Student Research Conference
Poster Presentation Abstracts
March 1-5, 2021

- Behavioral and Social Sciences
- Biological and Agricultural Sciences
- Business, Economics, and Public Administration
- Education
- Health, Nutrition, and Clinical Sciences
- Humanities and Letters
- Physical and Mathematical Sciences
Behavioral and Social Sciences

Chelsea Ramos, Jael Castro, Alberto Cedillo, Michelle Garcia, Anahi Gomez, Emily Guevara, Sophia Lozano, Gerald Martinez, Carmen Oceguera, Janelly Reyes, Iris Rico, Paula Rodriguez, Gilberto Sanchez, Diana Valdez, and Faviola Varela, Undergraduate Student

*Latinx Perceptions on Mental Health*
Faculty Mentor: Steven Frieze, Psychology

Attitudes and perceptions of the Latinx community towards mental health issues have been explored by some researchers, but focused on depression and males (Cabassa, 2007). The purpose of this study is to explore the attitudes and perceptions of the Latinx community towards mental health issues. By examining how they have influenced whether a member of this community seeks out help or makes an effort to secure help regarding mental health related concerns. This study aims to survey approximately 2,500 participants. The sample will be men and women from all segments of the Latinx community. All participants will be 18 years of age or older. The ages of the participants will need to be as diverse as possible in order to reflect the entire spectrum of Latinx views. For the purpose of this study, the investigators are focusing only on the Latinx community. All participants once giving consent will be given a survey where they will answer questions pertaining to their communities, their families, and their own beliefs towards different mental health conditions. The first step in increasing the use of mental health services by Latinxs is to determine what barriers exist and find out how they prevent individuals from accessing these resources. Second, this information will help to develop evidence based interventions. The findings from this research study will shed light on a barrier that has not been focused enough on in recent research.

Efrain Arroyo, Undergraduate Student

*Using Google Earth for Archaeological Research: A Virtual Survey of the Inca Road Network between Machu Picchu and Choquequirao*
Faculty Mentor: Jerry Moore, Anthropology

In the face of a global pandemic, disciplines that rely on field research, like archaeology, have had to adapt to remote investigation settings. Following the launch of Google Earth (GE) in 2005, researchers have postulated and tested its utility for archaeological research. Archaeologists have recognized its potential as a tool for visualization, educational purposes, and research applications like remote sensing. For example, since 2016, the GlobalXplorer Project has demonstrated the utility of satellite imagery for identifying and monitoring looting, in addition to discovering and preserving sites previously unknown to archaeologists. However, more research is needed to assess its usefulness to the survey of previously studied areas in mountainous and heavily forested terrain like in the Central Andes. Known as Tawantinsuyu, the Inca Empire, during the fifteenth and sixteenth centuries, was the largest indigenous polity ever to exist in the Americas, spanning western South America. The Inca road network known as the Qhapaq Ñan connected the vast territories of the empire with approximately 40,000 km (25,000 mi) of roads, trails, and paths. To test the utility of GE images for virtual survey, this project surveyed 60 square kilometers of the Inca road network between the archaeological sites of Machu Picchu and Choquequirao in the Cusco region of Peru. Using the GE 'path' and 'placemark' tools to identify and trace the Inca roads, this project proves the viability of using a publicly accessible and free satellite imagery platform to complete a preliminary survey that is a necessary antecedent to ground-truthing. The survey and analysis of my results proved the use of GE for archaeological prospection along with creating plans of roads. The preliminary results of this project indicate that archaeologists should be able to identify and quantify the Inca road network using GE, allowing them to better prepare for eventual pedestrian survey.
Elizabeth Mallonee, Undergraduate Student
Honoring the Dead and Defining Territory – The Role of Irish Court Tombs in the Neolithic
Faculty Mentor: Jerry Moore, Anthropology

For at least 100,000 years humans have been ritually burying their dead. Over time, mortuary and funerary rituals became more elaborate and required a physical space in the form of architecture for the ritual to take place. The location and position in the landscape, and how space is utilized in these structures often reflect the world view of the community conducting the ritual. This same notion can be observed in the Irish megalithic tombs of the Neolithic. With the shift from hunting-foraging, to agriculture, the transition in world view was represented in the architecture built for the dead. The purpose of this research is to examine the concurrent construction and use of Irish megalithic tomb typologies during the Neolithic. Specifically, I focused on the role and function of Irish court tombs within the communities that built them. I also examined how court tombs were utilized among the other megalithic tomb typologies in the Irish landscape. The main method used was a directed reading that included a survey of foundational literature on the topic of Neolithic Ireland – specifically megalithic tombs, archaeological theory, and excavation reports of Irish court tombs. Additionally, I used QGIS to test the hypothesis of patterns of distribution of Irish court tombs in relation to other megalithic tomb types. The results of this study will help demonstrate a relationship between megalithic types and human behavior during the Neolithic.

Elizabeth Trost, Undergraduate Student
Transplant Tourism and the Business of Organ Donation
Faculty Mentor: Sarah Lacy, Anthropology

There is an ever-growing need for organs around the world. Most countries have two legal ways of procuring cadaver organs but every year thousands die waiting for a donor. To meet this need some argue that living donors should be compensated in exchange for selling their organs on the open market. The issue of compensation for donation raises several ethical concerns. How could a country prevent its vulnerable citizens from selling pieces of themselves in an effort to escape poverty? The reality is that several countries have a well-documented history of selling the organs of prisoners, exploited ethnic minorities, and the poor to wealthy foreigners who can afford the travel and medical expenses. Less than twenty years ago the World Health Organization attempted to address the issue transplant tourism by drafting an international agreement to make such activities illegal. Countries like China and India agreed to reform their policies for procuring organs and to regulate travel into their respective country’s for the purpose of undergoing transplant surgery. But when I compare the numbers for living versus deceased organ donation globally there are clear indications that the organ black market persists to this day. It is my intention with my research to show a correlation between countries with robust state-funded health care and high legal organ donation outcomes as well as show how the ratio of deceased to living organ donation changes in countries suspected of illegal organ trading.
Gabrielle Makrdichian, Nicole Figueroa-Sierra, Shaina Nguyen, Undergraduate Student

*Video Games and Memory*

Faculty Mentor: L. Mark Carrier, Psychology

During the current pandemic, the need for entertainment and escape has become higher than ever before. The video game industry has been steadily growing, but research on the effects of video gaming has been slow moving. While previous studies have focused on video games and aggression and cognitive functions as a whole, there have not been many studies focusing on memory specifically. The purpose of this study is to focus on and compare the memory capabilities of individuals that regularly play video games and those who do not play video games. The study of the design will be a quasi-experimental interview-style design and focus on multiple aspects of memory using multiple memory tests. We will test the hypothesis that video game players have better spatial and long-term memory than people who do not play video games. The study design will have minimal risk to participants which will only include possible fatigue during the online interview process, which will be mitigated with available breaks. There will be no in-person contact during this study. The findings of this study will add to our collective knowledge of how video games affect the human brain. There may also be potential benefits to the video game industry and gamers in general.

