



Student Research Conference

RoundTable Abstracts

Monday and Tuesday, March 1-2, 2021

- Behavioral and Social Sciences
- Biological and Agricultural Sciences
- Creative Arts and Design
- Education
- Engineering and Computer Sciences
- Health, Nutrition, and Clinical Sciences
- Physical and Mathematical Sciences

Behavioral and Social Sciences I

Alicia Smith, Maribel Gomez, Karina Jaimes, Theresa Serrato, Frances Rubio, Mariah Jacobo, Jessica Reyes, Undergraduate Student

Examining Academic Success in First-Generation College Students and Identifying the Factors Most Conducive to Their Success

Faculty Mentor: Erin Barrett, Psychology, Monique Turner, Psychology, Steven Freize, Psychology

Studies show that 56% of college students identify as first-generation college students (RTI International, 2019). First-generation college students are the first in their family to attain a 4-year degree (Peralta & Klonowski, 2017). Non-first Generation College students may have access to specific resources that first-generation college students do not, and as a result, they may face several challenges toward attaining success. Academic success encompasses academic achievement, mastering learning objectives, persistence, and satisfaction (York et al., 2015). First-generation college students, in particular, may significantly benefit from the implementation of specific success strategies such as facilitating faculty mentorship, extracurricular activities, and psychotherapy. Potential moderating factors may also play a role in their academic success, such as trauma, substance use, and parenting styles. In this study, a measurement of each of these factors will be analyzed for their impact on students' academic success. Most research on first-generation students focused on single factors; this study will explore a comprehensive model of student success by examining multiple factors that may lead to successful outcomes. The information gained from this study will guide first-generation students, schools, and families toward implementing the resources that are most conducive to academic success.

Casey Caprioglio, Graduate Student

An Ethnographic Study of the Influence of COVID-19 on First year Residents and Nurses

Faculty Mentor: Esther Castillo, Sociology

It is normal to be anxious before the first day in a new job, but what if your first day is in the middle of the worst pandemic in 100 years and only a few weeks ago you graduated Medical school? In the news, we hear almost every day from doctors and nurses with years of experience at the top of their fields, sharing just how devastating and traumatic their jobs have become during this crisis. What if you had minimal experience? Even though you have finished hundreds of supervised clinical hours to get your degree, you are now accountable for making life or death decisions regarding your patients' treatment. Thousands of hardworking students graduate medical school and nursing school every year, yet throughout this pandemic, they are hardly mentioned, if at all. This ethnographic study aims to gain insight into how the pandemic has and will affect the mental well-being and attitudes about public health in first-year residents and new graduates. This round-table discussion will provide input and suggestions on how to evaluate my findings through a sociological lens.

Cat Munsen, Sarah Franks, NaKayla Williams, Graduate Student

Abolitionist Reform to Reimagine Policing: Defund the LAPD and Reinvest in Black Communities

Faculty Mentor: Fynwinn Prager, Public Administration

Data and statistics show that in the City of Los Angeles, Black citizens are at a much higher risk of experiencing police brutality, even death, at the hands of local law enforcement. This policy paper will address the urgency of biased police violence resulting from the racism so deeply ingrained in the American policing system. From the collective cry for abolishment of the status quo, we have chosen three specific reform alternatives to analyze. The recommendation arising from our analysis is to “defund and reinvest”. Specifically, we are recommending to defund the LAPD by 50% by the beginning of the 2024 budget cycle and reinvest those funds in social services, programs, and infrastructure called for by Black communities. Ultimately, violent and fatal interactions between Black Angelenos and police can be eliminated, and community trust restored, by addressing the underlying needs which prompt unnecessary police intervention. Our analysis demonstrated the other two proposed reform alternatives, investments in (1) hiring and training practices and (2) community policing and civilian oversight are consistently met with state and federal barriers that are simply too great to overcome in bringing about meaningful change at the local level. Most importantly, defunding and reinvesting addresses the root causes of an inherently flawed policing system which targets people of color.

