2022 BEACoN Research Scholar Projects
WANT REAL-WORLD EXPERIENCE & TO GET PAID DOING IT?

Apply to become a BEACoN Research Scholar!

What is BEACoN Research Mentoring?
BEACoN Research Mentoring is a program funded by the Office of University Diversity and Inclusion that allows underrepresented students and professors to connect and work together with common interest. This is a competitive program in which selected students work with Cal Poly faculty during winter and spring quarters and receive a $1,500 stipend for approximately 100 hours of work each quarter. Funding incentivizes participation in our program by our top faculty researchers on campus, and also enables lower socioeconomic students to participate. Importantly, in addition to providing students with research opportunities, faculty members provide their student with mentoring and professional development advice to facilitate their success at Cal Poly and beyond.

Applications are now open!
Deadline to apply: Friday, December 3, 2021 at 5 PM
Please note if you apply to more than 3 projects, we will only accept the first 3 you submit.

Apply online at tinyurl.com/BEACoNScholar2022
# Table of Contents

## College of Architecture & Environmental Design

CAED – City & Regional Planning – Amos ................................................................. 6  
The Post-War Pedestrian Mall and its Impacts on Downtown Business: The Case of Fresno, CA

## College of Agriculture, Food & Environmental Sciences

CAFES – Animal Science – Abo-Ismail ................................................................. 8  
Molecular Mechanisms Controlling Inflammatory Diseases and the Impact on Embryonic Development and Fertility in Dairy Cattle  
CAFES – BioResource & Agricultural Engineering – Schwartz ................................. 10  
Development of an Indoor Recirculating Artificial Marine Seawater Aquaculture System  
CAFES – Food Science & Nutrition – Heiss .......................................................... 12  
Cultural Awareness, Empathy, Leadership Skills, and Career Confidence Among Diverse Nutrition and Dietetics Majors  
CAFES – Natural Resources Mgmt & Environmental Sciences – Cobb .................. 14  
Wildfire, Carbon Storage, and Climate Change: Can Wildland Management Mitigate Airquality Threats?

## College of Engineering

CENG – Aerospace – Deffo .................................................................................. 16  
On the Free-Vibration of Thin Cantilever Plates: Natural Frequencies and Mode Shapes using the Finite Difference Method and the Semi-Analytic Finite Difference Method  
CENG – Civil & Environmental Engineering – Wang ........................................... 18  
Development of Smart Nanomaterials for Impact Load Detection  
CENG – Computer Science & Software Engineering – da Silva ......................... 20  
Evolving DependencyVis– An Interactive Visualization Tool for External Software Dependency Information  
CENG – Mechanical Engineering – Mayer .......................................................... 22  
The Visual Investigation of "First Bubbles"

## College of Liberal Arts

CLA – Communication Studies – Zamora ............................................................ 25  
Public Humanities: Buried Under Dodger Blue  
CLA – English – Martinez ................................................................................... 27  
Curating Representation: The Art of Micropublishing  
CLA – English – Schwartz .................................................................................. 29  
Diversity and Inclusion in the Middle Ages and Beyond: Hearing Medieval Women; Recovering Women's Voices  
CLA – English / Women’s, Gender & Queer Studies – Ruszczycky ...................... 31  
The Central Coast Queer Archive Project  
CLA – Ethnic Studies – Buyco ............................................................................ 33  
Filipinx-Indigenous Relationalities in the Pacific  
CLA – Ethnic Studies – Castilow ......................................................................... 35  
Black Masculinity and Access to Paternal Postpartum Healthcare
CLA – Ethnic Studies – Ding

Libraries: Revolutionary or Regulatory?

CLA – Ethnic Studies – Heberling

Surfing, Seafaring, and Storytelling: (Re)Narrating Coastal California with Indigenous Research Methods

CLA – History – Firpo

Beauty and the Nation: Race, Capitalism, and Modernity in Late Colonial Vietnam

CLA – History – Jackson

Central California’s Black WWII History

CLA – Interdisciplinary Studies – Neill

Inclusive Engineering: A Systems Thinking Approach to Enhance Equity and Diversity in Engineering Education

CLA – Journalism – Shan

# CHANGE: Communicating Corporate Social Responsibility (CSR) in the Age of New Activism

CLA – Philosophy – Wallace

Free Will and Anger at Injustice

CLA – Political Science – Cravens

How to Win a SOGI Referendum: A Study of Issue Framing, Coalition-Building, & Local Direct Democracy

CLA – Psychology & Child Development – Antony

Memento Memory

Teamwork study

CLA – Psychology & Child Development – Bencharit

The Narrative Construction of Love Lives Among Emerging Adults

CLA – Psychology & Child Development – Jovanovic

Assessing the Efficacy of an Anti-Bullying Curriculum Designed for Children in Grades K to 6

CLA – Social Sciences – Alaniz

Social Problems: Perspectives of People Behind Bars

CLA – Social Sciences – Parrotta

Using Unsolved Homicides as Opportunities for Professional Socialization in Forensic Science

CLA – Women’s, Gender & Queer Studies – Jacobs

Designing an Accessible and Inclusive Disability Cultural Space: Disability Justice and Activism

College of Science & Math

CSM – Biological Sciences – Bean

Coyote and Livestock Guardian Dog Impacts on Biodiversity

CSM – Kinesiology & Public Health – Alber

Understanding the Barriers and Facilitators to Adopting Flavored Tobacco Bans

CSM & CHWB – Kinesiology & Public Health – Hackman & Mansager

Enhancing Health & Wellbeing Outreach to Latinx Students at Cal Poly

CSM – Kinesiology & Public Health – Roberts

Cleanliness: Students Perceptions and Actions Surrounding Sexual Transmitted Infections
CSM – Kinesiology & Public Health – Thomas & Phelan................................................................. 75

CSM – Kinesiology & Public Health – Tseng .................................................................................. 78
A Scoping Review of Metrics for Local Food System Assessment

CSM – Liberal Studies & Biological Sciences – Nation & Yep ........................................................ 80
Nuestra Ciencia

CSM – School of Education – Ramrakhiani .................................................................................. 83
BIPOC Student Narratives on Campus Climate at a Predominantly White Institution

Orfalea College of Business

OCOB – Accounting & Law – Anderson ........................................................................................ 85
Exploration of Disparate Impacts and Microaggressions by Homeowner Associations

OCOB – Economics – Doremus .................................................................................................... 87
Pet Economics
Title of Research Project
The Post-War Pedestrian Mall and its Impacts on Downtown Business: The Case of Fresno, CA

Name
Dave Amos

Pronouns
he/they

Email
daveamos@calpoly.edu

Description of Research Project
Originally conceived at the height of expectation for modernist ideas, the pedestrian mall concept was anticipated to solve retail decline and automobile congestion in North American downtowns. Over 140 pedestrian malls were constructed in this era, and many were removed as business owners originally eager to install them were quick to remove them. One of the most iconic pedestrian malls of this era was the Fulton Mall in Fresno, California. It was designed by famed urban designer Victor Gruen, and survived until 2017. Throughout this period, retail vacancy along the corridor increased as the number of establishments fell. With the street reopened to two-way car traffic, the question is: has the Fulton Mall corridor seen a revitalization in its downtown business district? The answer to this question has implications for the dozens of cities with post-war pedestrian malls that remain. Furthermore, it will provide additional perspective as communities across North America continue to debate whether to keep or remove their temporary outdoor dining plazas installed during the COVID-19 pandemic.

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.
The BEACoN Scholar will be collecting data in downtown Fresno on downtown business vacancy to add another datapoint to this study of Fresno’s retail sector. At least one trip to Fresno will be required, COVID conditions permitting. The student will be using ArcGIS software to map these changes in retail vacancy through time at the parcel level. Finally, the student may assist with the drafting of a research brief or conference presentation about the results of the study.

What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?
The BEACoN Scholar will gain real-world social science field research experience in a fascinating and diverse California city. They will have the opportunity to contribute to an ongoing project that could
have an impact on the urban design of North American downtowns. The student will also gain practical experience in using ArcGIS software, quantitative analysis, and writing for an academic audience.

What experiences/courses are required for your BEACoN Research Scholar?
No experiences or courses are required.

What experiences/courses are preferred for your BEACoN Research Scholar?
Prior knowledge and experience with ArcGIS software is preferred. An interest in city planning and communities like Fresno are also a big plus.
Title of Research Project
Molecular Mechanisms Controlling Inflammatory Diseases and the Impact on Embryonic Development and Fertility in Dairy Cattle

Name
Mohammed Abo-Ismail

Pronouns
he/him/his

Email
maboisma@calpoly.edu

Format of Research Project
In-person (requires ability to work in SLO)

Description of Research Project
Dairy farming is the top agricultural commodity in cash receipts generating $6.4 billion for milk production in 2018 (www.cdfa.ca.gov). The sustainability of dairy production is based on the ability of the animal to have a high milk production, good health, and fertility as well as long lifetime productivity. The U.S. agriculture economy experiences a significant increase in cost due to diseases of livestock and aquaculture animals by more than $6 billion each year that is negatively affecting the profitability as well as trade opportunities and market competition. Furthermore, veterinary treatments raise the public concerns regarding animal welfare, food safety and antimicrobial use. The estimated loss is $358 per diagnosed case of metritis/endometritis, an inflammatory disease, in a dairy herd (Overton and Fetrow, 2008). Retained placenta, another inflammatory disease, costs $368 case, contributing to the overall $900 million dollar expense within the US dairy industry. With the advent of sequencing and genotyping technologies, we could understand the biology of these inflammatory disease and how they can impact fertility.

Therefore, the main objective of this project is to evaluate the impact of the inflammatory diseases on embryonic development and fertility in dairy cattle and to identify molecular mechanisms and pathways that control the inflammatory diseases and how these mechanisms affect fertility traits such as conception.

Specific objectives:
1. Reviewing and summarizing existing literature on inflammatory diseases and fertility
2. Evaluate the genetic relationship between ketosis, mastitis, metritis, and retained placenta on cow fertility traits for Jersey and Holstien cows
3. Identify differentially expressed genes and pathways associated with inflammatory diseases to understand how these mechanisms affect embryonic development and fertility.

4. Propose list of biomarkers that can be used in the industry as a selection tool to decrease the incidence of the inflammatory diseases.

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.

The student will work on:

- conducting a comprehensive review of literature into the concepts of inflammatory Diseases, embryonic development, fertility, genome expression analyses (i.e. transcription analyses; RNA-Seq analyses), Genomic-based Animal Models;
- identify the problem of inflammatory disease and fertility in the dairy cattle industry and formulate a hypothesis and research objectives;
- sampling biological samples such as blood milk and other samples for genome expression and other genomic analyses;
- participating in designing and conducting experiments;
- handling RNA-Seq and other genomic data, as well as interpreting and discussing the research results;
- disseminating the project outcomes through conference or peer-reviewed journals publications.

What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?

By the end of this research activities, the EACoN Research Scholar will be able to:

- write a review of literature using the scientific writing approach, identifying a gap in the literature and formulate an idea that can be tested by fitting a valid hypothesis;
- handling dairy cow and perform sampling of blood, milk and other samples (in case we are still in-person);
- handle big-data sets and master related bioinformatic tools and databases;
- model genomic data using various methods of Data Analytics and solve real problems in the dairy cattle industry;
- gain experience in interpreting and graphical representation of the results using different tools such R software and other, and
- sharpen their problem solving, critical thinking, presentation and communication skills through writing and presenting research papers.

What experiences/courses are required for your BEACoN Research Scholar?

A student majoring in Science, Technology, Engineering, and Math (STEM)

What experiences/courses are preferred for your BEACoN Research Scholar?

Prior experience in data analytics/applied bioinformatics too
Title of Research Project
Development of an Indoor Recirculating Artificial Marine Seawater Aquaculture System

Name
Greg Schwartz

Pronouns
he/him

Email
gschwa01@calpoly.edu

Format of Research Project
In-person (requires ability to work in SLO)

Description of Research Project
Aquaculture is one of the fastest growing sectors in agriculture, but must be developed in a sustainable way. Multitrophic aquaculture systems are designed to utilize resources more efficiently and decrease the environmental impact to the surrounding area than conventional aquaculture. Multitrophic aquaculture is developed in such a way that the wastes of target species are used to feed secondary organisms. Primary species may include high value finfish while secondary organisms will include shellfish, seaweeds, and detritovores.

This project is part of a multi year project to develop an indoor recirculating artificial marine multitrophic aquaculture system. This is year 1! The system has been designed and now must be tested. Target organisms for year one include shellfish and seaweeds.

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.
The student researcher in this project will be expected to have a desire to learn about marine science. The researcher will learn about marine environments (research journal articles) for target shellfish and seaweed species to determine what species are compatible with the indoor aquaculture system. While gaining an understanding about these species from literature, the researcher will be expected to collect water quality data and maintain the physical system to keep the organisms alive as they get introduced to the system.

Some aspects of the research may include growing food (microalgae) for the target shellfish species, conducting feed trials of the target shellfish, and measuring key environmental parameters for both shellfish and seaweed. The researcher will also be expected to record the data and possibly analyze...
the data should problems arise. All of this, of course, with the help of the advisor(s). Yes, and possibly lots of tank cleaning, but with your advisor or other student researchers.

What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?
It is my hope that the researcher will gain a sense for how to keep animals alive in confinement. The researcher will also gain an understanding of problems that can arise from poor maintenance of living systems. In addition, the researcher learn to collect data and record it in a way that can be useful in the future if needed.

The researcher will also gain skills with measure water quality parameters using meters and probes. Other water quality equipment will be utilized such as tests for total and volatile solids, as well as off the shelf water chemistry tests for nutrient analysis.

What experiences/courses are required for your BEACoN Research Scholar?
A desire to learn more about marine science. A desire to learn more about agriculture, biology, and engineering.