Jael Castro, Joshua-Zion Hunter, Ronald Jackson, Anahi Gomez, Karina Jaimes, Alumni

*2020-2022 CSUDH 'It Takes A Village' Discussion and Action Series*

Faculty Mentor: Monique Turner, Psychology

The United States is known for its diverse and unique population, with citizens from varying cultural backgrounds. Unfortunately, there still are racial and social injustices against these marginalized groups. This presentation will discuss the racial and societal discrimination experienced by individuals within the Black/African American & African diaspora descended community on the CSUDH campus. Moreover, the movement of “It Takes a Village” has started discussions between students, faculty, and staff to activate one’s awareness of racial injustices on campus, especially within the classroom and curriculum. Discussion forums were held on a virtual platform in Zoom Breakout rooms where qualitative data was collected. The first discussion event, “It Takes a Village: Black Lives Matter, Healing and Solidarity,” was held in the summer of 2020 and consisted of 275 participants (n=275) and included a collaboration of faculty, students, affinity groups, and the Executive Academic Senate including President Thomas A. Parham, ASI, and Toro Dreamer Success Center, representatives of Africana Studies Department, Rose Black Resource Center, Veterans Resource Center, and the Positive Psychology Lab. The discussion forum consisted of students and faculty having difficult conversations on systemic racism and one’s experience with microaggressions, both in the United States and on campus. The title of this multi-organization collaboration event is called “It Takes a Village” because much like the African proverb, our motive is to bring the campus community together to help nurture the growth towards social justice and racial equality for students, faculty, and staff members of all backgrounds. The purpose of “It Takes a Village” throughout the academic years to come is to provide a safe environment for students and faculty of color to have a dialogue about the racial struggles they have faced in the past are currently facing, and how we, as a community, can be a catalyst for change.
Janet Mejia, Heather Chaides, Lesli Hernandez Arevalo, Yoel Meza, Patricia Saldana, Arlene Barraza, Yessica Chavez, Undergraduate Student

*Defining Community Engagement*

Faculty Mentor: Sarah R. Taylor, Anthropology

Community engagement can be defined in many ways. It all depends on whom you ask. Although community engagement can mean a variety of activities, everyone benefits from it. This research aimed to investigate what community engagement means and the willingness of the students of California State University, Dominguez Hills (CSUDH), to participate in community engagement activities. This research employed a mixed-methods approach and a constructivist point of view to further evaluate: (a) what activities students at CSUDH view as community engagement, (b) what community engagement opportunities students wish to see more of, (c) the times that students are available to participate and dedicate to those activities, (d) the benefits students identify from participating in those activities, and (e) the likeliness of students to choose a minor centered on community engagement. The qualitative portion consisted of ten interviews in total; four student and six alumni conducted via zoom or phone. We also included auto-ethnographies from the seven members of the research team, all of whom are currently students of CSUDH. The interviews were color-coded for themes using jamboards. The quantitative portion consisted of fifty-six electronic surveys. Overall our findings concluded that having more availability of community engagement opportunities for CSUDH students can empower them to get involved and open opportunities to receive and give to their respective communities. Early on during their undergraduate years, the involvement of students can increase awareness of matters important to the community and potentially make a difference in their communities even after graduation.

Jean Pickard, Undergraduate Student

*Monterey Chert Trace Element Analysis: Source Provenance at the Palos Verdes Peninsula, Ca. – Proposal*

Faculty Mentor: Jerry Moore, Anthropology

At the southern end of Santa Monica Bay, along the precipitous cliffs of the Palos Verdes Peninsula, lies the archaeological site known as CA-LAN-138, home to the prehistoric Tongva-Gabrielino who exploited and possibly controlled vital area resources such as Monterey chert. Monterey chert provenance is a valuable source of archaeological data, with research questions predicated on our ability to associate a lithic artifact with its source. Through recent advancements in geochemical analysis, the provenance of local Monterey chert sources can now shed light on the lifeways of the Tongva-Gabrielino including mobility patterns, lithic procurement strategies, and trade activity. Further study may also inform researchers on what control, if any, the Tongva-Gabrielino had over local chert sources. If it is the case that the Tongva-Gabrielino controlled Monterey chert sources on the Palos Verdes Peninsula, then we expect Monterey chert to be found only at Tongva-Gabrielino sites and not at Chumash, Tataviam, and other neighboring group sites. Therefore, the goals of this study are to determine the geochemical composition of local Monterey chert sources to establish source distinction, and to study the relationship between these sources and lithic artifacts from CA-LAN-138. The first objective is to collect specimens from known chert outcrops on the Palos Verdes Peninsula. Following specimen collection, trace element analysis of chert samples will be conducted using mass spectrometry to determine whether the outcrops are geochemically distinct. These findings will not only add information to a growing provenance database for chert sources in the Monterey Formation, but they can be used to develop x-ray fluorescence (pXRF) calibrations for non-destructive analysis of chert artifacts held in nearby museum collections.
Jean Pickard, Efrain Arroyo, Travis Gray, Jackeline Hernandez, Jennifer Marquez, Deborah Snook, Undergraduate Student

*Community Engagement Integration into Teaching and Research in Different Majors*

Faculty Mentor: Sarah R. Taylor, Anthropology

This research is part of a larger project studying the feasibility of a Community Engagement minor at California State University Dominguez Hills (CSUDH). Our team focused on three stakeholders (students, faculty, and alumni) and their opinions on how a Community Engagement minor might be beneficial for students while pursuing their chosen major, and how it can be integrated into teaching and research in different majors. In addition, we studied whether a minor in community engagement would be beneficial to individuals pursuing postgraduate studies and those entering the job market after graduation. This information may prove useful in determining whether students would seek out a Community Engagement minor should one become available. A Community Engagement minor could benefit students by developing new skill sets through hands-on experience working within a community setting. Our research methods included qualitative interviews via Zoom, qualitative questionnaires via email, and quantitative surveys via Google Forms. Our results reveal that among the stakeholders there are strong trends showing which majors are most inclined to pursue a Community Engagement minor and which community engagement experiences are most important to certain majors. Considering the results of this study, we recommend that CSUDH pursue the creation of a Community Engagement minor.

Juan Venegas, Undergraduate Student

*The Mexico Underground Railroad*

Faculty Mentor: Miguel Gutierrez, Chicana/Chicano Studies

Although the prominent depiction of the Underground Railroad includes enslaved African Americans escaping into places such as northern “free” states and Canada, there was a more promising path that went south into Mexico that is relatively unheard of today. This research examines the historical contributions of Mexicans aiding enslaved African Americans in their escape to Mexico during the 1800s. It also reinforces the forgotten and historical bond between Mexicans and Black Americans in combating white supremacy to promote each other's well-being. This era in history marks themes such as Manifest Destiny and its consequences, U.S imperialism, and pro-Black politics. This time period is also notable because it includes important historic examples of Black and Brown solidarity such as Afro-mestizos participating in Mexican independence and proactive Mexican involvement in freeing enslaved Blacks from bondage in the U.S. The examination of these historical contributions will elucidate how Mexico’s dismantling of its racial casta systems and abolition of slavery transcended beyond its borders decades prior to the abolition of slavery in the United States. To conduct this research, I have used primary and secondary data collected from archives, interviews, and published reports.
Limor Henricka Vink, Nicole Figueroa-Sierra, Diorlene Arca, Denise Aguiluz, Bryan Almeida, Anita Kapila, Alicia Smith, Graduate Student

What is Your Alcohol Recovery Language? A Mixed Methods Examination of Language Used by College Students to Describe Alcohol Recovery
Faculty Mentor: Kevin Montes, Psychology

The current mixed methods research study reports on findings from focus group interviews to examine the language that college students use to describe alcohol recovery. Two focus groups were conducted with college students (N=18) who reported life-time alcohol use. All participants were asked questions regarding language perceived to be associated with alcohol recovery. Data were examined within a thematic content analysis framework. The four central themes related to alcohol recovery that emerged were: harm reduction-based recovery, abstinence-based recovery, social determinants of recovery, and individual differences in recovery. Other concepts that frequently emerged included: relapse, stigma, comorbidity, and drinking identity. College students rated the terms “recovered”, “drinking reduction”, and “sobriety” as being highly representative of being in recovery whereas the terms “bars” and “light drinker” were identified as not being representative of recovery. The themes and rating of terms in the current study were consistent with current conceptualizations of recovery. Given the paucity of research on alcohol recovery among college students and high prevalence of alcohol use disorder (AUD) in this population (Wu, Pilowsky, Schlenger, & Hasin, 2007) in combination with the low rate of seeking treatment for an AUD by college students, the current study’s findings represent a critical first step to understand college students’ beliefs about alcohol recovery. Understanding common themes of alcohol recovery will help guide future assessment and treatment of AUD.