Francisco Gonzalez, Undergraduate Student

Los Angeles Punk Rock

Faculty Mentor: Steven Frieze, Psychology

For my project, I will be addressing different literacies inside of the Los Angeles Punk Scene. Upon first glance, Punk Rockers seem like dirty, stupid, radical kids, but in reality their world has values and rules. Punk rockers have constantly been ridiculed for their dress, but I believe that a Punk Rockers dress can show many different literacies. For my project, I will use a sociocultural understanding of literacy to show how literacy is deeply embedded in the punk scene. Marian Souto-Manning and Haeny S. Yoon’s book *Rethinking Early Literacies: Reading and Rewriting Worlds* states, “Every neighborhood and community has particular, rich, and worthy ways to make meaning that are no better and no worse than other community’s ways with words” (Souto-Manning, pg. 127). I will show different examples of clothing that represents different subcultures found inside of punk rock. I will be using items of clothing to describe Vegan Straight Edge punks, Anarchy Punks, and Skinhead Culture. Using these items, I will show how these scenes differ, but all equally tell a story of the effects of oppression onto a young person. By examining the dress of these people, we can learn the messages that they are attempting to convey. I will also be discussing my own experience in the Los Angeles Punk Rock scene and talk about different stories that led me to the punk rock culture. Finally, I will add a few more resources for further research into the history, values, and lifestyle of the Punk Rock Scene. Through this project, I hope to convey the importance of listening to young people's views and beliefs, rather than oppressing students into 'normality'.

Jessica Moron, Nasim Karimi, Undergraduate Student

The Differential Impact of Covid-19 on Communities. Is the Pandemic Leaving a Lasting Mark on the Latinx Community?

Faculty Mentor: Steven Frieze, Psychology

The research study purpose is to measure multiple impacts of the current twenty-first century Coronavirus Disease (COVID-19). As COVID-19 continues to spread across the country and globally (pandemic), COVID has a profound impact, especially on minorities (Farquharson & Thornton, 2020.) According to The Department of Managed Health care (2020), Coronavirus is a virus that affects individual's lungs and airways. As of November 2020, The Center for Disease Control and Prevention has declared a grand total of over nine million COVID-19 cases and an ongoing death count of over two-hundred-thousand people nationwide. According to the U.S. Center for Disease Control and prevention (2020), as COVID-19 continues to emerge, the virus is disproportionately impacting minority communities specifically those within the lower socioeconomic ladder facing racism, discrimination, and oppression. There is a limited literature review on the impingements this current pandemic has on differential ethnic communities. In addition to understanding the medical and psychosocial impacts COVID has on communities, it is noteworthy to comprehend the communities' resilience as they adapt (cope) with the pandemic. This study aims to guide medical and psychosocial services when developing programs.

Joseph Villarreal, Graduate Student

First Generation Latinx Perspective of Law Enforcement and Police Brutality

Faculty Mentor: Danny Madrid, Sociology

In this ethnographic analysis of first generation immigrants to the United States, it's presented a perspective of their view with the polemic that police brutality represents as well as the protest against this incident caused. Not only the interviewees' exposed different views of the different dinámica that they lived with police but they also shared patterns in common that helped to shape a vision of what is the Latinx's experience in this country when they are first generation. The different interviewees were heterogeneous on their background this helped to enrich the perspectives and ideas of the premises that helped them to shape their identities and opinions. Ultimately the opinions and expectations of the parties in this study surprise and develop the reader a deeper understanding of the police and law enforcement activity and interaction in Latinx communities and neighborhoods in the greater LA area.