What experiences/courses are preferred for your BEACoN Research Scholar?
Math 117 or higher, but not required
Title of Research Project
Cultural Awareness, Empathy, Leadership Skills, and Career Confidence Among Diverse Nutrition and Dietetics Majors

Name
Cynthia Heiss

Pronouns
she/her/hers

Email
cheiss@calpoly.edu

Have you previously participated as a BEACoN Research (funded) faculty mentor, and if so, in which cohort(s)?
I have never been a BEACoN Research Mentor;

Are you a member of one of Cal Poly’s cluster hires, and if so, which?
No

Format of Research Project
Virtual (residence near SLO not necessary)

Description of Research Project
Approximately 80% of registered dietitians identify as White, 2.6% Black or African American, 3.1% Hispanic or Latino, 3.9% Asian, 0.3% American Indian or Alaskan Native, and 1.3% Native Hawaiian or Pacific Islander. This does not reflect the population dietitians serve, and is problematic since individuals relate better to health professionals with a similar ethnic/racial background. The risk for nutrition-related chronic disease (type 2 diabetes, cardiovascular disease, and obesity) is higher among the most underrepresented groups compared to the White population. Perceived ethnic and social differences with health care providers often discourage consumers from seeking care or sharing intimate information required for appropriate treatment. Additionally, acceptance of health recommendations and compliance to dietary recommendations is much greater when cultural food traditions, preferences, and beliefs are honored; thus, increased cultural competence that would result from increased diversity in the profession is essential to diminish health care disparities that exist.

Prior research, including a study conducted by Heiss, indicates that lack of role models and experiencing ethnic/racial bias are significant barriers for minorities to enter the dietetics profession. It is important to determine the career planning and career confidence, leadership skills, cultural awareness, and empathy among all dietetics majors, and determine if efforts focusing on promoting
career planning and confidence and/or leadership skills need to be developed for minority dietetics students. The Students' Leadership Practices Inventory, Career Planning and Career Confidence Questionnaire, Dietetics' Cultural Awareness Measure, and Jefferson Empathy Scale (all validated tools) will be administered to nutrition and dietetics majors at Cal Poly SLO, Cal Poly Pomona, Metro State University of Denver, and University of Houston to determine where efforts to enhance the recruitment, retention, and success of those from underrepresented groups should be directed.

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.
The Scholar will be involved in developing the survey to be administered using Qualtrix, assist in the submission of the IRB forms, and coordinate dissemination of the survey to students at the universities involved. Once data are collected, the Scholar will assist in the data analysis, interpretation, and dissemination.

What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?
The Scholar will develop skills in survey research and collaboration. They will have an understanding of survey development, the Institutional Review Board process, online survey administration, data analysis, and interpretation of results. They will also be able to disseminate results via the creation of a research poster and presentation. Although beyond the two quarters of this program, a manuscript will be written for submission to a peer-reviewed journal, and the Scholar will be encouraged to participate.

What experiences/courses are required for your BEACoN Research Scholar?
FSN 202: Introduction to Human Nutrition
FSN 281: Writing in Nutrition Science (or equivalent)

What experiences/courses are preferred for your BEACoN Research Scholar?
STAT 218: Applied Statistics for the Life Sciences (or equivalent)
Title of Research Project
Wildfire, Carbon Storage, and Climate Change: Can Wildland Management Mitigate Airquality Threats?

Name
Richard Cobb

Pronouns
He/him/his

Email
rccobb@calpoly.edu

Format of Research Project
In-person (requires ability to work in SLO)

Description of Research Project
This project provides an opportunity to join a large and dynamic research group working at an intersection of climate change mitigation, airquality protection, and issues of self-determination associated with wildland fire and its management. A team of researchers from several institutions have been measuring carbon emissions, losses, and wildfire dynamics in the Big Sur region just north of Cal Poly since 2006. Multiple wildfires have occurred across a large study area with a rich history of data collection and analysis. The team is working collaboratively to understand the amount of carbon loss due to these fires, which impacted air quality throughout the Salinas and San Joaquin Valleys.

Understanding wildfire interactions with other factors associated with climate change, including invasive species, is an important part of adapting and responding to changing environmental conditions and protecting at risk populations, even though they can be distant from where wildfire occurs. Furthermore, the forced removal of indigenous people in the study region triggered a series of changes to fire dynamics which can only be understood by direct measurement. The group works to leverage these data in ways that inform contemporary indigenous wildland fire and vegetation management efforts.

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.
The student will be invited to participate in a range of activities to identify specific areas of analysis that meet their interests, goals, and strengths. Large collaborative projects with ambitious goals include many subprojects that fit within the timeframe of a two term time period. Several projects, such as quantifying soil carbon and nutrient losses with wildfire are lab and field focused, with data
analysis highlighted during final synthesis. Numerous data-focused projects aim to understand patterns of tree mortality during wildfire and volatilization of biological carbon. These projects are data-analysis focused but still inform management and air quality threats to populations located in areas of critical concern (such as those where air quality is already an issue). Work directly with indigenous management practitioners is ongoing within the group and we have a prescribed fire treatment led by indigenous practitioners tentatively planned for the project period (weather dependent). Prescribed fire may address many of the natural resource problems emerging from analysis of the existing dataset. This latter project would be a field based analysis of prescribed fire impacts on forest fuel dynamics.

What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?
BEACoN Research Scholars can expect to gain quantitative analysis skills, experience with data analysis, and training in several field and laboratory techniques or approaches with the emphasis depending on specific student interests. Students can expect to be introduced to a community of researchers across career levels from several institutions (UC, Cal State, Forest Service, Tribal, CalFire, and others). This is an ongoing project and as such, opportunities for continued involvement at CalPoly or elsewhere are likely.

What experiences/courses are required for your BEACoN Research Scholar?
This project requires the capacity to work as part of a team, a desire to identify shared goals, and a willingness to embrace the uncertainty inherent to natural systems. While no specific skills are required, a desire to learn, the desire to ask original questions, and build on an existing body of knowledge are typical ingredients for successful short-term projects.

What experiences/courses are preferred for your BEACoN Research Scholar?
An interest in natural systems or a background in biological, ecological, management, or anthropological approaches to resource management is beneficial.
Title of Research Project
On the Free-Vibration of Thin Cantilever Plates: Natural Frequencies and Mode Shapes using the Finite Difference Method and the Semi-Analytic Finite Difference Method

Name
Arnold Deffo

Pronouns
he/him/his

Email
adeffo@calpoly.edu

Format of Research Project
Virtual (residence near SLO not necessary)

Description of Research Project
For many design problems in engineering, the analysis often relies on simple models in the early phases of the design process. Though these models are later refined to more accurately capture the complexities of the problem, the preliminary results they provide inform subsequent phases of design. For low aspect-ratio wings, one such approximation, termed the plate-wing model, is to treat the wing as a thin plate. Even for medium to high aspect-ratio wings, the flat-plate model is often used to provide insight into the aerodynamics of thin airfoils. In other words, thin-plate approximations play an important role in the design of aerospace structures.

In this project, we concern ourselves with the free-vibration problem of a thin cantilever plate-like wing. Specifically, we aim to determine the natural frequencies and mode shapes of vibrations. Because it is not possible to obtain an exact solution in closed form, we revert to a numerical approximation, first using the finite difference method, and second using the semi-analytic finite difference method. The starting point is the classical Kirchhoff plate equation. Application of the appropriate finite difference schemes lead to an eigenvalue problem, with the natural frequencies as eigenvalues and mode shapes as corresponding eigenvectors. The accuracy of the methods is checked by direct comparison to results from the literature.

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.
Beyond regular meetings with the advisor, the student’s responsibilities in the project will be as follows:
1. Apply the central difference for the 2nd derivative to obtain the finite difference scheme at the discretization points.
2. Implement the appropriate finite difference schemes at the boundaries to account for the boundary conditions.
3. Solve the resulting eigenvalue problems for the eigenvalues (i.e., natural frequencies) and eigenvectors (i.e., mode shapes).
4. Consolidate the research findings through a poster.

It is also my hope that the mentee and I will produce a conference paper as a result of this work (with the mentee as first author), though writing the paper will be done after the completion of this year’s BEACoN program.

**What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?**

As a result of their participation in the project, the student mentee will receive valuable mentoring from the faculty advisor as well as significant research skills. They will develop, among others, a good understanding of options post-graduation, especially as these relate to advanced degrees (masters or PhDs). Additional benefits include the ability to think independently in research, as well as enhancement of their numerical programming skills. Finally, the mentee will also gain an appreciation for the importance of vibration properties in aerospace engineering.

**What experiences/courses are required for your BEACoN Research Scholar?**

Integral and differential Calculus: MATH 141 and MATH 142
Mechanics of Materials: CE 204 and CE 207 (or equivalently CE 208)
Aerospace Numerical Analysis: AERO 300

**What experiences/courses are preferred for your BEACoN Research Scholar?**

Though some experience with structural vibrations analysis may prove useful, a strong foundation in the above required courses should enable the student to successfully complete in the project.
Title of Research Project
Development of Smart Nanomaterials for Impact Load Detection

Name
Long Wang

Pronouns
he/him/his

Email
lwang38@calpoly.edu

Format of Research Project
In-person (requires ability to work in SLO)

Description of Research Project
Mitigating impact damage is a crucial design aspect in a wide range of structural systems, including civil, aerospace, and marine structures. In the context of personal protection equipment, soft body armor has been commonly used for personal impact protection compared to plate armor, due to their reduced weight, improved mobility, and comfort. Soft body armor is typically composed of layered composites of high strength and toughness woven Kevlar. Recently, extensive attempts have been made to improve the impact mitigation performance of Kevlar body armor through the incorporation of stimulus-responsive smart materials. For instance, shear thickening or dilatant compounds have been used by leveraging their viscosity changes in response to loading rate.

This project will mainly focus on developing a high-performance flexible smart material for impact load detection. In particular, this project will incorporate carbon nanotubes (CNTs) in responsive polymer material systems through designing and optimizing a wet-chemistry-based additive manufacturing procedure. A series of mechanical experiments, including quasi-static and dynamic tests, will be conducted to characterize the mechanical performance of the CNT-based smart nanomaterial systems. In addition, the sensing performance of the nanocomposites will be evaluated through electromechanical tests. This project is a part of a long-term research endeavor on smart material development and optimization for a wide range of applications.

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.
The mentee will closely work with my research team. The mentee is expected to 1) learn about new materials (e.g., nanomaterials and polymers) through literature review, 2) conduct wet-chemistry experiments in the laboratory to fabricate the smart materials, 3) conduct mechanical tests on the fabricated materials in the laboratory, 4) analyze experimental data for data visualization and improving the fabrication process, and 5) attend individual meeting and regular research group
meeting. In addition, the mentee will be trained to deliver literature review, technical reports, and presentations.

**What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?**

Through this multidisciplinary research project, the mentee will learn about the multifunctional nanomaterials, sensor designs, structural health monitoring, among others. The mentee will obtain hands-on experience in the laboratory on manufacturing of smart materials, mechanical and electromechanical testing, and data analysis. In addition, the mentee will receive comprehensive training on literature review, technical writing and presentation, and collaboration skills, especially in a multidisciplinary team.

**What experiences/courses are required for your BEACoN Research Scholar?**

Chemistry, Mechanics of Materials (CE 204 and CE 207); Hands-on experience in wet-chemistry experiments

**What experiences/courses are preferred for your BEACoN Research Scholar?**

Prior experience in mechanical testing. Proficiency in data analysis using Matlab and/or python.
Title of Research Project
Evolving DependencyVis -- An Interactive Visualization Tool for External Software Dependency Information

Name
Bruno da Silva

Pronouns
he/him/his

Email
bcdasilv@calpoly.edu

Format of Research Project
In-person (requires ability to work in SLO)

Description of Research Project
The growing prevalence of package managers such as JavaScript's npm has increased the popularity of reusing software through external dependencies by removing the hassle of setting them up. Because of this ease of reusing software, software developers prefer to install software dependencies over writing their own code. However, software dependencies carry risks from containing security vulnerabilities to not having enough maintainers to continue development. Events such as the left-pad incident have begun to increase the awareness of these potential problems, but it is a hassle for developers to spend the time to research every single dependency. Moreover, licensing issues need to be addressed before incorporating external dependencies in certain projects.

In Spring 2021, we finished the first version of DependencyVis (also part of Nathan Lui's MS thesis), which is an interactive software visualization tool that can analyze, collect, and display information about projects, and their dependencies onto a node-link force diagram. In the next iteration of this project, we are looking for recruiting a student who could help us take DependencyVis to another level. This scope should involve the implementation of basic features that are not fully implemented yet, the conduction of user research to assess the feasibility and applicability of certain features, and the design and implementation of new features or change existing features based on user research.

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.
The student mentee will be involved in all stages of this project, such as designing the study, programming the measurement process through multiple iterations, and reporting results in various formats (e.g., computer-readable, oral, written). We expect that the student mentee's work will be more concentrated on programming data visualization by consuming multiple industry-standard
software services on the cloud, creating scripts to make API calls, and reading/storing JSON documents. We will schedule weekly meetings to interact with each other, discuss results, review tasks, exchange feedback, and ultimately grow together.

**What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?**
Throughout the project execution, the student mentee will be able to develop a research-oriented mindset of working on research questions, scoping and carrying out a research method, collecting and analyzing data, and reporting results. Also, while executing this project, the mentee will advance their programming skills by using modern software technologies (e.g., REST APIs), consuming industry-standard cloud services, and handling JSON documents. Additionally, with the support of the mentor, the student mentee will develop soft skills such as problem-solving, critical thinking, communication, confidence, creativity, and time management. All those are strongly appreciated in the software engineering/computing industry.

