I will have one-to-one meeting once every week with the student.

Workshop Dates: Neither

Contact: sunb@physics.oregonstate.edu / 5417378203
Mentor: Dr. Sally Hacker

Department: Integrative Biology (College of Science, Corvallis campus)  
*not able to mentor Ecampus students*

Research Focus: Our lab conducts marine and coastal ecology with special focus on dune and estuary ecosystems.

Potential Student Project: One potential project would involve understanding the role of beach grasses in creating sand dunes on the Oregon and Washington coast.

Another project would involve understanding why eelgrass in Oregon estuaries is declining and what consequences that may have on other species and their habitat.

Attributes/skills/background sought in undergraduate:
- Enthusiasm to conduct ecological research in marine and coastal ecosystems
- Commitment to the research project from start to completion
- Discipline to arrive on time and leave on time
- Attention to details and ability to do repetitive tasks
- Interest in processing samples in the lab and doing occasional field work
- Interest in processing data and learning simple statistics

Mentoring Plan: I would plan to meet with the student on an individual basis for as long as it took initially to mentor/train the student and then at least once every two weeks once they were comfortable with their research project. My graduate students would mentor the student on a daily basis or each time the student came into the lab to conduct research.

Workshop Dates: Neither

Contact: hackers@science.oregonstate.edu / 541-737-3707

Last edited: 11.08.17  112
Mentor: Dr. Hoewoon Kim

Department: Mathematics (College of Science, Corvallis campus)
*able to mentor Ecampus students


Potential Student Project: Project 1: Systematic understanding of the motion of incompressible fluid, e.g. water, in terms of differential equations, equations involving the rates of velocity and pressure of the fluid from Newton’s second law of motion by investigating all factors and constants in the equations both mathematically and physically.

Project 2: Stability Problem: "Under what conditions a mathematical object satisfying a certain property approximately must be close to an object satisfying the property exactly?"

Attributes/skills/background sought in undergraduate:
- Basic background of ordinal differential equations of first and second order.
- Basic partial differential equations such as diffusion and Laplace equations.

Mentoring Plan: I'll meet the undergraduate mentees twice per week for research. In each meeting we'll talk about the summary of the previous work, progress of original research topic, and plan for the next week.

As a senior instructor teaching an online course of the undergraduate I'm willing to mentor an Ecampus student by communicating with the mentee by emails, discuss boards, and chatting applications online.

Workshop Dates: Neither

Contact: kimho@math.oregonstate.edu / 5419084620

Last edited: 11.08.17  113
Mentor: Dr. David Roundy

Department: Physics (College of Science, Corvallis campus)
*not able to mentor Ecampus students

Research Focus: I do computational physics research on the equilibrium properties of liquids.

Potential Student Project: Students could write and run code to perform Monte Carlo simulations of the equilibrium properties of liquids. This may sound more tricky than it is! The algorithms are pretty simple and are easily learned by students with programming background and some comfort with physics and math. The code is written in C++, will not need to be written from scratch.

Attributes/skills/background sought in undergraduate:
● Some programming experience (required)
● PH 211 (preferred)

Mentoring Plan: I would expect a student to attend my weekly group meetings as well as meeting with me individually once per week to discuss progress.

Workshop Dates: Neither

Contact: roundyd@physics.oregonstate.edu
Mentor: Dr. Dee Denver

Department: Integrative Biology (College of Science, Corvallis campus)
*not able to mentor Ecampus students

Research Focus: Molecular genetics and evolution: parasitic nematodes, bacterial symbionts, and Bodhi trees.

Potential Student Project: 1) Molecular-evolutionary analysis of parasitic nematode ('worm') species and their bacterial symbionts. Students will assist in lab experiments focused on the analysis of DNA from the worms and bacteria, using PCR, agarose gels, and DNA sequencing.

2) Bodhi trees genetics. Our lab is interested in the intersections of Buddhism and science, and we study the genetics of Bodhi trees: descendants of the fig trees that the Buddha sat under in ~500 BC. More PCR, gels, and DNA sequencing.

Attributes/skills/background sought in undergraduate:

Required:
- Dependability
- Good, honest communication
- Genuine interest in discovery
- Desire to learn skills in genetics

Preferred:
- Creativity and ability to offer different perspectives on lab research

Mentoring Plan: Undergraduates working with my group see me (Professor Denver) day-to-day around the lab, and have regular check-ins once every week or two. A lab manager (Dana Howe) helps guide students in the lab, as do two PhD students (Sulochana Wasala, Anh Ha) and more senior undergraduates (we have four in the lab right now).