Maria De La Torre, Undergraduate Student

Understanding the Neurobiological Factors that Support Addiction using a Rat Model of Cocaine Abuse

Faculty Mentor: Philip Vieira, Psychology

Cocaine is a highly addictive psychostimulant and has long been used to model addiction in animals. Our goal is to understand how it affects the brain, particularly the mesolimbic dopamine pathway that is closely tied to reward processing. This project focuses on specific proteins being altered by chronic cocaine administration due to an increase in the neurotransmitter dopamine on brain regions involved in reward processing, such as the nucleus accumbens (NAc), ventral tegmental area (VTA), and the prefrontal cortex (PFC). Cocaine has been shown to affect these brain areas in several ways, including by increasing expression of the transcription factor Δ FosB. Δ FosB has been shown to correlate with neural structures that affect the mesolimbic reward pathway. In this project, we plan to analyze differences in expression of Δ FosB depending on acute (short-term) and chronic (long-term) exposure to cocaine. Additionally, we will study differences between male and female rodents exposed to cocaine. After drug exposure, rodent brains will be sent to CSUDH from our collaborators, and we will process this tissue using immunohistochemistry. Once we isolate specific brain structures, the brains will be sliced into 50 micron sections, stained with different antibodies that recognize our target proteins, and imaged using fluorescent microscopy to compare levels of Δ FosB. Ultimately, this project will further our understanding of how the brain supports addiction and the differences seen based on sex and length of drug exposure.

Matthew Taylor, Graduate Student

Pledge of Allegiance: The Political Efficacy of Historically Black Greek Letter Organizations

Faculty Mentor: Alexis McCurn, Sociology

The proposed study is a work in progress for a future dissertation. The state process of race creation along with practices of anti-Black discrimination in policymaking has created an observable history of inequity within the United States concerning political agenda that support Black American interests. In efforts of addressing this social problem, the researcher aims to investigate the Black counterpublic as an influencer of public policy, specifically through the evaluation of the sociopolitical practices of Historically Black Greek Letter Organizations (HBGLOs). To determine a metric of success, the researcher posits the following questions (1) How accurately have Historically Black Greek Letter Organizations represented the political attitudes of Black people living in America from 1990 to the present? (2) What significance, if any does membership in a HBGLO have for Black civic leaders? (3) How have members of HBGLOs fared introducing policy into legislature that is successfully passed or in becoming elected officials themselves? The proposed methodology will utilize qualitative surveys and interviews to provide primary data collection. The researcher will also conduct qualitative and quantitative content analysis of secondary data to better establish their anticipated findings with existing research. The Black counterpublic allows the function of politics beyond the bourgeois public sphere. Studying its institutions might offer effective strategy to challenge U.S. racial inequality.

Tania Lugo, Undergraduate Student

Opioid Use Disorder and Sleep: Investigating the Neurobiological Correlates

Faculty Mentor: Philip Vieira, Psychology

Drugs of abuse such as opioids have detrimental effects on sleep when consumed chronically, including difficulty falling asleep and maintaining sleep, and altering the amount of time spent in different stages of sleep. Disrupted sleep has numerous documented negative consequences and has been shown to increase the risk for relapse when experienced during withdrawal from a substance. The neurological underpinnings of this relationship are not well understood, but likely involve long-lasting changes in protein expression. Δ FosB, a transcription factor found in the brain, is a purported 'molecular switch' of substance use disorder, supporting long-term neurobiological changes that underlie addiction. Overexpression of Δ FosB in the striatum is linked to compulsive drug-intake, drug-seeking and relapse. Although there is evidence that chronic drug administration induces Δ FosB expression in reward areas of the brain, its role in brain areas that are implicated in stress and sleep processing is not known. The proposed study aims to investigate whether chronic oxycodone administration induces Δ FosB in these brain areas, including the locus coeruleus, hypothalamus and the striatum. Brain slices will be taken from 3 female and 3 male Long Evans rats exposed to oxycodone (opioid treatment) and those not exposed to oxycodone (vehicle treatment). The number of Δ FosB-positive cells in the locus coeruleus, hypothalamus and the striatum will be assessed via immunohistochemistry. The data generated by this work may better inform us about the complex relationship between sleep and substance use disorders.