**What experiences/courses are required for your BEACoN Research Scholar?**
CSC 203

**What experiences/courses are preferred for your BEACoN Research Scholar?**
CSC 357
Title of Research Project
The Visual Investigation of "First Bubbles"

Name
Hans Mayer

Pronouns
he/him/his

Email
hmayer@calpoly.edu

Format of Research Project
In-person (requires ability to work in SLO)

Description of Research Project
The motions of fluids (both gases and liquids) can be quite complex and, when visualized using photographs and videos, can be stunning even for the seemingly mundane and simple events that we experience on a daily basis. An example of this is the phenomenon that occurs with the first entry of a bubble into the neck of an inverted single-outlet vessel (i.e., a bottle). Only through high-speed photography is the process accessible and takes place as follows. Upon allowing the liquid in the inverted bottle to empty, a bubble rises as a ‘slug’ of air through the neck (air goes in – liquid goes out around the sides of the bubble), the bubble expands and slows as it reaches the body of the bottle, pinches off at its base (near the bottle neck), and the pointed tail of the bubble that remains accelerates upward inverting itself to form a high-speed jet of liquid that punctures the opposite side of the bubble. This puncture process causes what appears to be a toroidally-shaped bubble with a liquid core which continues its upward journey in the bottle until it breaks apart. This all happens in the blink of an eye.

No written description is as compelling as an image (But I can’t load an image into this project description! – Please contact me directly for an examples of visuals). The phenomenon just described was serendipitously visualized by the mentor of this project while taking still photographs to act as photos for an unrelated research publication. These first few images prompted a couple of high-speed movies and started a research project that was effectively halted due to the COVID-19 pandemic. Aside from the obvious beauty of the phenomenon, which merits study to include in a Gallery of Fluid Motion competition, there are potential fundamental aspects worth studying including the dynamics of high-speed gas/liquid jets and the breakup of liquid-air interfaces via impact. The BEACoN Research Scholar selected for this project will take part in this study to investigate the beauty of the phenomenon and to learn more about the fundamental physics of the gas/liquid jet evolution and destruction. When we think of engineering we often think only of the technical and numbers-driven side of things. This project is one that lies at the intersection of the technical and visual - a blending of art and science.
Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.

The BEACoN Research Scholar involved in this project will be an integral part of a small team of Mechanical Engineering undergraduate students who are all working toward the goal of investigating the “first bubble” event associated with the emptying of inverted single-outlet vessels (i.e., bottles) as described in the project description. As part of this team, the Scholar will be involved in both group and individual tasks (working closely with the mentor during weekly meetings and with other students outside of meeting times), and the degree of involvement in these tasks will be consistent with the 100 hr/quarter time commitment. Complexity of tasks will build as the project progresses.

Specific tasks will include the following:

- Performing a literature review to (1) investigate related fluid dynamic phenomenon to drive quantitative data gathering (e.g., other instances in which high-speed jets are formed), and (2) survey entries into past Gallery of Fluid Motion competitions to provide insight into creating a compelling poster and video. These surveys will be ongoing throughout the project.
- Designing (and updating exiting) key features of the experimental equipment necessary to perform experiments. This may involve CAD designs (SolidWorks) and could involve fabrication in the campus machine shops, or working closely with student machine shop assistants.
- Developing experimental procedures, performing experiments using digital cameras for image and video capture (working with the equipment in the lab), and using early results to inform changes in procedures and experiments.
- Using existing MATLAB programs and writing new code to analyze features within digital images and videos recorded during experiments. In addition, the Scholar will need to investigate and learn to use a video editing program of their choosing (e.g., Adobe Premiere Pro).
- Work on preparing publication-ready content for a journal/conference publication (target submission June 2022), and poster and video content for the Gallery of Fluid Motion (target submission August 2022). The Scholar will also have the opportunity to take part in the SoCal Fluids Conference (April 2022) in addition to potential travel to a national fluids conference (November 2022) to present at the Gallery of Fluid Motion.

What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?

The skills and experiences gained by the BEACoN Research Scholar will be those typically acquired during the course of an experimental research program. Specific to this project, by the end of the program the Scholar will have:

- Gained knowledge and experience related to the planning and development of experimental equipment and procedures necessary to collect publication-quality data. This will include design and fabrication of some parts of the needed apparatus, and in-lab time working with equipment to collect data.
• Gained practical skills working with various digital photography tools including tethered (i.e., synchronized) DSLR cameras, a high-speed (1k – 10k fps) digital camera, various camera lenses, and lighting equipment.

• An understanding of the basic functions and capabilities of the MATLAB Image Processing Toolbox in order to develop manual and automated code for extracting quantitative information from images and preparing images for various publication formats.

• Analyzed experimental data for the presentation of publication materials ranging from journal/conference print materials to conference posters and videos. In addition, the student will have gained experience in preparing these materials for publication along with practicing to present these materials at conferences. If alternative funding resources exist, the student will be encouraged to travel to conferences to take part in that experience (which can be beneficial if the Scholar is interested in continued education at the graduate level).

NOTE: In the event that the project has to be executed virtually, the student will gain experience in directing experiments from a distance (e.g., interacting with the mentor who will in-lab following procedures and instructions developed by the Scholar).

What experiences/courses are required for your BEACoN Research Scholar?
The BEACoN Research Scholar selected for this project is required to have taken ME 341 (Fluid Mechanics I), or an acceptable course substitute, given the heavy emphasis on fluid mechanics. If the interested Scholar is not an ME major, please provide evidence of coursework that would have covered fundamentals of fluid mechanics. It is also essential that the Scholar have an attention for details.

What experiences/courses are preferred for your BEACoN Research Scholar?
It would be preferable for a BEACoN Research Scholar to have some background in working with the MATLAB programming environment. This could be gained through coursework in a CS class or in other ME classes. It would also be preferable, but not necessary, to have some basic hands-on laboratory and/or machine-shop experience. It would also be preferred if the Scholar recognized the artistic qualities in the visual aspects of fluid dynamics as this will be helpful when they create compelling visuals related for the project.
Title of Research Project
Public Humanities: Buried Under Dodger Blue

Name
Erin Victoria Zamora

Pronouns
she/they

Email
ezamor12@calpoly.edu

Format of Research Project
Virtual (residence near SLO not necessary)

Description of Research Project
There has been an explosion of interest in public humanities research projects, especially those that focus on issues of public memory and race. In that vein, this research project aims to uncover the through line between the destruction of the La Lloma, Palo Verde, and Bishop neighborhoods in the 1950’s that eventually made way for the construction of Dodger Stadium, and the improbable rookie season of Dodgers pitcher Fernando Valenzuela in 1981. Although these two stories took place almost 30 years apart, they have had a lasting influence on Latinx communities and identity in Los Angeles.

This research project will serve as the inaugural season for a podcast series that will feature original research. A prior iteration of this project was presented as a dissertation. This new vision aims to take advantage of social and digital media to create accessible research for circulation among a public, non-academic audience.

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.
The BEACoN mentee will have the opportunity to:
- Conduct archival research through a variety of online databases, hone their research skills, and assist in organizing resources for use in the production of the podcast’s inaugural season.
- Participate in the pre-production process by helping craft the direction of the first season and contribute to the script.
- Promote the project through social media.
- Be credited as a researcher and producer for the season.

What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?
The mentee will gain experience doing archival research, digital media pre-production, social media promotion, and crafting public scholarship intended for a non-academic audience.

**What experiences/courses are required for your BEACoN Research Scholar?**
Preference will be given to students that have experience doing archival research, writing, and editing. Ideally, this would be a communication, ethnic studies, or cultural studies student interested in public memory, race, and sport with strong communication skills and an interest in the public humanities.

**What experiences/courses are preferred for your BEACoN Research Scholar?**
Experience engaging issues of race and culture, a passion for baseball and/or podcasts, and knowledge or experience working with social and digital media.
Title of Research Project
Curating Representation: The Art of Micropublishing

Name
Shanae Aurora Martinez

Pronouns
they/she

Email
smart200@calpoly.edu

Format of Research Project
In-person (requires ability to work in SLO)

Description of Research Project
This project will serve as a pilot for the emerging Book Arts Lab (BAL) at Cal Poly. The BAL is an interdisciplinary space housed in the Shakespeare Press Museum in the basement of the GrC building so all in-person contact will be masked and socially distanced. The vision for BAL is to provide a space for historically marginalized students to create living artifacts of their experiences and submit them to an archival repository in Cal Poly Special Collections & Archives. While the BAL will be an accessible outlet for the voices of all historically marginalized students, this particular portion of the project will focus on the logistics of micropublishing to circumvent gatekeeping in literary publishing and editing through the BAL as a literal learning lab. Since this project will result in multi-discursive publications of student projects and experiences they will also be submitted to Cal Poly Special Collections & Archives.

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.
The mentee will curate 2-4 student storytelling projects, including one of their own to publish through the BAL for submission to Cal Poly's Special Collections and Archives. Such responsibility will require the student to have strong research, communication, and organizational skills; as well as, creative, curatorial, editorial, and educational interests. The mentee will be responsible for outreach to gather projects for micropublishing, curation, and editing; as well as, secure permissions to submit these projects to the archival repository.

The mentee will be involved with every step of building the learning lab component of the Book Arts Lab, including: peer outreach to gather historically marginalized student stories and ephemera; regular communication with me, library staff, and contributors; editing, if needed; gaining permissions for archival submission; and converting physical ephemera to an accessible digital format.
In many ways the mentee will be a project manager, gaining experience with organizing grassroots/micro publishing, archive building, and community outreach. The mentee will meet with me once per week, but should expect to be in regular communication throughout the week. In addition to establishing the BAL as a micropublishing learning lab for historically marginalized students at Cal Poly, the mentee will also help curate 2-4 student storytelling projects. One project will be of the mentees choosing, one project will be the result of a senior project for which I am the advisor, and the remaining two projects will be curated from the creative work submitted by students in my California Storytellers class.

What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?

The mentee of this project will gain experience with project management, professional and community outreach, artistic curation, course and curriculum development, literary production, editing, archive building, and they will participate in the long and arduous process of social justice worldmaking in our small corner of Cal Poly.

What experiences/courses are required for your BEACoN Research Scholar?

Preference will be given to students that have experience (or interest) with creative and critical storytelling, social justice pedagogy, writing, editing, archival research, education, and publishing. Preferably this would be a humanities, arts, or cultural studies student invested in literature, history, art, and decolonial praxis, with strong organizational and communicative skills. Library science students are also encouraged to apply.

What experiences/courses are preferred for your BEACoN Research Scholar?

Scholarly engagement with intersectional social justice pedagogy, and/or experience working with or within historically marginalized communities.
Title of Research Project
Diversity and Inclusion in the Middle Ages and Beyond: Hearing Medieval Women; Recovering Women's Voices

Name
Debora Schwartz

Pronouns
she/her/hers

Email
dschwart@calpoly.edu

Format of Research Project
Virtual (residence near SLO not necessary)

Description of Research Project
My research focuses on recovering and hearing the voices of medieval women who, despite being systematically excluded from opportunities for formal education (other than in gender-segregated religious institutions such as convents and nunneries that required women to withdraw from secular society), developed strategies for participating in literary discourse and for challenging the limitations imposed on women by medieval society. Close reading of medieval texts helps us understand the challenges faced by women interested in participating in the "life of the mind" and the literary community of the 12th-15th centuries, and reveals sophisticated strategies to push back against social constraints that limited the choices and opportunities open to women. I consider texts known to be authored by women (e.g. Marie de France) and by their male allies (Geoffrey Chaucer) as well as "The Romance of Silence," a fascinating work by an otherwise unknown author, Heldris of Cornwall, whom I believe was a woman writing under a man’s name or possibly a trans man.

A second component of my research involves the ways in which modern authors sensitive to the exclusion of women's perspectives from canonical medieval works of the Arthurian tradition have used imaginative retelling, informed by deep knowledge of the medieval texts, to "recover" the voices of women characters (Arthur's queen, Guinevere; Elaine, also known as the "Lady of Shallot," and the various female enchantresses who play a role in Arthurian romance, e.g. the Lady of the Lake, Morgan la Fee, Vivien, and Nimue).

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.
The student-researcher will assist me by gathering and assessing scholarship on gender-related issues in the medieval authors and texts I am working on (Marie de France’s Lais, Heldris of Cornwall’s "Romance of Silence," and Geoffrey Chaucer’s "Canterbury Tales"), as well as on Marion Zimmer Bradley’s late-20th-century feminist reworking of Arthurian legend, "The Mists of Avalon," which
draws on a broad range of medieval texts to retell the story from the perspective of women characters whose voices and perspectives are obscured or absent from the medieval sources.

If the student is on campus and the Kennedy Library is open, some component of the student’s work would involve working with hard copy sources the Kennedy library’s collections, but much or all of the student’s work may be conducted remotely. We will meet regularly, either in person or over Zoom, to discuss how gender-related issues manifest in the texts on which I am working as well as in the student's individual project if they choose to work on one.

What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?
The student will gain or hone their skills in research methods, critical assessment, and academic writing, in particular close reading and textual analysis. The student will also gain important professional skills, such as identifying opportunities for the dissemination of research (academic conferences; scholarly publication), participating in scholarly collaboration, and networking.

What experiences/courses are required for your BEACoN Research Scholar?
There is no specific required coursework, but the mentee must have:
- A sincere interest in issues of equity and inclusion as they apply to earlier periods where they manifest differently than they do in 21st-century California;
- Curiosity about what can be learned by considering works and authors from earlier periods through the lens of gender;
- Enthusiasm about engaging in research to recover the voices and perspectives of medieval and early modern women, including trans- and gender-fluid individuals, which have been erased or obscured from the historical record;
- Interest in identifying the strategies used by these individuals and their allies to navigate and expose the limitations imposed upon them due to their sex or gender identity;
- Openness to recognizing how voices from the past still resonate today;
- Eagerness to consider how the issues and challenges experienced by medieval and early modern women and/or trans- and gender-fluid individuals are relevant to the challenges experienced by under-represented groups in today’s world.