Nancy Sanchez, Undergraduate Student

Ethical Issues Surrounding the Archaeological use of LiDAR Technology
Faculty Mentor: Kenneth Seligson, Anthropology

As a remote sensing device LiDAR technology has become an essential part of archaeological investigations since 2008, when it was first used to create 3D spatial data models of archaeological sites. While LiDAR technology has contributed to research, further ethical standards need to be incorporated for archaeologists when collecting, processing, and sharing LiDAR data. In order to incorporate ethical standards that protect the privacy of the indigenous communities, archaeologist must work closely with indigenous collaborators. Developing and following ethical guidelines that recognize the potential negative impacts towards the heritage of the indigenous communities living near archaeological sites, would additionally help address the concerns of the indigenous communities who are unaware of archaeologists conducting research. While the objectives of the researchers and of the indigenous communities may be different, the two parties may work together to both allow for the documentation of archaeological sites using LiDAR and allow indigenous communities to access data pertaining to their heritage. The collected LiDAR data should involve the indigenous communities living nearby the archaeological sites who can provide input regarding what specific cultural features should not be published or revealed through the use of LiDAR technology. If archaeological researchers continue to disregard the ethical considerations of the indigenous communities, it would damage the goal of preservation and respect for the indigenous heritage. In many cases, the surrounding issues of LiDAR, why LiDAR is important, and how to address these issues now can be solved by executing universal ethical guidelines that will benefit both parties respectively.
Nancy Sanchez, Rubin Landa, Edgar Godina, Jesus Galvan, Madison Medhat, Ariana Reyes, Angelica Alvarado, Undergraduate Student

The Importance of GE Class Selection for the Community Engagement Minor
Faculty Mentor: Sarah R. Taylor, Anthropology

In order to move forward with the Community Engagement Minor the evaluation of students taking GE courses for the minor needs to be analyzed. It is through this paper that demonstrates the importance of how GE’s are viewed by the students, alumni, and professor perspectives. While the target audience is the student's opinion of GE’s and how the students feel about them the professor’s perspective demonstrates how important GE’s are compared to the student's view of selecting GE’s. The perspective from the professor’s point of view is meant to give a general understanding of how GE courses are meant to impact the students knowledge and the importance of GE courses to the students. By analyzing how students feel about GE courses, the paper would portray how GE’s were important to the students and how they chose GE’s. The student and professor views impact both sides of how GE’s are chosen and with the collected data it would answer the question of GE being important for the Community Engagement Minor. Connecting how GE’s impact both students and professors it would answer the question of how students would feel about GE’s in the Community Engagement Minor. This research would further display that the importance of the target audience is to demonstrate if students would be interested in taking the minor with additional GE courses or if they would willingly choose the Community Engagement Minor.

Nicole Figueroa-Sierra, Martha Jimenez, Karla Pacheco, Marco Flores, Patricia Maya, Brian Juarez, Gerquetta Jackson, Undergraduate Student

Researching Researchers: Reviewing Racial Disparities within Journal Editorial Boards
Faculty Mentor: Ashley Membere, Psychology

Racism and anti-blackness have been prevalent problems in the U.S. but have recently garnered mass attention after the George Floyd protests. These police killings forced society to reflect on the deep-seated issues ingrained into the U.S. such as racial injustice and inequality, and lack of diversity. But has academia addressed these issues internally? Although prominent journals have created calls for papers about racism within organizations, there are still racial disparities within the editorial board of publishers. We set out to determine the disparities within these academic journals and to analyze who is behind these positions of power; that ultimately decides what is published. Using the information within each journal’s editorial board, the researchers coded the perceived racial demographics of the senior editorial board members. Perceived race was coded using the information provided via their university faculty pages or academic websites such as Google Scholar as guided by prior research (Berry, 2006; Roberts et al., 2020). Editors were classified as either Black and/or a person of color in order to highlight differences in representation between the two groups. Based on 528 senior editor positions in 45 industrial/organizational psychology, business, and management journals, we have found major disparities in the racial representation for editors in chief and associate editors. Although people of color are very much in the minority with only 20% composing senior positions, Black senior editors only compose 2% of these positions. These findings showcase the anti-blackness that occurs within academia and the need for equality, equity, and inclusion in these academic spaces. More recruitment, support, and resources should be provided to Black scholars so that they can rise to these positions of influence. Ensuring diversity in these leadership positions is imperative because it allows for an eclectic scope of research to be dispersed.
Shaina Nguyen, Undergraduate Student
Factors that Contribute to Success in Online College Courses
Faculty Mentor: L. Mark Carrier, Psychology

Because of the ongoing pandemic, online courses have become an increasingly popular alternative to traditional face-to-face (F2F) courses. As a result, it has become ever more important that college students are able to navigate through these differing forms of course delivery to obtain the same quality of education and success as they would with F2F courses. In this paper, we compiled a multitude of factors that prior studies have shown contributes to success in online college courses. We found that there were reoccurring factors—some student controlled, some technical, and some external—that lead to a higher grade in online courses such as: elimination of distractions, engagement with peers, attendance of an orientation course, and the overall design of the online course.

Yadira Ramirez, Gabrielle Makrdichian, Jael Castro, Nicole Figueroa, Melanie Gerner, Undergraduate Student
www.Fakenews.You: Cognition's Influence on People’s Reactions to False Internet Information
Faculty Mentor: L. Mark Carrier, Psychology

Online media is an influential source for general news-related information, but much of the content lacks credibility. Although fake news has important implications in politics, health, and environmental science, little empirical research has been conducted on the factors driving people’s reactions to false information online. This study identified patterns of behaviors and analyzed what factors drive online news reading behaviors. Participants (N = 2,283), which consisted of people living in five university communities around the U.S., took an anonymous, online questionnaire through SurveyMonkey.com. The survey included scales on attitudes and beliefs about fake news, behaviors related to false online information, media exposure, politics and voting, technology addiction, conspiracy beliefs, emotions, and mental processes to identify behavior patterns. Cluster analysis and logistic regression were used to analyze the data. The logistic regression showed that people who plan to vote in the 2020 U.S. election are 2.3 times more likely to be vigilant about the information they consume than those who do not intend to vote. In addition, angry individuals and people with disordered thinking are 1.4 and twice as likely to generate fake news, respectively. The conspiracy seekers are 4.6 more likely to post false information; these findings may raise awareness of the types of people who are more likely to generate and spread false information and may be used to create effective interventions directly targeting these specific groups. The main research question that will be addressed: How does our cognitive processing relate to our fake news behaviors?
Yesenia Gonzalez, Undergraduate Student
*Impacts of the COVID-19 Pandemic on Women and Men’s Well-Being*
Faculty Mentor: Giacomo Bono, Psychology

A pandemic is not only a medical issue; it also has an impact on people’s mental health, causing problems such as depression, anxiety, and stress (Javed, Sarwer, Soto, & Mashwani, 2020). According to Liu et al. (2020), Sun et al. (2020), and Wang et al. (2020), women have experienced more psychological harm than men. However, in a study conducted by Bono, Reil, and Hescox (2020), grit was correlated to higher resilience and lower psychological impact and gratitude to lower impact on academic performance. The purpose of the current study is to analyze how student’s well-being has been impacted due to the COVID-19 pandemic. College students (N=301) took a survey to examine the impacts of the pandemic on their positive and negative affect, satisfaction and meaning in life, and social anxiety and depression symptoms. I will be using part of the full sample to obtain equal size groups for males and females. This study will examine whether two protective factors (grit and gratitude), well-being outcomes (affect and satisfaction and meaning in life), and mental health outcomes (depression and anxiety) differ by gender. It is hypothesized that during the COVID-19 pandemic, women present more negative affect and social anxiety, and depression symptoms and less satisfaction and meaning in life than men.