Griselda Rivera-Orochena, Undergraduate Student

Blindspot: The Double Erasure of Queer Central Americans

Faculty Mentor: Alexandro Hernandez, Chicano/Chicana Studies

Central American immigrants and US Central Americans currently face a significant amount of issues. For example, immigration laws that forbid them to receive asylum, poverty in their homeland and in the U.S., and exclusion within their own communities. I will conduct ethnographical research on queer identities in resistance to heteronormative patriarchy in U.S. Central American culture. Specifically, I will investigate how LGBTQIA2+ Central Americans in Los Angeles demonstrate queer cultural agency at Latinx dance events such as Cumbiatón and Latinx poetry nights. The objective of this research is to create LGBTQIA2+ cultural pathways to future mentors of Central American students who need assistance in navigating spaces of higher education. It is crucial to show these communities that someone as unique as them can hold educational positions to help create welcoming spaces for all.

Biological and Agricultural Sciences

Jonathan Baello, John Coulston, Armando Tejas, Graduate Student

Identifying and Comparing Gut Microbiomes in Zebrafish, Danio Rerio, to Understand Host-Microbiome Interactions

Faculty Mentor: Fang Wang, Biology

The human intestinal environment harbors a complex community of microbes, otherwise known as the gut microbiota. Gut microbiota and human hosts play a dynamic role in our clinical understanding of human health and disease. Examples of this can be linked in the etiology of noncommunicable diseases ranging from cardiovascular, neurologic and metabolic illnesses. In recent years, zebrafish have become viable models to investigate the gut microbiome. Zebrafish embryos are externally fertilized and optically transparent, thus allowing for easy observation and progress. Additionally, this animal model provides practicality in laboratory use as there are genetic and molecular tools readily available that will aim to discover the molecular mechanisms of host-microbiome interactions. We collected fecal microbiota samples from wild-type zebrafish, both male and female, from 6- to 24-month-old subjects. In this study, we have samples from 6-month old males, 6-month old females, and samples from 24-month old males and 24-month old females. After DNA was isolated from the fecal samples, PCR was used to amplify bacterial 16S RNA gene V4 region to facilitate the identification of microbiomes. Sequencing libraries were prepared from the PCR amplification, and subsequently sequenced by Illumina MiSeq. We are currently utilizing bioinformatics tools Nepele and Qiime to analyze the sequence data. Qiime is an extensive, open-source, and community developed microbiome analysis pipeline. Nepele is a web-based platform for microbiome data analysis, which employs different pipelines, including Qiime, and provides an intuitive visualization output for ease of analysis. This project serves not only to investigate the generality of wild-type zebrafish gut microbiome, but also accounts for the dynamic effect of age and sex. While the gut microbiome has been well-explored in numerous studies, there lacks information on skin microbiota. This deficit in research justifies future investigations for a comparative study to understand host-microbiome interaction at further lengths.

Paul Dinh, Graduate Student

Giving our slow growing coral a little boost

Faculty Mentor: Charlene McCord, Biology

While coral reef ecosystems account for less than 1% of the ocean, these magnificent formations provide a home to over 25% of all marine life. It is believed that coral reefs have the highest biodiversity of any ecosystem on Earth. This ecosystem also provides millions of people with food, medicine, erosion protection and revenue from both fishing and tourism. Therefore it is vital that we keep our coral reefs healthy and thriving. Unfortunately our coral reefs are in danger. Large scale bleaching events are occurring increasingly frequently, making it impossible for coral reefs to properly recover. Scientists have responded with a variety of different methods but success has been difficult to measure. One method involves coercing specifically selected coral to sexually reproduce in hopes of creating more resilient offspring. Another method involves creating small fragments of a coral colony which, when grown in close proximity of each other, will fuse together. This method shortens the amount of time needed for a coral to reach a larger size and therefore sexual maturity. In my work, I plan to apply both of these methods to traditionally slow calcifying/growing coral in hopes of more rapidly producing coral that are able to sexually reproduce. To produce increasingly resilient coral, we must select those that survive bleaching events and pass on their genetics to a new generation of coral. We hope to compare different proven methods of coral growth as well as test for new ones?