What experiences/courses are preferred for your BEACoN Research Scholar?
At least one class dealing with literature of the medieval or early modern period, e.g. ENGL 203, ENGL 204, ENGL 252, ENGL 330, ENGL 331, or a variable-content class with a medieval or early modern component (ENGL 380, ENGL 439, ENGL 459) and interest in the application of gender-related analysis to literary texts; OR, a history class dealing with the Middle Ages and interest in the application of gender-related analysis to historical documents and literary texts; OR a WGS class dealing with periods prior to the modern era and interest in the application of gender-related analysis to literary texts.
Title of Research Project
The Central Coast Queer Archive Project

Name
Steven Ruszczycky

Pronouns
he/him

Email
sruszczy@calpoly.edu

Format of Research Project
In-person (requires ability to work in SLO)

Description of Research Project
The Central Coast Queer Archive Project a collaborative, community-based effort that seeks to recover the queer and trans history of the Central Coast by conducting oral history interviews with community members. Completed interviews are then submitted to Cal Poly Kennedy Library’s Archive and Special Collections, where they are available to the public for research, creative projects, and other forms of non-commercial use. They are also uploaded to the CCQAP’s website (sloqueerarchive.org) where anyone can view them. Finally, completed interviews are then showcased in various community events meant to highlight the history and contributions of LGBT community members. Over the past six years, the CCQAP has engaged in two major projects. The first concerns the recovery of interviews with primarily gay and lesbian elders conducted by the GALA Pride and Diversity Center in the early 2000s. Essentially lost to history, the CCQAP obtained possession of those interviews, processed them, and made them publicly available. The second project, funded by a California Humanities "Quick Grant" of $5000, concerns the production of a new set of 10 high-quality video interviews with a diverse array of LGBTQI-identified seniors. These interviews will become available in December of 2021. With the completion of that project, the CCQAP will begin working on devising a new set of projects for the coming years.

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.
The student will be able to determine the kind of work that best suits their interests and abilities. In the past, students have researched, designed, and conducted interviews with narrators (interview subjects). They have also assisted with processing transcripts based off of the interviews using AI-assisted transcription software. (Research scholars interested in conducting interviews are required to do both the research and interviewing work as well as the transcription and preparation work.) In addition to or instead of the interview work, students may focus on developing some kind of public education project, which might be carried out either in person or in a virtual format. Students with web design experience may also help the project creating a more interesting and engaging online
presence. So far, the project has concentrated on the collection of interviews, but we are just as concerned with making these interviews available so that they do not simply sit in the archive unwatched or unused.

If COVID prevents in-person interviewing, then Research Scholar can expect to focus on conducting archival research, working with existing interviews, and other aspects of the project that can be completed safely under pandemic conditions.

**What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?**
Research scholars will gain significant experience in oral history methods, video production, archival research, and qualitative analysis. Research scholars also will likely gain some experience in grant writing. Research scholars will gain significant experience in working with a small, kooky, yet friendly team of researchers composed of members from various parts of San Luis Obispo.

**What experiences/courses are required for your BEACoN Research Scholar?**
No courses are required.

**What experiences/courses are preferred for your BEACoN Research Scholar?**
Some coursework on a subject relevant to LGBT history and/or culture is desirable. Students may wish to enroll in WGQS 302: Selected Topics: Queer Oral History in Winter of 2022, but this is not a requirement. Additionally, some coursework relevant to oral history is desirable but not a requirement.
Title of Research Project
Filipinx-Indigenous Relationalities in the Pacific

Name
Ryan Buyco

Pronouns
he/him/his

Email
rbuyco@calpoly.edu

Format of Research Project
Virtual (residence near SLO not necessary)

Description of Research Project
What does it mean to be Filipino in an Indigenous space? How does the history of colonialism and militarization connect different islands together? This project considers the transpacific trajectories that brought Filipinos to the small island archipelago of Okinawa in Southern Japan. Recently, critical analyses of the Filipino diaspora are examining the ways that Filipinos have participated within structures of Indigenous dispossession in the Pacific. This project looks specifically to the militarized context of Okinawa—a place that hosts 70% of all US military bases in Japan—and the ways that contemporary Filipino narratives figure within the politics of Indigenous resilience in Okinawa today. This research aims to contribute to larger conversations in Asian American studies and Asian diaspora studies regarding settler responsibilities and decolonial activism in the Pacific and beyond.

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.
The BEACoN Research Scholar will assist with the following: 1. review and write summaries of existing secondary literature on Asian/Filipinx-Indigenous relationalities; 2. analyze primary materials such as Filipinx narratives from interviews and works of Okinawan literature in English; and 3. develop research questions.

What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?
My mentee will learn methods in humanities-based scholarship which will include textual analysis, historical research skills, writing, and archival management.

What experiences/courses are required for your BEACoN Research Scholar?
Any course or courses in Ethnic Studies.
What experiences/courses are preferred for your BEACoN Research Scholar? Coursework in Asian American studies and Asian studies would be a major plus.
Title of Research Project
Black Masculinity and Access to Paternal Postpartum Healthcare

Name
Dan Castilow

Pronouns
he/him/his

Email
dcastilo@calpoly.edu

Format of Research Project
Virtual (residence near SLO not necessary)

Description of Research Project
The Covid-19 pandemic has exposed many inequities in access to healthcare in the United States. These inequities in access are often pronounced along the lines of race. While postpartum health complications for mothers, including depression, are monitored by many healthcare providers, postpartum in depression Black fathers may be underdiagnosed and undertreated due to these inequities in access and medical racism.

This exploratory project seeks to identify the prevalence of postpartum health screenings for fathers, particularly Black fathers. Furthermore, this research will explore postpartum healthcare outcomes for Black men as more fathers work from home during the Covid-19 pandemic.

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.
The BEACoN research scholar will assist in the development of the literature review, interviewing, developing research questions, and assisting in data interpretation.

What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?
1. Developing a new research project
2. Ethnographic research design
3. Application of theory in Black and gender studies

What experiences/courses are required for your BEACoN Research Scholar?
N/A

What experiences/courses are preferred for your BEACoN Research Scholar?
The student should have a broad interest in healthcare and African American Studies.
Title of Research Project
Libraries: Revolutionary or Regulatory?

Name
Jaime Ding

Pronouns
she/her/hers

Email
jpding@calpoly.edu

Format of Research Project
In-person (requires ability to work in SLO)

Description of Research Project
What is a library? Is it just a space where books are held? This project will take a deep dive at the historical context of the culture of libraries, centering on Cal Poly and the California State University Consortium, to understand how libraries have become seen as places of neutral, invisible labor. Using the Robert E. Kennedy's Special Collections and Archives, the physical space of the current library, along with other traditional scholarly databases, we will journey into fully understanding how the culture of a library within a public university has become thought of as immobile space, rather than a dynamic system run by people. A critical look through labor history, social history, and gender studies, we will see how the library as a ‘neutral’ tool has been wielded in the university system by students, faculty, library staff, and administrators.

If “the public library is revealed as a social agency dependent upon the objectives of society. It followed- it did not create - social change” (Jesse Shrea) then does a public academic library follow such as well? Or is there a chance of being revolutionary?

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.
The scholar will be expected to search through primary and secondary sources, think creatively with the material that is found, apply critical and cultural frameworks. The student will be able to go through the complete lifecycle of research, as the goal is to publish some of the findings.

What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?
The mentee will be able to critically navigate databases, hone research skills, understand and utilize archives and primary sources, use data visualization and other digital tools to create a story of how an
institution holds power. As the work hopes to be published digitally, the mentee will also be able to have a tangible scholarship product.

What experiences/courses are required for your BEACoN Research Scholar?
Any of the following: ethnic studies, women and gender studies, history, communications, information science.

What experiences/courses are preferred for your BEACoN Research Scholar?
Academic or general interest in storytelling, history, archives, libraries, rhetoric, communication, visualization, power structures, cultural studies. Willingness to think through alternative modes of storytelling, curiosity and enthusiasm about thinking about systems critically.
Title of Research Project
Surfing, Seafaring, and Storytelling: (Re)Narrating Coastal California with Indigenous Research Methods

Name
Lydia Heberling

Pronouns
she/her/hers

Email
lheberli@calpoly.edu

Format of Research Project
In-person (requires ability to work in SLO)

Description of Research Project
This project brings together the study of California Indian literatures and material cultures with the emerging field of critical surf studies to examine the relationship between surfing, seafaring, and storytelling along California’s 840-mile coastline. Home to more than twenty California Indian tribal nations, including the yakʔitʸutʸu yak tīhini, the California coast remains a site of pervasive and persistent settler colonial erasure for Indigenous peoples. Beginning with the establishment of the Spanish missions in the eighteenth century, California Indians have experienced removal from and dispossession of coastal homelands, and current-day access to those traditional lands and waters remains challenging. Surfing has become one unlikely activity California Indians are using to re-engage with those homelands up and down the California coast. The link between surfing and resurgent traditional seafaring practices opens provocative possibilities for imagining how surfing and seafaring, and their associated narrative and aesthetic traditions, (re)narrate California coastal spaces as sites of Indigenous care, relationality, and belonging.

This project will combine literary and creative forms of Indigenous self-representation, including film, photography, visual art, and written texts with current scholarship within Indigenous, feminist, and critical surf studies to identify the diverse ways in which Indigenous communities from California have and continue to utilize surfing and seafaring as expressions of sovereignty that affirm Indigenous presence and futures.

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.
The student mentee will have the opportunity to conduct a literature review and annotated bibliography of creative works about California’s coast; will learn how to review the programming of organizations focused on the preservation or enjoyment of the California Coast; and will participate in local coastal events as they arise.
What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?
The student mentee will learn foundational concepts in Indigenous research methods; how to engage in counter-archival work; and how to engage in research according to and in relationship with tribal communities and their protocols.

What experiences/courses are required for your BEACoN Research Scholar?
At least one Ethnic Studies course or course where the student has learned a foundational understanding of settler colonialism, critical race, and/or Indigenous studies.

What experiences/courses are preferred for your BEACoN Research Scholar?
An interest in stories as sites of decolonial possibilities; an understanding of California’s settler colonial history; and a connection with or to the surf community in California (whether as a surfer or as someone connected with or interested in surf culture).
Title of Research Project
Beauty and the Nation: Race, Capitalism, and Modernity in Late Colonial Vietnam

Name
Christina Firpo

Pronouns
she/her

Email
cfirpo@gmail.com

Format of Research Project
Virtual (residence near SLO not necessary)

Description of Research Project
“Beauty and the Nation: Race, Capitalism, and Modernity in Late Colonial Vietnam,” explores the beauty industry and gendered consumerism that took Vietnam by storm at the height of colonial capitalism. I argue that women’s faces and bodies became hotly contested sites for signifying what it meant to be Vietnamese in a modern world. Women were held responsible for representing the nation at a time when the colony was grappling with difficult questions about modernity, nationalism, race, and eugenics. Discussions about cosmetics devolved into bitter arguments about the morality of manipulating “natural” beauty with modern science. Male nationalists enlisted the help of Vietnamese artists and fashion designers to wrest control over the rapidly westernizing fashion landscape and create a uniquely “Vietnamese” national dress that would reflect a “civilized” Vietnamese nation. Advice columns about exercise, health, and dieting promoted curvaceous bodies that would give birth to healthy young citizens. Beauty contests put all these new ideas about fashion, cosmetics, and the body on display for all to judge—both inside Vietnam and in an international context. The beauty industry, as a result, became an arena for developing modern female consumers who would represent the nation—not as political participants, but as visual representatives.

“Beauty and the Nation” draws from newspaper articles on fashion trends, beauty advice, exercise how-to articles, discussions of the ideal female figure, and debates about the morality of beauty contests. Colonial government archives have provided information on beauty contests and those expositions where designers debuted the latest trends; reportage journalism and fiction stories have revealed the mechanisms by which such trends operated symbolically in society. The chapters of this book are organized topically to include a market analysis of the beauty business, as well as studies of fashion, cosmetics, body image, and beauty contests. I look forward to working with a student to explore the ways in which the image of women and beauty was used to represent the nation.
Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.
Under my mentorship, the student-researcher will gather and assess primary source materials, specifically newspaper articles and literary fiction from the era. Together, we will collect newspaper articles aimed specifically at the female beauty consumer and read through the rich literary fiction published during the interwar era. We will analyze the images and transcribe articles with the aim of creating a digital archive to make these images readily accessible to the public. Most of the research materials are digitized and readily accessible through the French and Vietnamese National Libraries, others are books that are available through interlibrary loan or my personal collection. Although most of the student’s work will be conducted online—and thus socially distant—I look forward to working closely with and mentoring the student-researcher.

What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?
In the process of learning about women’s history, Vietnamese history, and economic history, the student will gain practical skills in qualitative research methods, including primary-source research, data analysis, close textual analysis, image analysis. The student will learn the techniques of digital humanities and improve their writing skills. The student will also gain important professional skills, such as managing projects, organizing data, making deadlines, collaborating on research, and written and oral presentations.

What experiences/courses are required for your BEACoN Research Scholar?
There are no formal classes required for this project, but I hope to find a student who is enthusiastic about research. The student-researcher should be interested in learning about women’s studies, literature, Asian history, or Vietnam studies. The student should be a proficient reader of Vietnamese. The student does not necessarily have to be native-level proficiency (nor be of Vietnamese heritage), but will have a level of competency to read newspaper articles or literature. I speak and read Vietnamese, so I can help the student with more complicated reading passages.

What experiences/courses are preferred for your BEACoN Research Scholar?
Attention to details and strong organizational skills will be a bonus.
Title of Research Project
Central California's Black WWII History

Name
Thanayi Jackson

Pronouns
she/her

Email
tjacks25@calpoly.edu

Format of Research Project
In-person (requires ability to work in SLO)

Description of Research Project
I have recently become involved with a local history project collecting sources on African American military units stationed in central California and in San Luis Obispo County, in particular, during WWII. This project is interested in exploring the potential of creating a special collection that would document the Black military experience in San Luis Obispo. To date, this collection includes military unit records, USO records, private correspondence, and newspaper articles pertaining to the all-Black units. Ideally this project would continue to add and organize materials including additional unit records and, potentially, local oral history interviews. This collection poses many historical questions about Black history in central California during the WWII era and, therefore, could provide a valuable resource in the study of this underrepresented local history.