Yessica Chavez, Undergraduate Student
*Race Based Medicine*
Faculty Mentor: Sarah Lacy, Anthropology

One of the manifestations of ‘personalized medicine’ in the absence of widespread, inexpensive genomic data is race-based medicine. This has been applied to many disease states, but specifically the effects of BiDil on the Black community as a response to heart failure rates highlights the consequences of race as a method of biologically asserting correct medicine for sociological groupings of people. BiDil became the first FDA therapy approved drug for a specific racial group. Looking at data from the initial patent and rebranding of the pill on the market today, there are significant aspects that bring up questions of the validity of BiDil in treating Blacks better than it would have served any other group. Clinicians have spoken on this issue and recognized how they have contributed to distribution of the drug based on their evaluations. A significant number admit they have determined patients' race through observing physical features, and believed that racially defined groups are biologically distinct. Race is considered a poor categorization for human variation because it has no biological standing yet medical institutions still use race as a proxy for genetics, resulting in inequitable medical care. Because race has no biological basis in medicine, a move toward race-conscious medicine is a better alternative to address factors such as socioeconomic status, environment, and discrimination. Medicine is not an institution immune to racism and it should be addressed.
Joseph Villarreal, Graduate Student
The Neoliberal Mirage: How Everyone was Tricked into a System that has just Generated Inequality
Faculty Mentor: Esther Castillo, Sociology

The theoretical framework of neoliberalism has appealed during the second party of the xx century, yet it is starting to lose traction thanks to the enormous inequality that it has provoked. In this analysis, it is discussed by comparing and contrasting literature and theories regarding neoliberalism; and how it has evolved from a discipline of economists at universities to a doctrine that has shaped the form of many governments around the world. In the United States alone the Gini coefficient never was higher than during the present time, and all is thanks to fourth years of a rampant neoliberal agenda in the American institutions. Not only neoliberalism shaped the economic and political life of the American people, but it also changed the social landscape of the American mindset. Before the sense of community was strong, the idea that structural causes were responsible in great magnitude was widely accepted, yet now this idea it's seen as an excuse of the individual to not take responsibility for its actions. Individualism and self-help has despised the community brotherhood and social and collective action of helping each other. Under these premises we can see that the desunification and social erosion that neoliberalism is causing is evident; all for the liberty of the individual to not have restrictions in his/her eternal persecution of self-realization, but in the process of protecting our individualistic liberties we are losing our collective rights!
Biological and Agricultural Sciences

Albert Barrios, Michael Reed, Nataly Arias, Undergraduate Student

*Examining Genetic Signatures between Fast and Slow Growing Tumors in African American Triple Negative Breast Cancer*

Faculty Mentor: Shehla Pervin, Biology

Breast cancer is an evolving disease that constantly interacts within tumor cells and surrounding stromal cells for tumor initiation and progression. These interactions brought meaningful attention to these molecular crosstalks between tumor cells and host contributing cells. Our in vivo study suggests stark genetic differences between two African American Triple Negative Breast Cancer cell lines, MDA-MD-468 and HCC70. Our study found that MDA-MB-468 displayed slow growth phenotype and HCC70 displayed a more aggressive phenotype that resulted in accelerated tumor growth. To determine specific signaling pathways was contributed to these phenotypes, RNAseq analysis was performed. RNAseq analysis was performed for both human and mouse genes in both fast and slow growing tumors. Analysis of the transcriptomic landscape in the slow growing tumors, we found attraction of cytotoxic T cells and apoptotic signatures. We analyzed xenograft tissue morphology via immunohistochemistry. We also examined the role of Mammary Cancer Stem Cells (MCSCs) and Embryonic Stem Cells (ESCs) markers via Aldefluor cell cytometry, immunoblot analysis, and RNA sequencing. Upregulation of MCSCs/ESCs markers coincided with more aggressive behaviors in tumor progression. Where we observed upregulation in MCSCs/ESCs markers in HCC70 xenografts and reduced expression in MDA-MB-468 xenografts. We also observed pro-tumor activities in HCC70 xenografts such as angiogenesis. These observations highlight the tumor microenvironment as a path to determine key players from both cancer and host origins that may promote aggressive behaviors for accelerated tumor progression. We are further analyzing RNAseq data to elucidate key players in the tumor cells as well as the host and their interactions for their contributions to their phenotypes. Our lab’s commitment is to further characterize these subtypes of cells that may play an essential role in tumor-promoting activities for aggressive tumorigenesis.

Alicia Salmeron, Graduate Student

*Infiltration Rates within Two Different Sites at CSUDH.*

Faculty Mentor: Kathryn Theiss, Biology

Since the birth of California State University, Dominguez Hills (CSUDH) in the 1960s the campus community has continually grown and so has its environmental footprint. With the addition of gray infrastructures, human-engineered roads and pipelines, there is an increase of impermeable surfaces, which do not allow water to penetrate the soil. There is also an increase in built environments, such as buildings and pavement. Impermeable surfaces on the campus has created less space for plant life as well as less surface area that allows rainwater to infiltrate the ground, causing the plants to struggle for water. With high temperature, low rainfall, impermeable surfaces, and stressed plant life on our campus, I am provided with the perfect built environment for research. My research is focused on the infiltration rates within two sites on campus: CSUDH Vernal Pool (VPS) and CSUDH green waste (GWF) sites. These two areas have been altered to accommodate campus growth and the soil has been altered creating impermeable surfaces. My research plan is to test the infiltration rate at VPS and GWF, before and after the rainy season. I will also map out each site using a handheld GPS devise. By mapping out each infiltration test, I will be able to track the progress or lack thereof over the course of my project. I will also alter the VPS and GWF, with a total of 30 sites at each location by planting California native plants with and without fertilizers. My research on campus will allow me to dive deeper into understanding how I can help our built environment return to a permeable greenspace and make a difference in our community and our climate.
Jose Garfias, Michael Reed, Nataly Arias, Albert Barrios, Undergraduate Student

*Increased Angiogenesis and Embryotic Stem Cell Signatures Contribute to Delayed Growth of MDA-MB-468 Xenografts*

Faculty Mentor: Shehla Pervin, Biology

Breast cancer is composed of a heterogeneous group of malignant cells that constantly communicate with their microenvironment to promote tumor progression. These cross-talks between tumor cells and microenvironment determines growth kinetics and phenotypes of various tumors. Our lab has found MDA-MB-468 breast cancer cells initially gives rise to slow growing tumors, which maintain this phenotype for 3-4 months after which an accelerated growth observed. RNA Seq analysis for both human and mouse genes was performed to determine key players that maintain and drive these tumor phenotypes. RNA Seq data shows early MDA-MB-468 xenografts expressed CXCL9 and CXCL10 chemokines, known to attract cytotoxic T cells and induce apoptosis. Early slow growing xenografts also expressed TNF alpha cytokines that induce apoptosis. In sharp contrast, the fast growing MDA-MB-468 xenografts expressed increased angiogenic and embryonic stem cell gene signatures. These embryonic stem cells, and other biomarkers have been validated by immunoblot analysis, PCR and immunohistochemistry. Our lab is also examining key players from both tumor and host origins that interact to promote tumor growth. We are further characterizing significant pathways of host and tumor cell that could initiate the tumor growth. Our lab’s commitment is to further understand whether tumor cells or the host is triggering changes to the tumor microenvironment.