Workshop Dates: December 1, 5:00 to 6:30 PM

Contact: denvedee@oregonstate.edu
Mentor: Dr. May Nyman

Department: Chemistry (College of Science, Corvallis campus)  
*not able to mentor Ecampus students

Research Focus: Inorganic metal oxide chemistry in aqueous solutions

Potential Student Project: I am seeking a team of 2-4 undergraduate students to perform experiments to understand ion association in solution. Ion association is a fundamental phenomenon that underpins many processes. Each member of the team will grow crystals, characterize them, and test their solubility. Each member will be doing the same thing but with different systems. We will compile the data and look for trends to define predictive rules. Both collaborative and independent work is encouraged to reach our goals.

Attributes/skills/background sought in undergraduate:  
- Required: chemistry major or in a related field that applies chemistry, good work ethic, responsible, neat, organized

Mentoring Plan: URSA students in my lab will be expected to attended our group meetings, every two weeks and eventually present research updates. I will meet with the students and their graduate student mentors once per week, and also on an as-need basis. I would like the students to come to lab 2-3 times weekly, and stay for at least two hours. As they become more independent in their tasks, their work schedule can become more flexible including weekends. Initially, they should set up a schedule with their graduate student mentors, so that they can be available for assistance.

Workshop Dates: December 1, 5:00 to 6:30 PM

Contact: may.nyman@oregonstate.edu / 541-737-1116

Last edited: 11.08.17
Mentor: Dr. Maria Clara Franco

Department: Biochemistry and Biophysics (College of Science, Corvallis campus)
*not able to mentor Ecampus students*

Research Focus: My lab studies the role of oxidants in the survival and growth of tumors of the nervous system.

Potential Student Project: Project 1. We found that nitration, an oxidative modification, induces a toxic function in Heat shock protein 90 (Hsp90). We aim to purify Hsp90 with nitration on specific positions from bacterial cultures and evaluate how this oxidative modification alters Hsp90 activity and function.

Project 2. Identify the proteins that form a mitochondrial complex with nitrated Hsp90. This complex inhibits mitochondrial activity and induces a metabolic reprogramming, a hallmark of tumor cell metabolism.

Attributes/skills/background sought in undergraduate:
- Basic knowledge of biology and math (preferred)

Mentoring Plan: I have mentored several undergraduates over the past 7 years. I normally have weekly, individual meetings with all of the labs members, plus a weekly general lab meeting. As a junior faculty who still works on the bench, for junior students requiring more dedication I am ready available to guide them and help them on a daily basis. The members of the lab are mostly undergrads who help each other and coordinate their work. The senior undergrads work together with junior undergrads and myself to advance the projects.

Workshop Dates: Neither

Contact: maria.franco@oregonstate.edu / 541-737-4997
Mentor: Dr. Bruce Menge

Department: Integrative Biology (College of Science, Corvallis campus)

*not able to mentor Ecampus students

Research Focus: Community ecology of intertidal ecosystems, sea star wasting disease, food webs, climate change.

Potential Student Project: Field work on intertidal species including experiments on species interactions, surveys of biodiversity, collecting and deploying instruments. Student will learn experimental design, species identification, field sampling techniques.

Laboratory work including processing samples collected in the field, fabricating experimental equipment, managing data, and processing photos. Students will learn experimental design, Microsoft excel, photo analysis software and some statistical techniques.

Attributes/skills/background sought in undergraduate:

- Ability to do physically demanding work in the intertidal (hiking with a heavy backpack, scrambling over slippery rocks, exposure to elements) while maintaining a good attitude.
- Attention to detail and meticulous organization during data collection, sample processing, and data management.
- Flexible schedule. We often leave very early or come home late at night because of low tides. Ideally the student would be available from 4am to noon most days during spring quarter for early morning tides.
- An enthusiasm for science and curiosity about the natural world!

Mentoring Plan: We will make a weekly schedule for the student to work on laboratory projects at approximately 5 hours per week until March. From March to June we expect the student to join us on early morning trips to the coast on average once per week, or more if their schedule allows. For laboratory work the student will primarily meet with technicians, graduate students and a post-doc. For field work the student will join me and the other laboratory members on trips to the coast. We are happy to have the student continue to work with us throughout the summer.