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.
Students will learn about historical research and historical thought as well as library science and the process by which special collections are conceived. Under my guidance, students will be responsible for organizing collected records into a searchable database. When necessary and possible, the mentee will order copies of records to be mailed to me. Working under the realities of COVID will dictate the degree to which we are able to do in-person local research, but this project is also interested in mapping local WWII military sites and would ultimately like to include students in obtaining oral histories from surviving members of San Luis Obispo’s Black military community. Knowing the realities of COVID, virtual meetings will play a large part of our work.

This project is conceived of as a history and library science project. Should a special collections project be feasible, I hope that the student could also add thoughts and input into how to make this collection user friendly and accessible. We hope that this collection will be available to facilitate future studies on Black history in San Luis Obispo.
What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?
On the research project: This project will teach students quantitative research skills through library and archival research and organization. Library science is a field suited for many history majors and this project hopes to introduce these skills to the selected student. This project is also an introduction to Public History as the project will not only pull from public records repositories and engage with local institutions and organizations, but it is the type of local history reveal that could lead to public memorials and monuments to highlight a previously erased history.

On mentorship: I believe that the college experience is primarily about developing our own voice and life experience through interaction with other thinkers. I often find that students come to college with a belief that they must adapt to an elusive and elite academic language at the expense of their own voice. This is a concept that sometimes derails students and causes them to feel unprepared and even unworthy of academia. As a mentor, one of my primary goals is to help students recognize the value of their own voices. College is not the place to lose your voice but rather to amplify it, hone it, and add it to an academic world in need of a multiplicity and diversity of experience. I also hope to be a sounding board for students to explore their own thoughts, both verbal and written, and explore the new opportunities and professional avenues available through the college experience.

What experiences/courses are required for your BEACoN Research Scholar?
Familiarity and/or Interest in general WWII era, local SLO, and/or African American history.  
*Knowledge/familiarity with searchable databases.

What experiences/courses are preferred for your BEACoN Research Scholar?
HIST 202 United States History Since 1865 or ES 242 Survey of Africana Studies or equivalent background or ES 112 Race, Culture and Politics in the United States.  
*Experience constructing searchable databases a strong plus.
Title of Research Project
Inclusive Engineering: A Systems Thinking Approach to Enhance Equity and Diversity in Engineering Education

Name
Dawn Neill

Pronouns
she/her/hers

Email
dbneill@calpoly.edu

Format of Research Project
In-person (requires ability to work in SLO)

Description of Research Project
A wicked problem is one that is complex, interconnected, social embedded, and by nature extremely difficult to solve due to the real-world constraints that impede clear solutions. The lack of diversity in STEM has been conceptualized as a 'wicked problem' that consistently fails to attract and retain women and people of color despite surface-level attempts at broadening participation. The lack of diversity in STEM is embedded in a history and culture that resists inclusive change. Engineering as a discipline is characterized by linear epistemologies and hierarchical design thinking wherein technical knowledge is advantaged over critical thinking, communication skills, or teamwork. This research recognizes that, society's wicked problems are complex, broad, and are multidisciplinary in nature. We join a burgeoning movement in engineering education calling for the infusion of inter- and transdisciplinary systems thinking into engineering education.

Systems thinking conceptualizes complex problems in multidimensional, holistic frames that attend to details beyond the technical, including history, culture, gender, power, and sustainability. A systems thinking approach requires engineering education to center the human experience, examine interactions among system components, and fully consider patterns that emerge from those interactions. A systems thinking approach may prove useful in broadening participation in engineering in two key ways. First, system thinking requires a reformulation of problems and related solutions that breaks down linear thinking and equalizes the emphasis on the technical by centering the human experience in problem solving. This approach requires interrogation of dominant perspectives and competing priorities, thereby challenging both masculine and white hegemonic discourses in engineering. Secondly, interdisciplinary training emphasizes history, culture, and power relationships, deprioritizes siloed technical solutions, and engages teamwork to develop complex systems-based solutions. The proposed research seeks to develop a pilot program for systems thinking-based engineering education.
Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.
The BEACoN Research Scholar will be expected to assist in two main research activities. First, the research scholar will engage in primary literature research on systems thinking, engineering education, and diversity in STEM. The student will assist in drafting a comprehensive literature review of systems thinking and diversity in STEM. This literature review will serve as the foundation for an NSF grant proposal to support a pilot engineering education initiative at Cal Poly. Secondly, research scholar will assist in a qualitative analysis of existing materials from engineering and liberal arts students on the potential role of systems thinking in engineering education and on interdisciplinary, team-based projects.

What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?
The BEACoN research scholar will become an expert on engineering education, the pervasive issues of diversity in STEM, and the process of grant writing. The student will gain qualitative analysis skills.

What experiences/courses are required for your BEACoN Research Scholar?
Student Research Scholars should have some familiarity with library research, peer reviewed journals, and library databases.

What experiences/courses are preferred for your BEACoN Research Scholar?
Experience with qualitative research methods is preferred.
CLA – Journalism – Shan

Title of Research Project
# CHANGE: Communicating Corporate Social Responsibility (CSR) in the Age of New Activism

Name
Yan Shan

Pronouns
she/her/hers

Email
yashan@calpoly.edu

Format of Research Project
Virtual (residence near SLO not necessary)

Description of Research Project
In 2021, a record number of businesses and their CEOs took public stands on political, environmental, racial and societal matters that are directly or indirectly related to their core businesses. Many big-name brands like HBO and Nike are well positioned with resources and access to motivate culture and policy changes by investing in CSR programs. These programs then create opportunities for consumer to engage with the brand on social media. Now, consumers and employees are raising the bar for big corporations. The wide spreading coronavirus, the raging wild fire in California, the killing of Georgia Floyd, these epic events shift public perception and expectation. Consumers are looking for authentic content with real change, and public resistance to the standard CSR playbook in which “companies talk the talk without walk the walk” is no longer working. The age of new activism calls for transparent, value-based, purpose-driven corporate communication.

This study aims to investigate the use of Instagram (a popular photo and video sharing social media application) in communicating CSR programs, and its impact on consumer perception and engagement. More importantly, the proposed research will advance scholarly knowledge about the changing practice of CSR and provide pragmatic recommendation for public relations professionals and corporate communicators.

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.
The student working on this project will be expected to be involved in several stages of the project. Over winter quarter, the student will assist in collecting and compiling case studies, conducting literature and writing annotated bibliographies, participating in research design and methodology.
Over spring quarter, the student will engage in data collection and analysis, and potentially be a contributor to a small section of the manuscript (writing the method section).

**What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?**
The student working on this project will develop critical thinking and analysis skills, and knowledge in scientific research method. The student will also learn how to search for and find relevant peer-review literature and synthesize findings. They will also gain up-to-date knowledge about scholarly research on social media in the disciplines of public relations and marketing communication.

**What experiences/courses are required for your BEACoN Research Scholar?**
No required experiences and courses. Anyone who is interested in this topic could apply.

**What experiences/courses are preferred for your BEACoN Research Scholar?**
Students who are familiar with Instagram and have the skill set to create and manage visual content on this platform. Previous experience with social media campaign is preferred, but not required.
Title of Research Project
Free Will and Anger at Injustice

Name
Robert Wallace

Pronouns
he/him/his

Email
rhwallac@calpoly.edu

Format of Research Project
In-person (requires ability to work in SLO)

Description of Research Project
Some philosophers think that no one has free will. It is not up to us what we do. Perhaps everything we do is just the product of brain mechanisms that are out of our control, or that physics says there is only one possible future, or that everything is ultimately lucky due to quantum indeterminism. Importantly, if it is not up to us what we do, it seems that our actions are not deserving of blame or punishment; no actions are worth being angry about. Why? It would be unfair to angrily blame someone who could not have avoided doing something wrong. It would be unjust to punish someone who was not in control over what they were doing. On the other hand, other philosophers have suggested that our confidence in the fact that we are morally responsible—that some people really do deserve angry blame—itself constitutes a reason to believe in free will.

In this project, we will investigate the connection between free will and the aptness of anger. We will focus on work on anger that emphasizes anger at oppression by contemporary ethicists, especially those concerned with feminism and anti-racism. Can a free will skeptic accommodate concerns about anger at injustice? Are there places where pro and anti-anger thinking converge, such as in criminal justice reform or non-violent response to wrongdoing? Could an argument be made for free will from justice struggles? Let’s find out!

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.
The BEACoN scholar will:
1. Assist in the creation of a literature review, bibliography, and debate maps.
2. Meet regularly for discussion.
3. Write an original article for publication in an undergraduate journal or other media outlet.
4. Dedicate time to academic development—C.V. construction, where to publish, public presentation preparation.

I would also ask that the BEACoN scholar attend our philosophy workshop speaker series to get a sense of how to do academic presentations and deepen their immersion in philosophical discourse.

**What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?**
The BEACoN scholar will gain skills in:
- Time management and project planning
- Academic research and publishing
- Clear and concise writing
- Public speaking

**What experiences/courses are required for your BEACoN Research Scholar?**
The BEACoN scholar should have strong reading and writing skills and a background in a relevant liberal arts field.

**What experiences/courses are preferred for your BEACoN Research Scholar?**
Preferably, the scholar would have a solid background in philosophy and/or a cognate field (major/minor). Ideally, the student might enroll in PHIL 301 Philosophical Topics: Anger in winter quarter.

Although this is not required, a student who is interested in pursuing graduate-level work will likely get the most out of this project.
Title of Research Project
How to Win a SOGI Referendum: A Study of Issue Framing, Coalition-Building, & Local Direct Democracy

Name
Royal G. Cravens

Pronouns
he/him

Email
rgcraven@calpoly.edu

Format of Research Project
Virtual (residence near SLO not necessary)

Description of Research Project
In the United States, we interact with local government every day. Local governments structure our lives by setting the rules for how we coexist with others. Yet LGBTQ Black, Indigenous, and other People of Color (BIPOC) are dramatically underrepresented in local law and policy priorities. Understanding how local laws inclusive of LGBTQ BIPOC are adopted is important given 1) LGBTQ BIPOC are disproportionately victimized by violence and discrimination, often at the hands of local governments; and, 2) the absence of uniform state and federal protections that include sexual orientation and gender identity (SOGI). Currently, only three-tenths of local governments have laws protecting LGBTQ people from discrimination. In fact, since 1977, 110 American cities adopted SOGI-inclusive ordinances, but nearly two-thirds of them were repealed by local voters at the ballot box. This project will collect and analyze data from local news media accounts of these repeal campaigns to improve our understanding of how local laws and direct democracy impact the lives of LGBTQ BIPOC. This research will enhance our understanding of how LGBTQ BIPOC are represented in policy debates, how public opinion about LGBTQ BIPOC shapes policy outcomes at the local level, and the dynamics of successful political coalition-building between LGBTQ, BIPOC, religious, white, heterosexual, and cisgender people.

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.

1. Compile and collate newspaper articles, letters to the editor, and opinion pieces containing keywords related to LGBTQ policy referenda from major newspapers in 36 American cities which held LGBTQ policy referenda between 1998 – 2018.
2. Conduct content analysis of selected newspaper articles (under supervision of Dr. Cravens).
4. Create presentation materials and potential present preliminary findings at a conference.

What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?
My mentee will gain research and communication skills that enhance their ability to communicate scientific research to a broad audience. In addition, my mentee will gain skills related to quantitative and qualitative research methods that are valuable and translatable to the public, private, and non-profit sectors as well as graduate programs in the social sciences.

What experiences/courses are required for your BEACoN Research Scholar?
1. Interest in LGBTQ politics
2. Experience locating, reading, and abstracting peer reviewed journal articles
3. Word and Excel

What experiences/courses are preferred for your BEACoN Research Scholar?
1. Upper division research methods course in a social science discipline.
2. Preference for experience with content analysis
Title of Research Project
Memento Memory

Name
James Antony

Pronouns
he/him/his

Email
jwantony@calpoly.edu

Format of Research Project
In-person (requires ability to work in SLO)

Description of Research Project
Imagine you are asked to recall as much as you can about your last vacation. Would you start at the beginning or with what you were most excited about? Would your recall progress forward in time or more randomly, to whatever you were reminded of in the moment? Most (but not all) people would start at the beginning and proceed linearly.

Now imagine instead you were asked to recall everything you could about Frida Kahlo or the 2008 US election. In these cases, you may be less inclined to start with the first thing you ever learned or experienced and more inclined to start with the most important or central information based on your accumulated knowledge, no matter when you learned it. This may occur because we often learn information out of a linear, temporal order and have to mentally reconstruct the events piece-by-piece, based on our inferred understanding. In a nutshell, the way we organize our memory varies based on how we make sense of our experiences.

This project addresses how human memory recall is organized when information is learned outside of the typical temporal order. Subjects will watch the movie, Memento, which has a non-linear narrative arc, and will then be asked to recall the movie in as much detail as possible. The analysis will focus on the types of transitions people make, e.g., forward or backward in time, or whether two scenes are causally related. The project will conceptually involve bridging theories of memory from cognitive psychology with the visualization of narratives and will offer practical experience in experimental design, data management, and computer programming. Results from the project will elucidate how our memories remain flexible (and also become distorted) amid the complexities of everyday learning, and they will have real-life implications for understanding how we mentally navigate these complexities in both health and disease.

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.
The BEACoN Scholar would be involved in the following:

1. reading relevant literature and discussing it with me in our weekly meetings (in addition to discussing professional development topics), as to give them a strong overview of the prior work motivating this project;
2. data collection, including giving instructions and facilitating the subjects watching and recalling the films;
3. data organization & entry, including devising a scheme to categorize recall along various dimensions, such as the scene being recalled, the characters involved, the specificity and completeness of the details described, and the quality of inferences made by subjects;
4. analyzing the data, including computer programming to code how subjects mentally organize their recall, such as by various types of transitions (temporal, character-based, causally-related, etc.);
5. presenting the data at the year-end BEACoN symposium;
6. submitting an abstract for a poster presentation at a professional conference (should they be interested; this may occur after BEACoN concludes);
7. potentially work on drafting a manuscript for publication (pending results; this may occur after BEACoN concludes).