Kelly Hendergart, Justin Elloran, Graduate Student

*The Relationship between Median Household Income and Average Yearly AQI in LA County*

Faculty Mentor: Parveen Chhetri, Earth Science

Environmental racism is a problem that is at the forefront of today’s political discussions, but the focus is largely on variations in pollution levels between lower and high GDP countries. Less developed, poorer nations are typically bombarded with much higher levels of air pollutants, while higher GDP countries tend to bear less of a burden. For our study, we looked to see if this trend was also reflected on a more regional scale by examining the average yearly Air Quality Index across 12 different monitoring stations throughout LA County, which we then compared with median incomes from those respective zip codes. Both income and AQI data were from 2017, as this was the most complete dataset available. While we did not find a statistically significant correlation between average AQI and median income, this may be due to the scale that this study took place on. In the future, we would like to expand this to the entire state of California in addition to incorporating data from a larger time frame to account for any irregularities and obtain a more complete picture.
Kevin Kausen, Alumni
*Side Illuminated Liquid Level Optical Fiber Sensor for Hydroponics*
Faculty Mentor: Claudio Egalon, Physics

The hypothesis of my summer research was centered around the idea that the higher the refractive index difference between a side illuminated optical fiber and its surrounding environment, the higher the light intensity guided by the fiber. This hypothesis was partially supported by experimentation conducted in July and August of 2020. For these experiments, simple tap water was used as the fiber’s surrounding medium. Further experimentation determined that this device can be used as a liquid level sensor with a potential resolution of 3 microns. In the future, we present the data documenting the sensor response to a variety of sucrose solutions having different indices of refraction. Evidence collected during Summer 2020 strongly suggests that the higher the refractive index difference between the optical fiber and its surrounding environment, the higher the light intensity guided by the side illuminated fiber. This is an important step in providing evidence for Dr. Egalon’s patented technology’s usefulness in measuring liquid levels. Further experimentation will be conducted utilizing the campus’ urban farm.

Lari Smith, Undergraduate Student
*Identification of Marine Sponge Natural Products that Inhibit the Type III Inhibition System in Pathogenic Bacteria*
Faculty Mentor: Erin McCauley, Chemistry

The objective of this project was to identify metabolites from marine sponges that act as inhibitors of the bacterial type three-secretion system (T3SS). The T3SS is a virulence factor commonly employed by pathogenic strains of Gram-negative bacteria to infect their hosts. This system allows pathogenic bacteria to inject malicious proteins into the host and subvert that host’s defenses. By developing inhibitors to the T3SS, it may be possible to block the virulence of pathogenic bacteria without putting selective pressure on the organisms like typical antibiotics do, thus side-stepping the critical issue of antibiotic resistance. The McCauley lab maintains an expanding library of marine sponge extracts from biodiverse regions around the world. These sponges are known to harbor a wealth of unique complex metabolites; therefore, these extracts may be an excellent source of metabolites that may modulate the activity of proteins involved in T3SS based pathogenicity. This project was a collaborative effort between the McCauley lab and the Auerbuch Stone lab at the University of California Santa Cruz, who have been studying the T3SS for a number of years. My research involved purifying the metabolites of interest, and elucidating the structures using high resolution mass spectroscopy and NMR.
Natalya Cardona, Miriam Weinberg, Ebonie Bennett, Undergraduate Student
Faculty Mentor: Erin McCauley, Chemistry

Over 65% of all approved therapeutic drugs are either natural product, natural product derivative, or their pharmacophores are natural product inspired. Natural products are secondary metabolites produced by living organisms. They have played an important role in traditional medicine for thousands of years and continue to be an essential part of the current healthcare system. The success of these compounds and their derivatives as therapeutic agents is largely due to their high structural diversity and specific biological targets. The overall objective of this research was to identify novel natural products from an under explored source, marine derived fungi. This was achieved by fermenting 50 unique fungal strains in liquid media and extracting the biosynthesized natural products. The extracts were divided into peak libraries using flash chromatography and the peak library fractions were analyzed using liquid chromatography-mass spectroscopy (MS) using a tandem (MS-MS) format. The MS-MS data was analyzed using Global Natural Products Social Molecular Networking, a program that allows for visual spectral networking of the bacterial natural products present in the park libraries. This enables the identification of clusters of compounds that had unique chemical scaffolds. The compounds were purified using high performance liquid chromatography and their structures were determined using 1D and 2D NMR spectroscopy.

Raul Gutierrez, Erik Martinez, Undergraduate Student
Identifying Genes That Play A Role In Long-Term Stationary Phase
Faculty Mentor: Karin Kram, Biology

Escherichia coli can adapt to live in an environment without any additional nutrients for long periods of time. When E. coli grows in an environment where nutrients are scarce, they enter long term stationary phase (LTSP). We can use this phase in the lab as a proxy for a more natural environment and observe how cells adapt to these conditions. It is not yet known which genes may be important for survival or adaptation in this phase. In order to identify nonessential genes that play a role in survival during LTSP, we competed cells in the KEIO collection with wild type (WT) E. coli cells. The KEIO collection is a set of E. coli strains, each with a single- gene deletion of a nonessential gene, representing all non-essential genes – a total of 3985 strains. We performed competitions with WT cells during ten days of incubation, into LTSP. We observed cell growth after one, five, and ten days of incubation. After screening the entire collection, we identified 101 gene deletions that affected the cell’s ability to compete with WT. 29 strains with deletions had an advantage over WT cells, whereas the remaining 72 strains had a disadvantage when competed against the WT. While some of the identified strains did not show a difference in growth once competitions were in tubes versus the 96-well plates used for screening, we were able to confirm that some of the strains did have a difference in growth compared to WT cells. Several strains, including those missing sucC (encodes enzyme involved in central metabolism), dgkA (encodes an enzyme involved in lipid biosynthesis), mprA (produces a regulator involved in antibiotic resistance and efflux), cpxA (encodes a sensor kinase that responds to cell envelope stress) or hns (encodes a protein that regulates stress-related genes by condensing DNA) were outcompeted by WT cells during LTSP, indicating that these genes are essential for survival in long-term cultures. Overall, we have identified several genes that are important for survival in LTSP, and can begin to determine why these genes play a role in survival into LTSP by determining their function in long-term cultures.
**Business, Economics, and Public Administration**

*Sara García*, Undergraduate Student  
*Handwritten Journaling, Creative Thinking, and Humanity*  
Faculty Mentor: Orie Berezan, Management & Marketing

Reflective learning is the process of engaging more deeply with knowledge, beyond comprehension. It takes the learner through three stages: awareness, critical analysis, and ultimately perspective transformation. Ideally, this results in the ability for students to separate facts from attitudes or their emotional responses, and students challenging their own ideals from a new perspective. This is especially important with topics that are sensitive in nature, such as loneliness. Although journaling has been utilized in the classroom for areas such as educational psychology and social work, it is not widely practiced in business courses such as marketing. The question is: Can reflective journaling in business school result in a higher level of learning? This project investigates the relationship between learning outcomes and the reflective journaling process in an undergraduate marketing and humanity class at a large university on the west coast. The data was collected from the assignments of 17 students on the topic of social media and loneliness and were analyzed to evaluate the students’ learning experience using content analysis through the lens of Bloom’s Taxonomy. The opportunity provided a unique learning experience and a hands-on approach to allow marketing students to experience learning in a new light, through their handwritten journals. Additionally, student feedback on the course was collected and will be analyzed in conjunction with the journaling results. All analysis, results, and implications will be presented on Student Research Day.

*Jennifer Atenza, Miguel Espinoza, Jennifer Atenza, Genesis Lara, Johnathan Perez*, Undergraduate Student  
*Police and Community Relationships Post 2020*  
Faculty Mentor: Zheng Yang, Public Administration

Our research will delve into the question of what will relationships between police and the communities they serve look like in the aftermath of the George Floyd killing and the subsequent civil unrest that followed this tragic event. How will police and communities rebuild? What will their dynamic be? Will the quality of services be diminished as a result? Based on the literature, we will see the injustices communities face. The literature touches on the need for change.