Workshop Dates: December 1, 5:00 to 6:30 PM

Contact: mengeb@oregonstate.edu
Mentor: Dr. Elisar Barbar

Department: Biochemistry and Biophysics (College of Science, Corvallis campus) *not able to mentor Ecampus students

Research Focus: Structure/function studies of large disordered complexes involved in motility and viral replication.

Potential Student Project: 1) Purification of proteins related to rabies virus
2) Purification of proteins related to dynein motor proteins.
3) Purification of proteins involve expression in bacteria, cell lysis, affinity purification, gel electrophoresis.

For students with computational skills:
  1) Evolution of dynein light chain

Attributes/skills/background sought in undergraduate: Motivated, hard worker, interested in learning new things.

Mentoring Plan: I interact daily with all my students. The undergraduate mentee will be working directly with a graduate student.

Workshop Dates: Neither

Contact: barbare@oregonstate.edu

Last edited: 11.08.17  119
Mentor: Dr. Nathan Kirk

Department: Integrative Biology (College of Science, Corvallis campus)
*not able to mentor Ecampus students

Research Focus: We are interested in the genetic causes of fighting that occurs among anemones on the Oregon Coast.

Potential Student Project: The aggregating anemone is commonly found in tide pools on the Oregon Coast. They form groups of clones that will defend each other from other clonal groups.

1) We are interested in determining if genetic relatedness influences how aggressive the interactions are. Are more distantly related individuals more vicious in their attacks?

2) These anemones are also capable of spending large amounts of time out of the water and we are interested in the physiological differences among the clones.

Attributes/skills/background sought in undergraduate: We seek students that are self motivated to learn about anemones, gene expression (Which genes are turned on and off) and molecular techniques. We also seek individuals that are excited about learning both laboratory and computational skills needed to collect and analyze data. Determined, hard-working students are strongly preferred. Depending on mutual interest, there can be a field component.

Mentoring Plan: This will be a collaborative project with Dr. Eli Meyer looking at the causes of aggression in clonal sea anemones. You will meet 1-2 times a week with Dr. Kirk and/or Dr. Meyer to conduct original research, plan, or discuss topics to get a further understanding of the project, study organisms and techniques you will be using. We will both be available via email to answer any questions you may have outside of your times in the lab. Finally, you will be encouraged, with our help, to work on presenting your work in informal (lab meetings) and formal settings (conferences).

Workshop Dates: December 1, 5:00 to 6:30 PM

Contact: nathan.kirk@oregonstate.edu / (541)737-4516

Last edited: 11.08.17  120
**Mentor:** Dr. Afua Nyarko

**Department:** Biochemistry and Biophysics (College of Science, Corvallis campus)  
*not able to mentor Ecampus students*

**Research Focus:** Our lab studies the structures and functions of specific proteins linked to tumor development.

**Potential Student Project:** Molecular characterization of the YAP-LC8 complex:  
The goal of this project is to use several biochemical assays to characterize interactions between a tumor protein and its binding partner. Mentee will over-express and purify the proteins and carry out biochemical experiments

Purification and characterization of Salvador:  
Salvador is a tumor suppressor protein found in fruit-flies. The goal is to purify the protein and use simple biophysical techniques to study its structure.

**Attributes/skills/background sought in undergraduate:**

**Required:**
- Ability to use computers as information tools

**Preferred:**
- Ability to effectively communicate and work in a team

**Mentoring Plan:** The mentor will develop a research plan that is consistent with the focus of the laboratory and appropriate for undergraduate students. Undergraduate researchers will be included as authors in peer-reviewed publications. The mentor will meet with the student once a month to discuss progress and outline the goals for the upcoming month. The student is encouraged to be part of the lab's weekly meetings. If this is not possible, informal meetings can be scheduled.

Undergraduate students will work closely with a graduate student who will assist them in obtaining appropriate project-specific skills. They will check-in with the graduate student whenever they are in the lab.

**Workshop Dates:** Neither

**Contact:** nyarkoa@oregonstate.edu

Last edited: 11.08.17  121
**Mentor:** Dr. David McIntyre

**Department:** Physics (College of Science, Corvallis campus)  
*not able to mentor Ecampus students*

**Research Focus:** I use lasers to trap small particles and I use spectroscopy to study optical properties of materials.