What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?
The scholar will gain skills in psychological research methods, data entry and management, and computer programming (see more detail in the above question). These skills are integral in preparing them for graduate school and a variety of careers. For instance, should the BEACoN Research Scholar not continue into academia, knowing how to program will very much open doors immediately upon graduating. Additionally, they will gain skills in thinking critically about psychological theories and how to infuse data analysis with inferences we can make about the mind. They will learn how to ask and answer questions, and communicate this information in a way that applies to daily life and across disciplines.

What experiences/courses are required for your BEACoN Research Scholar?
Strong time management and organizational skills; eagerness to learn; an interest in memory

What experiences/courses are preferred for your BEACoN Research Scholar?
Prior coding experience is preferred. Also, the BEACoN Scholar would ideally have some knowledge of psychology (e.g., PSY 201/202, General Psychology, or AP Psychology from high school). Other preferred courses include Cognition (PSY 357), Cognitive Neuroscience (PSY 480), Memory (PSY 440), and Neuroscience (offered in CSM).
Title of Research Project
Teamwork study

Name
Yun Lucy Bencharit

Pronouns
she/her/hers

Email
ybenchar@calpoly.edu

Format of Research Project
Virtual (residence near SLO not necessary)

Description of Research Project
The mentee will work on 2 research projects detailed below:

The Role of Culture and Ideal Affect In Employment Settings:
This project examines how cultural differences in emotional values shape hiring disparities in the U.S. and abroad. Specifically, culturally shaped emotional values are reflected in how individuals present themselves when applying for a job. In the United States, applicants present themselves as excited, while in East Asian countries, applicants present themselves as calm. In addition, culturally shaped emotional values influence the traits we look for when hiring someone for a job; Americans choose to hire excited candidates, while East Asians choose to hire calm candidates. This research shows how subtle factors, like emotional communication, might signal group membership and influence person perception and decision making in employment settings. Furthermore, this work highlights how emotional biases may produce racial and ethnic disparities in organizational settings.

There Is No "I" In Team:
How do we work together to create the best outcomes for ourselves and our organizations? How might that differ depending on your cultural context? This project examines the ways in which messages of independence (e.g., “Express your ideas to your partner) and interdependence (e.g., “Listen to your partner’s ideas”) can dramatically shape teamwork outcomes and team members’ feelings of belonging. These findings are particularly relevant to teams that are diverse with respect to race and ethnicity, gender, and culture of origin. This project involves qualitative interviews and transcripts, video coding, and quantitative analyses.

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.
As a research assistant, you will be given the opportunity to work closely with other members of the laboratory on one or more of our current research projects. Your responsibilities may include:
collecting and managing data; transcribing and coding; conducting literature reviews; designing studies; maintaining lab equipment; interacting with participants; preparing stimuli and instruments for projects; screening potential study participants over the phone; and recruiting participants. Duties will vary depending on the status of each project in a given quarter. In addition to the work that research assistants do on specific research projects, they are also required to contribute to attend a weekly 1-2 hour lab meeting and meet at least once a quarter with Dr. Bencharit.

What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?
There is no "I" in team: Two studies are completed for this line of research and more studies are planned; students will have the chance to work on every step of the research project including survey/protocol development, data collection, data coding and cleaning, data analysis, literature review, and writing the manuscript.

The Role of Culture and Ideal Affect In Employment Settings: Data is being collected for this project at Cal Poly, and students will be involved in collecting and managing data.

What experiences/courses are required for your BEACoN Research Scholar?
We are looking for research assistants with a range of experiences and qualifications. You do NOT need to have previous research experience; however, research assistants will start with responsibilities and duties that match their previous experiences in research. You should be intellectually curious, diligent, conscientious, responsible, and hard-working; be interested in culture, emotion, identity and/or diversity; work well with others; and be able to make the requisite time commitment. Prior experience in the Dept of Psychology & CD, including taking Research Methods, is preferred.

What experiences/courses are preferred for your BEACoN Research Scholar?
Because we use multiple methods in our research, we are also looking for research assistants who have training in computer programming, who speak different languages, and who have backgrounds in anthropology, physiology, or biology. Statistics and programming experiences preferred but not required.
Title of Research Project
The Narrative Construction of Love Lives Among Emerging Adults

Name
Jasna Jovanovic

Pronouns
she/her/hers

Email
jjovanov@calpoly.edu

Format of Research Project
In-person (requires ability to work in SLO)

Description of Research Project
The purpose of this pilot study is to apply a narrative identity approach to examine the love life stories of emerging adults. Narrative identity scholars posit that individuals can make meaning of their life or achieve self-understanding when given the opportunity to construct their life in story-like or narrative terms. Emerging adulthood is a key developmental period when individuals typically are exploring and making meaning of both their identity and intimate relationships. Previous research underscores that romantic relationships make important contributions to the identity development of young adults. Another body of research highlights how identity-related factors (e.g. gender, ethnicity, sexual identity) contribute to the sexual and romantic experiences of individuals. My project therefore considers the simultaneous and reciprocal influences of the processes of identity and intimacy exploration during this stage of life. Using a well-established narrative identity instrument, the Love Life Story Interview we will collect and analyze the love life stories of a sample of Cal Poly students. Our analysis will identify motivational and affective themes of these stories, as well as the themes involving the integrative meaning of intimacy and identity among this age group.

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.
The Research Scholar will be involved in all aspects of the project as part of my research team. To begin, the scholar will participate in weekly readings and discussion in the area of emerging adult identity and intimacy to get a foundation in this area of research. The scholar will be trained on editing existing transcripts. Later the scholar will be trained to conduct interviews with participants. The scholar will then be responsible for conducting, transcribing and coding interviews. The scholar will have the opportunity to carve out their own area of the data for presentation.

What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?
The BEACoN Research Scholar will gain skills in conducting a qualitative study including collecting, transcribing and coding interviews.

**What experiences/courses are required for your BEACoN Research Scholar?**
The scholar should have taken at least one course in the social sciences (e.g. psychology, child development, sociology, ethnic studies)

**What experiences/courses are preferred for your BEACoN Research Scholar?**
Ideally, the candidate has taken a research methods course and has an interest in emerging adult identity and intimacy development. Good interpersonal skills will be helpful in conducting interviews with participants on sensitive topics.
Title of Research Project
Assessing the Efficacy of an Anti-Bullying Curriculum Designed for Children in Grades K to 6

Name
Linda Lee

Pronouns
she/her/hers

Email
llee10@calpoly.edu

Format of Research Project
In-person (requires ability to work in SLO)

Description of Research Project
It is widely acknowledged that acts of bullying (e.g., socially excluding someone, teasing, spreading rumors) have deleterious effects on children. Children who have been bullied are more likely to experience a host of psychological problems, such as depression, anxiety, and suicide (Bogart et al., 2014). Bullying is now recognized by many as a major public health problem. In an effort to address and prevent bullying, multiple school-based bullying prevention programs have been created. However, there is very little research examining the effectiveness of these programs. Without a systematic investigation of program efficacy and its impacts, it is unclear if children are directly benefiting from these programs.

The purpose of my research project is to examine the efficacy of a six-week drama-based anti-bullying curriculum designed for children in grades kindergarten to sixth grade. One main research objective is to assess and document the effectiveness of the program. The main tasks of the BEACoN scholar involve conducting literature review of anti-bullying program assessment, brainstorming questions to be included in the pre-/baseline and post-intervention survey/interview, collecting data at local elementary schools in SLO, and conducting data analyses.

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.
The main tasks of the BEACoN scholar involve conducting literature review of anti-bullying program assessment, brainstorming questions to be included in the baseline and post-intervention survey/interview, collecting data at elementary schools in SLO, and conducting data analyses.
What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?
Literature review, data collection, data management, and quantitative analysis

What experiences/courses are required for your BEACoN Research Scholar?
None, but must be highly motivated and passionate in research

What experiences/courses are preferred for your BEACoN Research Scholar?
PSY/CD 329 Research Methods or any course in research methods preferred
Title of Research Project
Social Problems: Perspectives of People Behind Bars

Name
Ryan Alaniz

Pronouns
he/him/his

Email
ralaniz@calpoly.edu

Format of Research Project
Virtual (residence near SLO not necessary)

Description of Research Project
"Social Problems: Perspectives of People Behind Bars" is a sociological manuscript with the goal of understanding the social problems that currently plague the United States. Drawing on more than 700 inmate personal stories, this future sociology textbook unearths the invisible inequalities faced by marginalized people as seen through their eyes. Social science research is interwoven throughout the narratives to illuminate the widespread nature of these challenges faced by millions of incarcerated Americans and their families.

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.
I would be enthusiastic to work with a BEACoN mentee. A BEACoN mentee would:
• Work directly with me to edit the final version of specific book chapters
• Find and collate teacher and student resources (activities, films, media, etc.) for each chapter
• Review stories of people incarcerated for clarity and conciseness
• Potentially participate in a class or activities conducted at the county jail to better understand the context of the book

What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?
A BEACoN mentee will gain new understanding about the criminal justice system and broad social problems from the perspective of people incarcerated. Additionally, they will strengthen their writing in clear non-jargon prose for an undergraduate audience, develop their research skills in finding and evaluating educational resources, analyze narratives for content, and obtain an insider view of the criminal justice system.

What experiences/courses are required for your BEACoN Research Scholar?
Interest in the criminal justice system, specifically the life stories of prisoners
Strong ability to write clearly and concisely
One course in sociology or ethnic studies

What experiences/courses are preferred for your BEACoN Research Scholar?
Sociology 111 Social Problems or the transfer equivalent
Multiple sociology courses, especially those in the criminal justice field
Title of Research Project
Using Unsolved Homicides as Opportunities for Professional Socialization in Forensic Science

Name
Kylie Parrotta

Pronouns
she/her

Email
parrotta@calpoly.edu

Format of Research Project
Virtual (residence near SLO not necessary)

Description of Research Project
In order to assess students’ perceptions of exposure to violence and victimization and to humanize some of the course concepts in an Investigating Forensic Science course, we had students review news clips and listen to an audio recording about an unsolved homicide. The narrative account was provided by the sister of the victim and included details about events leading up to when her sister was reported missing, when the remains were found, the few leads the investigators have in the case, her feelings of survivor’s guilt, as well as the support network and advocacy work that the student has done as a result of the tragic loss of her sister. Data for our paper come from student reflections on this unsolved homicide case that were collected from an Investigating Forensic Science course taught at a Predominantly White Institution (PWI), in the spring semester (January-May) of 2020 (N = 90) and 2021 (N=122). Students were asked about their career path, coping mechanisms and support networks, as well as how listening to the recording might shape their future jobs or interactions with victim(s) and family members of victim(s).

This unsolved homicide assignment is part of a larger project that I am working on with a forensic scientist called “Collaborative Science Initiative.” For this chunk, we are interested in having a student with experience in qualitative methods assist with coding open-ended survey responses. We are also interested in developing a parallel assignment that could be used for students who are enrolled in the criminal justice concentration or law studies minor at Cal Poly to better understand the professional socialization of students, assess their career readiness, and to improve CJ & FS curriculums. Ideally, my BEACoN research assistant would have already taken Qualitative Research Methods, would have an interest in Criminology, Media, and the CSI Effect. The RA position will be completed virtually through Zoom, with a chance for some in-person meetings.
Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.

- Do a literature review on forensic science education, professional socialization, vicarious & secondary trauma
- Analyze close-ended and open-ended survey data from Excel
- Upload response papers into Atlas.ti and work on qualitative coding
- Conduct preliminary qualitative analysis and do memo writing
- Create presentation materials and potentially present preliminary findings at a conference
- Attend meetings with forensic scientist and community partners
- Potentially design follow up study, including survey and podcast assignment for criminal justice and law studies students

What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?

My BEACoN research assistant will gain multiple skills that will prepare them for entry level work and/or for graduate level course work. While completing data entry, I will teach the student the importance of data management, including protecting confidentiality and quality control. With regards to data analysis skills, the student will learn two software platforms—Atlas.ti and SPSS—transferable skills that they can list on their resumes. My mentee will learn about coding (open and focused), intercoder reliability, building levels of abstraction through visual representations of coding patterns and themes, and analytic memoing. Quantitative literacy will be a central component of the project and the student will learn to run descriptive statistics, crosstabs, and multivariate analyses. Finally, the students’ reading comprehension, quantitative literacy, writing and oral presentation skills will all be further developed in addition to overall attention to professional socialization.

What experiences/courses are required for your BEACoN Research Scholar?

It is required that the student has already taken Qualitative Research Methods and that they have an interest in criminology & forensic science.

What experiences/courses are preferred for your BEACoN Research Scholar?

Students with experience in grounded theory and coding will receive preference.
Title of Research Project
Designing an Accessible and Inclusive Disability Cultural Space: Disability Justice and Activism

Name
Nicole Jacobs

Pronouns
she/her/hers

Email
njacobs@calpoly.edu

Format of Research Project
Virtual (residence near SLO not necessary)

Description of Research Project
What are the critical components to designing both a space and a mission that is fully accessible to students at Cal Poly? This research project aims to explore the prospect of offering a disability cultural center for Cal Poly students with disabilities to engage in community building, foster solidarity, and access additional resources to promote student success. The student mentee would examine and report on two essential foundations of disability access: 1) how could we integrate universal design for students with physical, psychological, and learning disabilities? and 2) how could we design an inclusive space that serves the diversity of race, ethnicity, gender identity, and sexuality of our students with disabilities? A place for social gatherings, professional development, and student work in a distraction reduced and accessible environment could complement the important work of the Disability Resource Center in meeting students’ in-class accommodations.

The CPX Research Study Executive Report indicates that students with disabilities scored lower on all Cal Poly Experience indicators and reported higher rates of dissatisfaction and perception of discrimination than students without disabilities. Moreover, CPX further indicated that students with multiple social identity factors, particularly students of color, LGBTQIA students, and those experiencing financial instability also scored lower on their Cal Poly Experience. This study would examine the ways in which an inclusive and accessible meeting space for students could contribute to improving student experience and campus climate by forging community and solidarity.