*Marcia Torres, Andrea Galindo, Adam Zamarripa, Keith O’Shea*, Undergraduate Student  
*Juvenile Delinquency in Los Angeles*  
Faculty Mentor: Zheng Yang, Public Administration

Variables such as exposure to crime, race, gender, economic status, and location all have a tremendous impact on the status of an individual that would commit a crime. This study investigates the idea that juvenile crime is conducted at a higher rate in big cities within the United States than that of suburban cities. It was hypothesized that children living in big cities in the United States are more likely to become criminals later in life than those who grow up in suburban areas. Our study will be that based on empirical data, participants will be selected at random from both inner-city and suburban areas, primarily our Questionnaire/Survey introduces general questions regarding our case. These questions will begin with closed-ended questions, shifting into open-ended questions to encapsulate information to support our field of study. This group expects little to no confusion to occur within our pool of participants, ensuring proper execution in the experimental conditions are accomplished.
Luis Ocon, Undergraduate Student
*An Analysis of Challenges Encountered in IS Development*
Faculty Mentor: Myron Sheu, Information System and Operations Management

Amid the fact that the average success rate of enterprise information system (IS) projects continues to be low even after rapid advances in information technology and project management for several decades, this research focuses on commonly encountered risks in IS projects and analyzes how these risks are responded and how the responses affect project outcomes as an attempt to reveal why IS projects continue to fail and thus digitizing an enterprise is still so challenging. Resulting from our previous work, we hypothesize that information systems are much more complex as they are expected to play a pivotal role in most business functions and therefore the risk pattern of IS projects may have evolved, and that as we keep adding more information systems to the enterprise infrastructure, a piecemeal approach won’t work and a framework for the digital integration of an enterprise must be established first. The study presented in this paper examines such risk and response patterns that should allow us to draw some thought-invoking implications that may collectively call for a managerial focus of our endeavor to digitize an enterprise: a) Risks embedded in IS projects due to business issues are significantly more dangerous than ones due to technical and even people issues; b) Complexity may become a significant source of risks encountered in IS development, especially due to business issues; c) As a result, risk mitigation may not always be effective, in particular, under a time constraint and in a tactic fashion; and d) Finally, findings from the research confirms that business issues involving business functions and processes are more difficult than data processing and technical infrastructure to resolve and thus impose impactful challenges that make piecemeal efforts at the project level ineffective.

Madison Reyna, Graduate Student
*Effects of COVID-19 on Student Needs and Learning*
Faculty Mentor: Rama Malladi, Accounting, Finance and Economics

This research project includes an analysis of data that was collected at CSUDH from students at the beginning of the COVID-19 pandemic. The purpose of the survey was to capture student needs, concerns, and suggestions so that the institution was better able to align resources and support students. A total of 1718 students responded between mid-May and mid-April. The needs assessment took into consideration an adaptation of Maslow’s (1943) hierarchy of needs for the school environment. That is, the University should know about and work to address basic needs and safety so that students are able to form relationships, establish a sense of belonging, develop esteem, and to learn. Community research estimates that more than 60% of local residents have basic needs and many of the students included in the sample are Pell eligible and first-generation college students. The research is therefore also informed by bandwidth recovery theory, which states that students need help to reclaim cognitive resources lost to poverty and related challenges (Verschelden, 2017). The research question that guided this project was, are there differences across lower and upper division students in their expectations and concerns at the beginning of the COVID-19 pandemic? Specifically, we tested the following hypotheses: (1) Lower division students are more likely to have basic needs, as compared to upper division students, (2) Students with basic needs are more likely to report other needs (such as financial and healthcare), and (3) Students with basic needs preferred different support compared to those with other needs. The findings confirmed the three hypotheses and provided useful data for faculty to consider as they develop and adjust syllabi, classroom management, and approaches to interacting with students.
Education

Daisy Cruz Cervantes, Graduate Student

*Inclusion in Preschool: Using Embedded Instruction (EI) and Augmentative and Alternate Communication (ACC) to Teach Expressive and Receptive Language Skills to Preschool Children with Intellectual Disabilities*

Faculty Mentor: Kai Greene, Special Education

This study seeks to analyze how effective the combination of embedded instruction (EI) and the use of an augmentative and alternate communication (ACC) board has on preschool children with intellectual disabilities in the acquisition of expressive and receptive language skills. The subjects in this study will include one preschool child with an intellectually disability who is enrolled in an inclusive preschool program. The subject has access to the general education curriculum and the EI Primary Target Goals (PLT) will be in accordance with the subject’s individual education plan (IEP) goals. The results of this study can benefit educators, students, and parents alike and can help better equip parents with the tools necessary to meet the language needs of their children in the home setting. Students can also gain language skills as a result of this study, thus allowing them not only to communicate basic needs but also independently partake in scheduled classroom activities, transitions and routines. The results of this study can also help educators effectively deliver embedded instruction in combination with an ACC core board in the near future through online platforms, thus helping bridge the gap between home and school settings. Parents and educators can learn effective intervention strategies that can be extension of the learning and home environment due to parents having to attend online distant learning intervention sessions.

Maria Ramos, Graduate Student

*Teachers Perception on the Effectiveness of Embedded Instruction during Distance Teaching*

Faculty Mentor: Kai Greene, Special Education

The purpose of this study is to examine teachers’ perceptions of the effectiveness of the Embedded Instruction (EI) professional development (PD) training to be conducted via distance learning. Embedded Instruction is a program and evidence-based teaching strategy used in the early childhood special education classroom. EI involves using a naturalistic instructional approach by embedding the teaching of specific skills to students during daily activities, routines, and transitions in their preschool classrooms (Rakap, 2017). The EI training is a two-day training that focuses on teaching first year participants how to integrate EI into their classroom. During the training first year participants along with their coaches complete four modules that cover What to Teach, When to Teach, How to Teach, and How to Evaluate EI in their classroom. Subjects for this study will be 10 preschool teachers who will receive professional EI training during the 2020-2021 school year and are currently teaching in an early childhood special education class. Participants will complete a pre- and post-training questionnaire to evaluate the effectiveness of the EI training. Participants will be asked to complete six open-ended questions six weeks after completing the EI training. During the open-ended questions teachers will be asked to discuss their implementation of EI in the classroom. EI is being done outside this study, however this study is evaluating EI based on teacher’s perception.
Melanie Gerner, Undergraduate Student
Reducing Invisible Equity Gaps to Increase Student Parent Persistence and Success
Faculty Mentor: Thomas Norman, Management & Marketing and Ana de la Serna, Communications

Which resources do student parents need to ensure they earn college degrees at the same rate as students without children? Around 1 in 5 of all college students are student-parents (IWPR, 2019). Student-parents face many obstacles to completing college and are less likely to complete school than students without children (USGAO, 2019). According to a 2017 IWPR report, 32.6% of college students who have children completed a degree or certificate within six years of enrollment compared to 56.1% of students who do not have children, even though student-parents on average have higher GPAs. Student-parents who do not complete their degree are often left with student debt, leaving them worse off financially than before enrolling in college and less prepared to support their families or contribute to society. In this mixed-methods study, I will use online survey data of student-parents at a medium-size urban university, and data from in-depth interviews of student-parents. I will compare the effectiveness of comprehensive childcare options, specialized whole person advising, and expanded financial support in increasing student persistence and ultimately graduation. I will then blend the quantitative and qualitative data to test my hypotheses. When student-parents’ unique needs of childcare, added financial support and specialized advisement are realized, graduation rates should increase. The upfront cost of free childcare, a case manager, and an extra $2,000 a year to student-parents, specifically single mothers earning a bachelor’s degree, is considerably less than the increased tax revenue realized after her graduation (IWPR 2019). A 2018 study of student parents at City University of New York investigated “time poverty”, finding many student-parents are left without options for childcare (Wladis et al, 2018). Common frustrations student-parents are met with are institutions that do not recognize their unique needs and professors who misunderstand or do not consider their obstacles and struggles.