**Potential Student Project:** 1) It is difficult to see through milk or body tissue because they scatter light. This project will "unscramble" the scattering by imparting phase shifts with a liquid crystal device before the laser enters the medium.

2) The development of new materials relies heavily on spectroscopic measurements. This project will measure the reflection and transmission of thin films of materials to determine refractive indices, film thicknesses, absorption coefficients and band gaps.

**Attributes/skills/background sought in undergraduate:**

Required:
- Curiosity

Preferred:
- LabVIEW Programming experience
- Optics knowledge

**Mentoring Plan:** For the first three weeks, I will meet with the mentees twice a week in my research laboratory to train them on the equipment required for their experiments. After that, we will meet at least once per week to discuss their experiments.

**Workshop Dates:** Neither

**Contact:** mcintyre@ucs.orst.edu
Mentor: Dr. Colin Johnson

Department: Biochemistry and Biophysics (College of Science, Corvallis campus)
*not able to mentor Ecampus students

Research Focus: We study a 6-member gene family linked to human diseases including deafness and muscular dystrophy.

Potential Student Project: 1: Several mutations in the protein otoferlin result in temperature sensitive hearing loss, in which the human patient loses hearing when running a fever. Using techniques including fluorescence spectroscopy we would like to understand why this occurs.

2: The protein dysferlin is involved in wound healing in muscle tissue, and mutations in dysferlin have been linked to muscular dystrophy. Using recombinant dysferlin, we would like to understand how this protein repairs damaged cells.

Attributes/skills/background sought in undergraduate: Pipette skills, and prior experience with molecular biology and cloning preferred.

Mentoring Plan: The Johnson lab has an established mentoring plan for undergraduate students conducting research in the lab, which typically involves joint mentoring by both a graduate student and the advisor. Typically, the awardee works together with the graduate student on the same or similar project, and both the graduate student and advisor are responsible for training on new equipment and techniques. The advisor meets with the awardee regularly (weekly) to briefly discuss the status of the project, and provide guidance to both the awardee and graduate student. The advisor also provides all reagents and equipment needed to conduct the proposed research, and ensure that the awardee learns proper laboratory practices and safety protocols. In addition, the entire lab group meets on a weekly basis where students discuss the results of their experiments and the current state of their project with other lab members. As part of the learning experience the awardee will be responsible for presenting their research at these meetings. The lab is currently composed of four graduate students, four undergraduate students, and one postdoctoral researcher, providing a rich environment of peers for the awardee to converse with, and receive feedback from.

Workshop Dates: Neither

Contact: colin.johnson@oregonstate.edu
Mentor: Dr. Vincent Remcho

Department: Chemistry (College of Science, Corvallis campus)
*not able to mentor Ecampus students

Research Focus: We design and build microfluidic instruments for use in medical and environmental diagnostics.

Potential Student Project: We will design and build a system for either: (1) separating blood plasma for the purpose of downstream clinical measurements, or (2) quantifying target analytes that are diagnostic for disease. In either case, the project will include device design and development components. The desired implementation of the system will amplify sensitivity, reduce cost, and generate a field-deployable measurement tool for medical diagnostics.

Attributes/skills/background sought in undergraduate:

Required:
- Ability, desire, and drive to work independently when needed
- Ability to work as a member of a research team
- Interest in computer aided design and modeling

Preferred:
- Past experience working in a laboratory
- Majoring in a technical field: physical science or engineering

Mentoring Plan: I will work in partnership with a senior graduate student in my group, Chandima Bandara, to mentor a student with whom we will conduct a project focused on medical diagnostic device design and development. We will package the system in an assembly that will amplify sensitivity, reduce cost, and generate a field-deployable measurement tool. The URSA Engage student awardee may also participate with us as we continue outreach efforts with local high school students (serving as a peer mentor). The awardee will work in partnership with all members of the group, spending 10 hours per week in the lab. About one hour per week with be with me, about 4 with Chandima, and the balance with other group members.

Workshop Dates: Neither

Contact: Vince.Remcho@oregonstate.edu
Mentor: Dr. Guenter Schneider

Department: Physics (College of Science, Corvallis campus)
*not able to mentor Ecampus students

Research Focus: Machine learning using neural networks with applications in physics with a focus on biophysics.