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.
The BEACoN mentee will have the opportunity to:

1. Conduct a literature review on the ethos and use of community centers and meeting places within the disability justice movement
2. Review relevant building codes
3. Outreach on disability accessibility and community needs of students on campus
4. Report on elements of universal design

What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?
The mentee will gain experience in conducting a literature review; designing questions and processing qualitative and/or quantitative data; and reviewing compliance parameters with building codes, the Americans with Disabilities Act, and Sections 504 and 508 of the Rehabilitation Act of 1973.

What experiences/courses are required for your BEACoN Research Scholar?
The only requirement for this project is competent writing skills and willingness to learn about the social and political impact and implications of disability.

What experiences/courses are preferred for your BEACoN Research Scholar?
Preference will be given to students who have some working knowledge of disability justice and/or Diversity, Equity, and Inclusion. Especially useful would be a record of taking a class in Women's, Gender & Queer Studies, Interdisciplinary Studies in Liberal Arts, or Ethnic Studies.
Title of Research Project
Coyote and Livestock Guardian Dog Impacts on Biodiversity

Name
Tim Bean

Pronouns
he/him

Email
wtbean@calpoly.edu

Format of Research Project
In-person (requires ability to work in SLO)

Description of Research Project
This research will answer an age-old question: how can humans coexist peacefully with predators? More specifically, we (Dr. Bean, his graduate student Tricia Nguyen and the BEACoN scholar) will explore the shared impacts of coyotes and livestock guardian dogs on each other, sheep, and wildlife in San Luis Obispo County. Coyotes present a major problem for livestock producers, particularly sheep ranchers. While livestock guardian dogs appear to reduce depredation on sheep ranches, other management practices (e.g., fencing, grazing rotation) may promote or inhibit the usefulness of guardian dogs. In addition, guardian dogs themselves may impact other wildlife in the area. Our research will take places at the Cal Poly Sheep Unit as well as a nearby vineyard and winery to compare the response of coyotes to livestock guardian dogs in different management contexts. We will use a combination of camera trapping, VHF and GPS Collars, other non-invasive survey techniques and behavioral observations to investigate these relationships.

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.
The student will be expected to develop and lead a complementary study on the interactions between coyotes, livestock guardian dogs, and other wildlife in the study areas, depending on the student's interests and background. The two most likely options would be to use a network of camera traps to study changes in the occupancy, activity, and behavioral patterns of non-target wildlife in response to the presence of coyotes and livestock guardian dogs. In this project, the student will be expected to help maintain camera traps in the field, process imagery in collaboration with other students, and conduct an independent data analysis and write a manuscript presenting their results. The other project would examine changes in coyote diet before and after introduction of livestock guardian dogs. Activities would include performing live transect surveys to collect coyote scat; lab techniques to describe coyote diet composition; and data analysis and manuscript preparation. In either case, the student will be expected to lead the design, execution, and analysis of their study of interest, in close
collaboration with Nguyen and Bean. In the event we returned to an all virtual research environment, the former project could be done entirely remotely.

**What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?**
Data collection in the field; collaborative data management and analysis with R; literature search and review; coding camera trap photographs; collaborating with a network of partners.

**What experiences/courses are required for your BEACoN Research Scholar?**
An introductory ecology course (e.g. BIO 263, NR 306 or equivalent)

**What experiences/courses are preferred for your BEACoN Research Scholar?**
At least one 300- or 400-level class in ecology or related subject
Title of Research Project
Understanding the Barriers and Facilitators to Adopting Flavored Tobacco Bans

Name
Julia Alber

Pronouns
she/her/hers

Email
jmalber@calpoly.edu

Format of Research Project
In-person (requires ability to work in SLO)

Description of Research Project
Flavored tobacco products disproportionately impact specific communities including Black/African Americans, American Indians and Alaska Natives, and youth in terms of overall use and related health outcomes. Passing specific laws to limit access to tobacco products can have positive health outcomes and promote health equity. This study will examine the facilitators and barriers to passing local laws that ban the sale of flavored tobacco products. The study will involve conducting a literature review and interviewing key stakeholders in a local area.

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.
The BEACoN Research Scholar will assist with conducting a literature review on factors that affect the adoption of tobacco-related policies. This will involve identifying search parameters, selecting articles, and summarizing main findings from the articles. Additionally, the BEACoN Research Scholar will assist in conducting qualitative data analysis of the interview data.

What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?
The BEACoN Research Scholar will gain experience in conducting literatures, analyzing qualitative data, and writing a research article. Additionally, they will have the opportunity to work with local community partners which is an important skill for conducting community-based research.

What experiences/courses are required for your BEACoN Research Scholar?
None

What experiences/courses are preferred for your BEACoN Research Scholar?
Prior experience with identifying research articles would be helpful.
Title of Research Project
Enhancing Health & Wellbeing Outreach to Latinx Students at Cal Poly

Names
Christine Hackman (she/her/hers)
Kari Mansager (she/her/hers)

Emails
chackman@calpoly.edu
kmansage@calpoly.edu

Format of Research Project
Virtual (residence near SLO not necessary)

Description of Research Project
Cal Poly Campus Health and Wellbeing (CH&W) cares deeply about serving students equitably. In a recent data analysis, there was a gap in Latinx students using CH&W resources as compared to the number of Latinx students at Cal Poly.

This project will have a student researcher work with Dr. Hackman from the Department of Public Health and Kari Mansager, the Director for Wellbeing & Health Equity to conduct focus groups to explore the perceptions and experiences of Latinx students. The goal is to make adjustments to CH&W outreach and programming and address inclusion and accessibility issues of their services. Specifically, we are wanting to know more about Latinx access to counseling services, health services, health education, Safer, and the food pantry, all of which are run through Campus Health and Wellbeing.

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.
The student chosen for this project will be trained in focus group facilitation, serve as the point of contact for project partners (Campus Health & Wellbeing leadership), and lead focus group participant recruitment, data collection, and will assist with data analysis. The student will be given the option to help write up the results for presentation (local, national) and publication (peer-reviewed journal).

What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?
The student working on this project will develop their professional and interpersonal communication, time management, and data collection and management skills. The student will also have the opportunity to systematically review scientific literature and develop their scientific writing skills.

What experiences/courses are required for your BEACoN Research Scholar?
An interest in serving Latinx communities at Cal Poly

**What experiences/courses are preferred for your BEACoN Research Scholar?**
Taken and passed a research methods course; basic qualitative data management and analysis.
Title of Research Project
Cleanliness: Students Perceptions and Actions Surrounding Sexual Transmitted Infections

Description of Research Project
This project is a continuation of a collaboration with the EROS team in Campus Health and Well-being. The project will have in-person and virtual aspects. Last year, we surveyed the campus community to learn about students’ attitudes, beliefs, and knowledge surrounding condom use. We learned that cleanliness is a significant component of a student’s decision to use a condom. This study will explore this phenomenon in detail.

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.
The student will
1. Students participating in this project will be trained in the qualitative interviewing methodology. They will conduct semi-structured 1:1 interviews with their peers via zoom or in-person to better understand the phenomena of interest.
2. Students will gain experience completing an IRB application and receive training on working with human subjects.
3. Students will write up their findings and present them at the BEACoN symposium.
4. If interested, the student may draft an abstract to be submitted to an upcoming conference as an oral/poster presentation.
5. If interested, the student may begin drafting a paper of the results to be published in the Journal American College of Health (a peer-reviewed scientific journal).

What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?
Students will gain the following skills:
• In-depth knowledge of a topic or issue.
• Skills in comparing, analyzing, and evaluating scholarly writing.
• Skills in the understanding of scholarly writing, debates, and competing arguments
• Skills in conducting qualitative research on sensitive topics
• Improved writing skills
• Learn the process of drafting a scientific article

What experiences/courses are required for your BEACoN Research Scholar?
Completion of ENGL 134 (writing and composition) or equivalent, completion of HLTH 260 (women's health) or equivalent, and experience working on a research project.

What experiences/courses are preferred for your BEACoN Research Scholar?
Research methodology course, including those on qualitative methodology.
Title of Research Project

Description of Research Project

Cal Poly’s Women & Infants Mobile Health /Salud para Mujeres y Bebés is a collaboration with the NOOR foundation and provides free medical care to low-income women without insurance who reside in Santa Maria and Guadalupe, California. The vast majority of patients receiving care on the mobile health clinic are Spanish (94%) and/or Mixtec (21%) speaking and have low English proficiency. Most have recently immigrated from Mexico. Patients report working as field laborers (55%) or in cleaning and maintenance (20%). The population is extremely poor, with 97% living below the federal poverty level. Moreover, patients have limited education (≥ 67% have less than elementary school); 20.6% report an inability to write, and 16% report an inability to read. The mobile clinic provides a full range of medical services, including on-site health screening and treatment for cardiovascular disease risk factors and disease (e.g., for diabetes, hypertension, and obesity), pelvic exams, blood draws, and general medical care. Auxiliary programs of the collaboration promote weight loss, healthy eating and activity, and breastfeeding.

To supplement and reinforce health communication to patients during clinical care, the mobile health clinic provides patients with a range of written materials, including forms for informed consent to care. All materials are available in English or Spanish and include graphics to help elicit patient understanding about the clinical care or services they receive. The health materials used on the mobile health clinic were created with the help of previous Cal Poly students (health ambassadors), who created the materials using examples and information provided by the National Center for Farmworker Health. Despite efforts to create readable health materials, the extent to which the materials used on the mobile health clinic would clearly convey critical health information to patients is unknown. The purpose of this BEACoN research project is to address this knowledge gap by
performing the first systematic evaluation of the readability of the written health materials used on the mobile health clinic, focusing on the most commonly used first. Additionally, students will assist the project team in appraising the material along other quality indicators, like usability, actionability, and cultural appropriateness.

**Please describe the BEACoN Research Scholar's role in the project. In other words, what will the student be expected to do? Please be specific.**

Dr. Thomas and Dr. Phelan propose to co-mentor the student on this unique project. Dr. Thomas brings expertise in evaluating and addressing health literacy barriers. Dr. Phelan brings expertise in providing health information to low-income, Hispanic women receiving care on the mobile health clinic. Under Dr. Thomas and Dr. Phelan’s co-mentorship and guidance, we propose the following student outcomes:

1. Locate and summarize peer-reviewed literature on the health literacy of immigrant, primarily farm working populations in our region.
2. Learn how to prepare project proposals that require approval from an Institutional Review Board. Specifically, students will complete self-paced training programs and discuss their learning.
3. Apply appropriate tools critically appraise and evaluate written materials on the mobile health clinic.
4. Summarize and interpret findings related to health literacy and communications based on an analysis of health materials
5. Create recommendations to improve written health materials used on the mobile health clinic, following their critical appraisal and evaluation.
6. Apply recommendations to improve the most commonly used written health materials used on the mobile health clinic.
7. Disseminate project experience and key findings at educational forums, such as those provided by Cal Poly, academic societies, and professional associations.

**What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?**

Under our mentorship and guidance, the student will develop or advance their ability to:

1. Explain what health literacy is and describe common communication barriers to promoting it.
2. Practice application of information literacy to locate peer-reviewed and popular press articles using established search methods (e.g., database filters, search term schemes).
3. Critically review research literature and catalog information for the purpose of composing a narrative review of research literature (e.g., strengths, limitations, findings, relevance).
4. Draft and revise works of writing for the purpose of teaching and reporting research results.
5. Plan, design, and implement a research protocol.
6. Draft and revise sections of a scientific report (e.g., abstract, methods, discussion).
7. Revise written materials to improve communication.

**What experiences/courses are required for your BEACoN Research Scholar?**
1. Demonstrated experience with managing or organizing a co-curricular projects at the high-school or collegiate grade level
2. Demonstrated experience with working independently to complete tasks with expediency and consistent with instructions or guidelines that have been provided.
3. Familiarity with how to perform a basic to advance search of an electronic database or of the Internet to locate information or literature published in the recent to distant past (e.g., periodicals, books, journal articles, videos).

What experiences/courses are preferred for your BEACoN Research Scholar?

1. Fluency in speaking Spanish and experience reading and writing in Spanish.
2. An introduction to research methods, such as through an introductory course specific to any discipline or a work-related experience (e.g., volunteer work on a research project).
3. A fundamental course in reasoning and argumentation (e.g., courses that satisfy GE A3).
4. A fundamental course in statistics (e.g., courses that satisfy GE B1).
5. An introductory course on health and physical activity (e.g., HLTH/KINE 250, Healthy Living; or HLTH/KINE 255, Personal Health: A Multicultural Approach).
6. Introductory Psychology Course (e.g., PSY 201, General Psychology).
7. Introductory Sociology Course (e.g., SOC 110, Comparative Societies).
Title of Research Project
A Scoping Review of Metrics for Local Food System Assessment

Name
Marilyn Tseng

Pronouns
she/her/hers

Email
mtseng@calpoly.edu

Format of Research Project
Virtual (residence near SLO not necessary)

Description of Research Project
The local food system encompasses many parts – production, processing, distribution, delivery, consumption. Its impacts are felt across multiple dimensions of health - individual, socioeconomic, and environmental. But policies regulating the food system are largely piecemeal. Food-related policies on agricultural production, for example, ignore consequences to human health, and food-related initiatives relating to human health often do not consider environmental sustainability. An assessment using meaningful metrics might point to challenges simultaneously being faced by different parts of the local food system, so that representatives from different parts of the food system can identify and prioritize common goals. But there is no standard assessment tool for food systems, and the metrics will also vary depending on the priorities of the local area. This research is a scoping review of the existing academic and grey literature on metrics commonly used to assess local food systems. The scoping review will serve as a resource, which currently does not exist, for local governments or coalitions to decide how best to evaluate their own food systems, towards more integrated, food system-wide policy changes.