Mélissa Maragnes, Graduate Student,
Early Start Denver Model Professional Development Training
Faculty Mentor: Kai Greene, Special Education

This professional development training (PDT) will inform general education preschool teachers, special education preschool teachers and parents of students with Autism Spectrum Disorder (ASD) on how to use the Early Start Denver Model (ESDM). Autism Spectrum Disorder is a developmental disorder of variable severity that is characterized by difficulties in social interaction and communication and by restricted or repetitive patterns of thought and behavior. Therefore, the ESDM provides alternative strategies and teaching techniques that can help to promote a boost in language, social and cognitive skills, and verbal and social development. As well, the ESDM approach aims to reduce the severity of some negative behaviors and eradicating others. The ESDM professional development training may be useful for teachers who work in preschool general education inclusive settings, for Special Education teachers but also for parents of students with ASD since they are the ones who spend most of their time with their child. The ESDM will provide alternative strategies and teaching techniques that can help to improve social, cognitive, and communication outcomes for young students with autism spectrum disorder and therefore positively impact inclusion of the students with ASD. As a result, students with ASD may master goals and may perform similarly to their typical developing peers. The risks are minimal and may be due to body regulation or dysregulation, time of the day, illness, personal issues, environment and other internal and/or external factors.
Health, Nutrition, and Clinical Sciences

Alex Perez, Undergraduate Student

Mapping Accessible Shelters in LA County Using Geographic Information Systems (GIS)

Faculty Mentor: Parveen Chhetri, Earth Science

There is no physical map that can visually locate drop-in and transitional housing shelters in Los Angeles County. With the GIS software (ESRI ArcMap) and geocoding approach, I have mapped the shelters that have accessible locations, capacity, languages, population focus, intake phone numbers, hours and days of operation, cost or lack thereof, as well as the agency providing the service. The main focus was to find 24-hour shelters that would be free of cost and open to the public. Also taking into consideration the distance from public transportation because many people in LA County do not have access to a car, programs within a mile distance from the Metro Trains were mapped and highlighted. There are different types of shelters available and the resources that each provides differ. Therefore, maps were also prepared to show drop-in shelters, immediate and short term, temporary, and transitional housing. Immediate and drop-in shelters can also be categorized as emergency shelters, and these shelters provide the basic needs, food, medical, but often have a time limit or are not able to meet the capacity of folks who are requesting shelter. Many drop-in shelters focus on providing preventative and emergency services, of course, shelter being a priority, but any of the additional services depending on the provider and the funding. Therefore, maps highlighting all these shelter locations and facilities will be helpful for those in need of these services. Keywords: GIS, housing shelters, mapping, Los Angeles.
Humanities and Letters

Ev Campos Martinez, Undergraduate Student
Understanding Butch Lesbian Culture: Are Butches A Dying Breed?
Faculty Mentor: Jennifer Brandt, Women Studies

In this study, I explore the genealogy of the butch lesbian identity and the erasure of butch lesbians from academia and society, specifically focusing on Black butch lesbians and butch lesbians of color. The genealogy begins on the origin of the butch lesbian identity and moves to defining butchphobia, the act of purposely excluding, disliking, and denying butch lesbians or masculine of center folks the space, as well as the support, to exist and contribute to culture and society. I argue that butchphobia connects to the erasure of Black butch lesbians and butch lesbians of color. I proceed to explain the significant contributions of butch lesbians in the Pride movement, Stonewall Riots, and how butch lesbians contributed to the women’s liberation movement during the 1960s and 70s. In the genealogy, I also examine how race and language have shaped the experiences of Black butch lesbians and butch lesbians of color. Subsequently, I examine social media being a powerful tool when it comes to butch lesbian representation, and I highlight its role in creating more positive spaces for collective action and community. Despite these gains, the erasure of butch lesbians is still happening in academia and society, therefore, I will include aspects of my journey and experiences with the butch lesbian identity. I, myself, have had difficulty finding literature, readings, and work made by Black butch lesbians and butch lesbians of color because of the erasure of these identities in academia. Lastly, I argue that it is a disservice to future generations, especially queer youth, to continue the erasure of butch lesbians from academia and society.

Melissa Rodriguez, Undergraduate Student
Serial Killers and their Characteristics
Faculty Mentor: Zheng Yang, Public Administration

Children who are exhibiting these behaviors may have a higher risk of violence as an adult. Behaviors such as starting fires, wetting their bed, cruel to animals are all red flags. What they don’t explain is that these are signs of asking for additional help. It doesn’t mean that they automatically grow up to become a serial killer. In all of the articles we read, we were able to see that becoming a serial killer is a process that starts during their childhood. There is a theory that people are born serial killers, however, the type of trauma someone goes through in their life can affect why they kill. Childhood trauma is the common reason behind why someone might kill. If a child is abused in any way, it can obviously lead to that child developing mental issues because of whatever traumatic experience they had. If that child develops mental issues because of the experience, it can cause them to have resentment towards not only the people that have abused the child but people that just look like the abuser. If that is the case, then in the future the person that has grown up with that resentment might kill the abuser or people that look like the abuser.
All Social, No Justice? A Feminist Critical Analysis of the Performativity of Social Justice via Instagram

The purpose of my research is to investigate the performativity of social justice demonstrated through social media; specifically, via the Instagram accounts of @Emilys_list (an established organization that promotes and funds women in politics) and @blmlosangeles (creators of Black Lives Matter, a movement created by women to call for action in response to anti-Black racism). Social justice movements have brought attention and activism to racial, sexist, homophobic, and xenophobic issues. To continue that action, I will analyze social justice through a feminist lens, analyzing performance on Instagram because of the severity of possibilities that are at risk when masses of people are being reached. Through my research, I am exploring the origins of social justice, its evolution, the language around social justice, its effectiveness, and its performance on social media. In America, not only is social media accessible, it is a platform that is commonly used as a news source and form of activism. I argue that although social justice has shown to be successful in improving the state of humanity, we are in the time often called the Digital Wave by feminists, requiring that restrictions and guidelines need to be placed to ensure social justice when engaging in activism.
Physical and Mathematical Sciences

Allison Pary, David Saldana, Scarlett Zamora, Graduate Student

A Comparative Evaluation on the Performance of Food Waste Diversion at California State University Dominguez Hills

Faculty Mentor: Justin Valliere, Biology

To mitigate the effects of anthropogenic activities acting on our climate, we should work towards the reduction and prevention of emissions. The production of excess methane (CH4) gas from decomposing biological materials in landfill waste (LW) threatens us with not meeting the standards of climate model RCP 2.6 goal, of Net-Zero emissions by 2050. Consequently, the implementation of a plan for the conservation of resources such as energy, water, and food in a waste management system was created as a viable procedure to meet these standards at California State University Dominguez Hills (CSUDH) with the inception of the Office of Sustainability. This study statistically evaluated the effectiveness of potential food waste (FW) diversion on campus. Waste audits (WA) were utilized to calculate the potential FW diversion over measured LW mass in 2018 and 2019. These years were selected because of the substantial difference in student outreach programming conducted (food recovery, toro token system, proper waste workshops) and funding received by the Office of Sustainability in the span of those two years. We compared amounts of food waste diverted in 2018 and 2019 using a two-tailed paired t-test to evaluate if there was a significant reduction of potential FW within LW mass measurements following increased outreach/education efforts on campus. Thus, we surmise if there is a significant contrast in the FW diversion mass in future WA we can attribute this success to efforts pioneered by the Office of Sustainability. Based on the results of the paired t-test we determined there is a significant relationship outreach educational programming has on FW diversion. Furthermore, future studies on the subject can determine if mandatory campus-wide education aimed at improving awareness of sustainability issues on campus could yield an even greater reduction in FW that is sent to landfills.