Potential Student Project: 1) Locating and tracking individual cells in space and time in series of microscopy images containing hundreds of cells using neural nets. No single URISC engage project can tackle the entire project description but many well defined sub-projects exist, for example:
a) training and testing existing neural net designs,
b) design and implementation (programming) of a microscopy image simulator.

2) Identification of cell types in microscopy images of single cells using neural nets.

Attributes/skills/background sought in undergraduate: Basic computer skills are required. Basic programming skills using Phython are required for some projects.

Mentoring Plan: URSA Engage students will be full members of my research group.

I will meet weekly with each URSA Engage awardee individually and students are expected to attend the weekly group meetings, which consists of research discussions, background presentations given by myself and research reports from students in my group. URSA Engage awardees are also encouraged/expected/ to communicate with other students in my group (typically 4-8 undergraduate students) with the same general research focus. Students have access to a research group work room to facilitate interactions among peers.

Workshop Dates: November 16, 5:00 to 6:30 PM

Contact: guenter.schneider@oregonstate.edu
Mentor: Dr. Gary Merrill

Department: Biochemistry and Biophysics (College of Science, Corvallis campus)  
*not able to mentor Ecampus students*

Research Focus: We use biochemical and immunological approaches to study enzymes involved in cancer and metabolism.

Potential Student Project: Students will work on a project designed to identify liver enzymes that convert cancer chemotherapeutic doxorubicin to cardiotoxic doxorubinol. Specifically, they will clone, overexpress, isolate, and assay the doxorubinol-forming activity of two human enzymes - carbonyl reductase 1 and 3. They will learn many lab techniques (PCR, cloning, protein purification, electrophoresis, spectrometry, mass spec), note-keeping skills, data analysis, technical writing, and oral presenting skills.

Attributes/skills/background sought in undergraduate: Completed or on-going college level coursework in math, biology, organic chemistry, and molecular biology (Required), with grades of B or better (Preferred). Students should have laboratory experience solving molarity problems, making solutions, and keeping notes (Required).

Mentoring Plan: My schedule will allow me to work with students Tuesday and Thursday afternoons. In addition, I will meet with students several times each quarter to discuss their research, academics, and career goals. The planned experiments are multidisciplinary, and students will benefit from interactions with people with varied expertise. I will help student with PCR and gene cloning. Second-year graduate student Dan Breysse will help students with protein isolation and NADPH-linked enzyme assays. Chemistry associate Jeff Morre will help students with HPLC and mass spectrometry analyses. The student's general knowledge and communication skills will benefit from interactions with other students and faculty in the department and from attending and presenting at poster sessions and symposia scheduled throughout the year. In addition, students will notified of and encouraged to attend relevant seminars on campus.

Workshop Dates: November 16, 5:00 to 6:30 PM

Contact: merrillg@onid.orst.edu
Mentor: Dr. Patrick Ball

Department: Biology (College of Science, Cascades campus)
*not able to mentor Ecampus students

Research Focus: Interested in environmental microbiology - community structure/function/diversity & abundance.


Project 2. Some non-toxin producing, anaerobic bacteria may promote anti-inflammatory immune responses in animal guts by stimulating T-regulatory cells. Goals: Select chloroform-resistant bacterial spores for use as potential probiotics in poultry species.

Attributes/skills/background sought in undergraduate: Minimum skills required are completion of classes in basic biology and a desire to learn outside the classroom. Completion of a class in microbiology or molecular biology are helpful but not a necessity. Basic microbiology and molecular biology skills will be acquired during the project. Students should be adept at problem solving and capable of working independently, while not be afraid to ask questions when needed. Hard working and curious students are encouraged to apply.

Mentoring Plan: The mentoring plan includes meeting with the student at least twice a week or more for one to three hours as required for maintenance of lab materials, e.g., bacterial cultures and nucleic acid amplification products analyses, etc. Also, reading scientific publications will be assigned that pertain to the project that will be discussed with the student. Dr. Ball will be working with and enlisting the assistance of adjunct instructor Dr. Bruce Seal who is also well-versed in microbiological and molecular biology techniques and mentoring students to meet with the student.

At this time Ecampus students will not be utilized for this project.

Workshop Dates:

Contact: pat.ball@osucascades.edu / 541-322-3188

Last edited: 11.08.17  127