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.
The BEACoN Research Scholar will work collaboratively with a team of undergraduate researchers to: (1) identify academic and grey literature sources that meet scoping review criteria; (2) synthesize this information and present the findings both in text and graphically; and (3) prepare a manuscript for peer-reviewed publication in Frontiers in Nutrition. All of these can be conducted virtually.

What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?
The BEACoN Research Scholar will gain skills in identifying and evaluating sources of information from a wide range of disciplines, including from grey literature sources; synthesizing information; and conveying findings to academic and non-academic audiences.
What experiences/courses are required for your BEACoN Research Scholar?
The BEACoN mentee should have prior experience with some form of research (for example, from coursework), as well as with communication (for example, speech and writing, also from coursework).

What experiences/courses are preferred for your BEACoN Research Scholar?
Preferred (but not required) qualifications are: (1) coursework on research methods; and (2) strong interest in and some knowledge of food system issues.
CSM – Liberal Studies & Biological Sciences – Nation & Yep

**Title of Research Project**
Nuestra Ciencia

**Names**
Jasmine Nation
Alejandra Yep

**Pronouns**
she/her/hers
she/her/hers

**Emails**
jmnation@calpoly.edu
yep@calpoly.edu

**Format of Research Project**
In-person (requires ability to work in SLO)

**Description of Research Project**
The Nuestra Ciencia program aims to simultaneously tackle two parallel sets of challenges, the first related to recruitment and retention of Latinx into Science, Technology, Engineering and Mathematics (STEM) fields, and the second related to generalized microbiology misconceptions. Latinxs are severely underrepresented in STEM fields, in part because they face systemic barriers and typically arrive at college with a weaker science foundation from their K-12 education and thus are less likely to be drawn to STEM majors. Beyond grappling with the science content, Latinx students reach college with assumptions about who belongs in science practices and professions, which in turn negatively affect their representation in STEM careers. Misconceptions also plague microbiology education, and most students reach college with deep-seated yet inaccurate ideas about the microbial world, such as the ways in which vaccines and antibiotics work. Unfortunately, lack of microbiology literacy has a direct impact on personal choices that can affect individuals but also the success of public health and environmental policies. Nuestra Ciencia addresses both sets of problems, as we work with interdisciplinary groups of undergraduates to develop engaging experiments for elementary classrooms that illustrate microbiology concepts, and then visit bilingual classrooms to lead the experiments in Spanish. Lessons have accompanying resources in Spanish and English for teachers and students, including background information, handouts, and assessment tools.

The project has two equally important long-term goals:
1. Microbiology education goal: develop experiments, activities, and accompanying materials that introduce basic microbiology concepts to elementary school students, both engaging them in the scientific process and planting the seeds for a correct understanding of microbiology. We will contribute toward this goal by developing these materials and making them available for K-6 educators.
2. Diversity and inclusivity goal: demonstrate that science is not “owned” by any specific group nor does it happen in a specific language and that everybody can become a scientist regardless of their background. We will contribute toward this goal by developing all materials in English.
and Spanish and by piloting the experiments in Spanish at the bilingual Spanish immersion school Pacheco Elementary (San Luis Obispo).

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.

This project is highly multidisciplinary by nature, and students will work as part of a diverse and active research group. The role of the BEACoN mentee can be tailored to fit students coming from multiple interests and majors. Depending on the BEACoN mentee’s previous knowledge and preferences, their role will encompass a subset of the following:

- Attend research group meetings and present when relevant (journal club or data presentation)
- Learn about the key microbiology concepts and common misunderstandings in order to develop educational videos or outreach materials
- Help adapt and improve existing experiments or develop novel educational activities that demonstrate those concepts and can be carried out in a K-6 classroom or at home (without specialized materials)
- Map the concepts and accompanying experiments within the NGSS (Next Generation Science Standards)
- Test and troubleshoot experiments, keep a detailed online lab notebook
- Develop accompanying bilingual materials for teachers and students. These include but are not limited to: introduction and background for teachers/students, materials lists, protocols, handouts, quizzes, games, videos, webpages
- Be part of a group of Cal Poly students guiding K-6 students in carrying out the experiments, interpreting data, and drawing conclusions
- Collect observational data with K-12 students
- Learn the process of qualitative data analysis including designing individual and focus group interview protocols, transcribing, and coding data
- Conduct interviews and make observations/take field notes
- Assist with the development of an evaluation tool
- Assist with thematic coding of video and interview transcripts
- Search relevant literature and generate annotated bibliographies
- Write results and prepare poster/talk for presentation at the CSM student research conference
- Assist with thematic coding of video and interview transcripts
- Search relevant literature and generate annotated bibliographies
- Write results and prepare poster/talk for presentation at the CSM student research conference
- Assist with research bibliography and contribute to a conference submission or practitioner journal article

What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?

- Qualitative educational research methodology (documenting students’ experiences, drafting interview protocols, conducting interviews or participating in focus group interviews, transcribing and coding interviews)
- Microbiology skills and concepts
- Primary literature search, analysis, and presentation of summarized results
- Experimental design
- Protocol development and troubleshooting
- Data recording, assessment
• Data analysis and reporting
• Written and oral presentation skills
• Effective science communication for young audiences
• Research dissemination in various modes (evaluation or summary reports, articles for teachers, conference presentations)

**What experiences/courses are required for your BEACoN Research Scholar?**

• Proficient in written and oral Spanish, or bilingual English/Spanish
• Interest in teaching
• Interest in biological sciences
• Interest in promoting diversity in STEM
• Must enjoy working with kids!

**What experiences/courses are preferred for your BEACoN Research Scholar?**

Either of the following would be a plus:

• Familiarity with the Next Generation Science Standards (NGSS)
• Experience working/interacting with groups of kids (5-12yo)
• MCRO224 or MCRO221
Title of Research Project
BIPOC Student Narratives on Campus Climate at a Predominantly White Institution

Name
Sonia Ramrakhiani

Pronouns
she/her

Email
sramrakh@calpoly.edu

Format of Research Project
Virtual (residence near SLO not necessary)

Description of Research Project
As we live through a truly divisive time riddled with social injustices in the form of police brutality and children in cages, it is important to examine the effect of these sociopolitical events on college campuses. A college campus is essentially a microcosm of the larger community and therefore, the purpose of this study is to understand the impact of the current sociopolitical climate on the campus climate from the lens of Black, Indigenous and People of Color (BIPOC), specifically at a Predominately White Institution (PWI).

There is a dearth of literature on the experiences of BIPOC students at PWIs, and the literature that does exist suggests that minoritized students often experience environmental hostility and lack a sense of belonging. Furthermore, the research on campus climate often focuses on crime and violence, however, for the purposes of this study a holistic approach to campus climate was adopted to examine all its elements, social, emotional and psychological experiences of BIPOC students.

Lastly, the study is designed to give voice to the stories of BIPOC students using a narrative inquiry approach. A narrative inquiry focuses on the stories of participants to understand social patterns and is commonly used in ethnographic research. The purpose of this project is to develop and share the collegiate life stories of BIPOC students at a PWI to paint a picture of the campus climate from their perspective.

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.
My mentee and I will design a plan for dissemination of the findings of this study. My mentee with help me in gathering research articles to help write the manuscript, identifying the appropriate journal for this manuscript, and preparing the manuscript for this study. I would like our project to feel collaborative, whilst also serving as a guide through the publication process. The goal is to share
responsibilities with my mentee and guide them through all the stages of a research publication process. Lastly, I would like to create a safe environment in which the mentee can learn the above mentioned skills and grow as a novice author. Note: All tasks will be performed virtually.

**What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?**
Student will learn about qualitative research design and develop research writing skills. Student will learn to identify appropriate journals for publication, develop research writing skills, and gain other professional experiences throughout the publication process as a co-author (such as proficiency in using APA 7 and developing a manuscript/adjacent materials). Additionally, student will learn how to design and secure conference presentation skills as well.

**What experiences/courses are required for your BEACoN Research Scholar?**
None, although it would be beneficial if my mentee had an interest in research and/or diversity, inclusion and equity issues.

**What experiences/courses are preferred for your BEACoN Research Scholar?**
Basic research knowledge would be preferred but not required. Student will obtain research writing skills over the course of the project. Additionally, APA 7 writing skills might benefit the student. Finally, past experiences with writing research papers might serve the student as well.
**Title of Research Project**

Exploration of Disparate Impacts and Microaggressions by Homeowner Associations

**Name**
Bradford Anderson

**Pronouns**
he/him/his

**Email**
bpanders@calpoly.edu

**Format of Research Project**
Virtual (residence near SLO not necessary)

**Description of Research Project**

Homeowner Associations (also known as "HOAs") now exist in huge numbers of residential properties, including single family/multi-family housing, as well as condominium developments. Those who rent or purchase these properties automatically become subject to a vast array of rules and restrictions (known as "CC&Rs"). These rules purport to improve quality of living and values of the homes.

However, the rules may encompass a wide range of conduct, sometimes petty and trivial, such as restrictions involving: how many people can occupy a unit; hours of visitation; cooking odors from units; use of clothes lines to dry clothes; color of window shades; or the types of balcony furniture.

Are HOAs a new form of discrimination regarding property ownership and occupancy? Are these HOA rules a form of microaggression, intended to dissuade certain groups from owning or occupying within specific communities? Do these HOA rules disparately impact individuals, based upon socio-economic, racial, cultural, or other affiliation?

This research project includes exploration of this topic.

**Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.**

**PART A.** The BEACoN Research Scholar will perform research using resources available through Cal Poly, including Westlaw (legal and law related database), litigation databases, news story research and general internet searches. Based upon the results of that research, the scholar will analyze the
information to determine whether observable disparate patterns of treatment exist in HOA rule enforcement or other adverse actions related to HOAs.

The enjoyable aspect of this is that you can chase and "dis-cover" (meaning uncover!) anything that comes to light through your efforts, and find a trend/focal point that engages you.

PART B. The BEACoN Research Scholar will help review HOA CC&R documents to ascertain whether certain types of recurrent (multiple HOA) restrictions occur, and offer analysis and input on whether these types of restrictions could have a disparate impact, by tying this information to existing social, economic, political, legal, and other research works.

WORK PRODUCT FROM THE SCHOLAR: Lists and copies of relevant materials; spreadsheets with quantitative (as well as qualitative) results regarding the linkage of certain restrictions having a disparate impact.

What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?
The researcher will gain skills in: interpreting and understanding HOA documents (CC&Rs); legal research and analysis; legal research methodology (including quantitative and qualitative analysis).

What experiences/courses are required for your BEACoN Research Scholar?
- BUS 207 OR other introductory law course (including community college transfer courses).
- INTRODUCTORY coursework (either Cal Poly or community college transfer course) in basic social science or ethnic studies.
- INTRODUCTORY math, quantitative reasoning, or critical thinking coursework.

What experiences/courses are preferred for your BEACoN Research Scholar?
- Intermediate level coursework in social science or ethnic studies.
- Intermediate level coursework math, quantitative reasoning, or critical thinking coursework.
Title of Research Project
Pet Economics

Name
Jacqueline Doremus

Pronouns
she/her

Email
jdoremus@calpoly.edu

Format of Research Project
Virtual (residence near SLO not necessary)

Description of Research Project
People love pets. There is strong evidence of an association between pet guardianship and human well-being. People with pets visit the doctor less frequently. Pet guardians report higher rates of well-being. The value of the market for pet products in the U.S. is estimated at over $70 billion, annually. Despite this, there is no accepted value of the statistical life (VSL) of a pet. Such an estimate would be vital for use in regulation, where the benefits of pet ownership could be incorporated into cost-benefit analyses, as well as in legal settlements related to pets.

This project will continue our prior work to estimate the VSL of dogs and cats in the U.S. using pet food recall events. Through our collaboration, we will extend a dataset of pet food recalls and connect these events to data on pet food sales, as well as the stock market valuations of public companies. Using such a combined dataset, we will offer the first estimate of the value of a statistical life for dogs and cats in the U.S.

Please describe the BEACoN Research Scholar’s role in the project. In other words, what will the student be expected to do? Please be specific.
The student will sharpen their data creation, collection, and analytics skills. They will code pet food recalls from the Food and Drug Administration public datasets, continuing work by a previous BEACoN scholar. They will connect these recalls to retail scanner data from Nielsen by finding the appropriate codes within that database. For public companies, they will also connect them to stock tickers. In addition to this, the student will pull data from twitter, google trends, Wikipedia, reddit and other websites related to pets.

Beyond the data portion, the student will update the literature review on pet economics and identify studies from the broader literature (outside of economics). The result will be a comprehensive, up-to-date summary of the literature relevant to estimating the VSL for pets.
What skills will the BEACoN Research Scholar gain (e.g., methods, stats, data management, qualitative analysis)?
The fundamentals of good data stewardship: privacy, documentation, organization (within spreadsheet and folders), versions, replication.

Basic to advanced data analytics skills (depending on the candidate): After data creation (from FDA recalls and UPC coding), the student will summarize how the data varies across time and space. They will look for outliers and plot the distribution of the data. For more advanced candidates, they will do regression analysis.

Scientific literacy: Able to quickly discover relevant scientific papers and summarize their key points. Stronger understanding of causal identification and natural experiments, as well as the weaknesses and strengths of different econometric approaches. For example, can answer the question, “What is the main concern with studies that show the association between pet ownership and health benefits?”

Writing: improved professional writing, with an emphasis on succinct, concise and precise language.

What experiences/courses are required for your BEACoN Research Scholar?
- Detail-oriented and highly organized
- Meets deadlines, behaves in a professional manner
- Passion for pets
- Experience creating data in spreadsheets

What experiences/courses are preferred for your BEACoN Research Scholar?
- Two complete years of post-high school education
- Econometrics (Econ 339 or equivalent, completed or to be completed in AY 2021-2022)
- Experience coding in R or stata
- Experience reading academic papers
Experience using large, public datasets (US Census, American Community Survey, American Time Use Survey, etc.)