German Bravo-Villasenor, Graduate Student

Hexavalent Chromium Emissions and Sensitive Receptors in Los Angeles County

Faculty Mentor: Parveen Chhetri, Earth Sciences

The AQMD (Air Quality Management District) supervises emissions of metal TAC (toxic air contaminants) facilities. Hexavalent chromium is one of the most common metals under the TAC list (list created by the Office of Environmental Health Hazard Assessment). Chromium is emitted by industrial processes such as electroplating, surface coating, pigments, dyes, leather tanning, stainless steel production and welding. Continuous exposure to hexavalent chromium in air is associated with an increased risk of cancer and symptoms like irritation of the respiratory system, as well as allergic reactions such as shortness of breath. One critical factor of metal TAC facilities is the distance to schools, hospitals and residential areas, also called sensitive receptors. Distance to sensitive receptors affect permitting, operating hours and housekeeping strategies. AQMD rules 1480, 1469 and 1469.1 delineate the details of housekeeping and reporting for facilities that emit hexavalent chromium. The objective of this project is to use GIS to represent the air concentration of chromium over LA County as well as the distance of some facilities to sensitive receptors such as schools and hospitals. Location of chromium TAC facilities was taken from the Toxic Release Inventory website, readings of chromium sensors were taken from the EPA (Environmental Protection Agency) website and location of sensitive receptors was taken from the LA County Enterprise Geographic Information Systems website. An interpolation tool was used to estimate the concentration of chromium over LA County for the year 2019, the buffer and near tools were used to estimate the distance between facilities and sensitive receptors.
German Bravo-Villasenor, Graduate Student
Particulate Matter Distribution in Carson City
Faculty Mentor: Tianjun Lu, Earth Sciences

PM (Particulate matter) is composed of air pollutants that have a radius below 10 or 2.5 micrometers. These kind of contaminants are associated with cardiovascular and respiratory health conditions. There are different sources of PM but some of the most common include smokestacks, construction sites and fires. Emissions of sulfur dioxide and nitrogen oxides may also lead to the formation of PM in the atmosphere. The EPA and Air Quality Management district monitor particulate matter, this is done with the use of sensors located in different cities. In LA County there are approximately 13 sensors that record PM 2.5 readings, this is a relatively small number of sensors, in addition not one of those sensors is located in Carson City. The objective of this project is to use low cots sensors to monitor the variation of PM 2.5 in Carson City and CSU Dominguez Hills. Data obtained can be used to analyze the average exposure of individuals as well as the potential health risk.

Jason Williams, Undergraduate Student
Identifying Novel Chemical Scaffolds that Exhibit Selective Cytotoxicity against Solid Tumor Cell Lines using Mass Spectroscopy based Molecular Networking
Faculty Mentor: Erin McCauley, Chemistry

The overall objective of this research was to identify novel natural products with selective cytotoxicity against solid tumor cell lines. This research project was achieved in partnership with Dr. Fredrick Valeriote at the Henry Ford Health System. My research project involved analyzing natural product extracts that exhibited the desired cytotoxic activity using a liquid chromatography-tandem mass spectroscopy (MS-MS) format. The MS-MS data was analyzed using Global Natural Products Social Molecular Networking (GNPS), a program that allows for visual spectral networking of the natural products based on their chemical scaffolds. These scaffolds were then compared to a database of known natural products in the GNPS framework. By comparing the natural products present in the extracts to the known natural products in the GNPS database, dereplication of previously reported natural products were quickly identified. This allowed for prioritization of extracts that contained putatively novel chemical scaffolds. These natural products were then isolated into the pure compounds from the complex extracts using high-performance liquid chromatography. Along with the structural elucidation of the pure compounds using mass spectrometry and NMR spectroscopy. After which the pure compounds were returned to Dr. Valeriote to be rescreened against the appropriate cell line to determine which compounds were responsible for the observed cytotoxic activity.
Karla Rubi, Yilda Echeverria Morales, Undergraduate Student
Investigating Triple String Societies in Approval Voting
Faculty Mentor: Carolyn Yarnall, Mathematics

In approval voting, people vote for each choice/candidate they find acceptable and the winner is the one that receives the most votes. This number of votes is called the agreement number. Often we model approval voting in “linear societies” where intervals in the line correspond to what each voter finds acceptable. In this research project, we began by investigating “double interval societies” and moved to working with “triple string societies”. Double interval societies have real-world applications such as when trying to create a schedule and set a meeting and one person has available from 8 am-11 am and 4 pm to 7 pm and another from 9 am to 11 am and 2 pm to 5 pm and so on. With a string society however, every person has a set amount of intervals and each interval is the same size. In a triple string society, each person has three intervals of all the same size as everyone else. We use n as a way to describe the number of people. A diameter, d, is a set number of how many it can overlap with at once. For example, on one person’s shift, they can work with a maximum of 3 more people, which can be in rotation or swapped for others at any time. Following up on that example, in total there would be a maximum of four people on shift at once and that number four would be applied as the agreement number, a(S). Agreeability is described in two numbers, for example with (2,2) agreeability, everyone sees each other at one point in their shift intervals. We want to see the maximum number of people, n, in a (2,2) agreeable society for each agreement number, a(S).

Raju Bista, Graduate Student
Are Tree Migrating Upslope in the Langtang National Park, Nepal?
Faculty Mentor: Parveen Chhetri, Earth Sciences

One of the discerning change global warming has brought is in the edge forests such as in arctic and alpine treeline. The general expectation is warming should ameliorate the tree growing conditions in the temperature sensitive ecotone. To assess the regeneration dynamics of Abies spectabilis (fir) in treeline ecotone in Langtang National Park nepal, the fir individuals within three transects (forestline to species limit) were sampled for their age using Dendrochronological approach. Trees were cored at the base, and branch whorls were counted for seedlings. The elevation distribution of recruitment was assessed in different age groups. There was not a clear indication of upslope recruitment surge toward recent decades, however, substantial presence of young individuals showed promising ecotonal densification in the rather young stand. While this was a preliminary observation of how the newer recruits are establishing, the spatial heterogeneity in the distribution calls for examining other factors masking the seedling and sapling performance under warming climate. Key words: Age structure, Regeneration, Stand densification, Treeline, Treeline shift.

Valeria Arredondo, Undergraduate Student
Discrete Approval Voting Models
Faculty Mentor: Carolyn Yarnall, Mathematics

Approval Voting is a system of voting in which everyone votes for all candidates they align themselves with. In this context, the “agreement number” is the maximum number of voters who are similarly aligned. The “piercing number” is the minimum number of candidates so that every voter is represented. Approval voting is often used to model scheduling: in this setting the agreement number is the maximum number of people who can meet at the same time and the piercing number is the number of meetings needed so everyone can attend a meeting. In past work, most approval voting models are continuous (e.g. linear), but in this project, we used discrete models. Our main goals were to determine how to best represent a set of voting data and to obtain an algorithm that gives the minimum piercing number for this data. We used mathematical ideas from discrete mathematics and graph theory to achieve this goal.
Approval Voting is a system of voting in which each person votes for all candidates that they approve of, and the winning candidate is the one who receives the most votes. While there are many ways of modeling approval voting, in scheduling, we might model on a line, which was my partner's focus, or on a circle that represents a twenty-four-hour clock, which was my main focus. Each interval, or arc in the circle represented time availabilities. The agreement number represented the number of people available to meet at the same time. When everyone could not meet simultaneously, I began to construct new societies where each voter had two separate time availabilities, or double intervals, that showed how many meeting times people would need to have so that everyone was able to meet at least once. This created a piercing number that determined the number of meeting necessary for everyone to attend. I constructed circular societies with a certain agreement and piercing numbers in my research without using double intervals.