Mayra Hernandez, Undergraduate Student

Effects of Nitrogen Deposition, Climate, and Fire on Soil Nitrogen Availability

Faculty Mentor: Justin Valliere, Biology

The scientific community acknowledges the strong effects of nitrogen availability on plant richness. Nitrogen (N) deposition due to air pollution has led to increasing N availability in ecosystems worldwide, with negative impact on plant diversity. Elevated N deposition could also interact with other factors such as climate or disturbances. Through the analysis of existing data sets and publicly available climate data we will evaluate N levels on plant-life to gain a better understanding of the effects of environmental fluctuations on the variability of soil N. Environmental fluctuations that occurred at the Santa Monica mountains in the years 2011-2018 will be analyzed via statistical software to determine possible correlations between N availability in the soil and those fluctuations. Depending upon the magnitude of correlation between various environmental conditions (e.g. drought, fire, precipitation, temperature and humidity) and their respective soil N levels, we may be able to create a rudimentary model of the expected effects on the plant communities, including their diversity and the presence of invasive species.

Creative Arts and Design

Paris Orozco, Undergraduate Student

Male Gaze in Art

Faculty Mentor: Kirstin Ellsworth, Art & Design

The portrayal of women and women working in prostitution may evoke similar depictions by male artists. Male artists may be more inclined to depict women in prostitution in a more sexually charged appearance in contrast to a woman they may not view in a sexual manner. This representation of women in varying societal roles such as motherhood, sex work, or companionship can be intertwined. Male artists such as Edgar Degas, Henri de Toulouse-Lautrec, Gustave Courbet, and Egon Schiele. The male artists' relationships with women heavily influence their perception and depiction of women. In this paper I want to focus on how the male gaze influences art. I chose these artists because of their notable use of women in their pieces. I wanted to include sex workers in my paper so I could identify how the artists perceived them. Did they view them as people or merely as sexual objects? Exploring the artists' preferred body types were necessary to include as well. I compare Degas and Lautrec's portrayal of women's bodies to Schiele's in reference to age and weight. My goal is to create a discussion about sexual liberation versus objectification.

Education

Jennifer Hernandez-Rosa, Undergraduate Student

Early Teacher Retention Issues among Working-Class Students of Color.

Faculty Mentor: Jarod Kawasaki, Teacher Education

Overall teacher retention has been a constant issue impacting schools throughout the U.S., which has led to multiple research studies aimed at solving the problem. However, while research has focused on the broader issue of retention, less has been done with retention among the teachers serving working class students of color. Our goal is to shed light on this issue and in doing so provide more understanding and awareness. In our study, we surveyed 200 graduates from the CSUDH COE teacher education program and conducted four separate focus groups in which we had (n=13). Four main challenges emerged from the survey data. The data with respect to the ratings for classroom teaching 36% of the participants agreed that designing instruction for students with special needs is a high challenge. Thirty-two (32%) do not have enough resources to provide enrichment for gifted students and the same percentage also wanted more support of English language development for English language learners. When asked about outside the classroom aspects, 51% needed the proper guidance to support students that have experienced any form of trauma (i.e., social discrimination, violence, abuse). Maintain work, life, and family balance at 44%. Addressing issues of equality around race, sexual orientation, social-economic status, gender, disability, language, and immigration was 42%. These early findings suggest that early career teachers need mental and emotional support systems. Institutional norms (e.g., probationary teacher status, administrative oversight) can also trigger reluctance from new teachers when combining social justice teachings that include but are not limited to race, gender, or sexuality. This leads to the support of students that have experienced trauma within equality in their schools. Restorative justice can aid in the transformation in building trust within a teacher-student relationship. In my presentation, I will share additional survey data and qualitative responses from the focus groups (currently being analyzed) to highlight the needs and challenges of early career social justice educators.

Melanie Gerner, Undergraduate Student

Reducing Invisible Equity Gaps: The Effects of Whole Person Advising on Student-Parent Graduation Rates

Faculty Mentor: Thomas Norman, Management & Marketing and Ana de la Serna, Communications

Reducing Invisible Equity Gaps: The Effects of Whole Person Advising on Student-Parent Graduation Rates
Does whole-person advising increase graduation rates for student-parents? 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, only 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 discuss the benefits of whole-person advisement on student-parent outcomes. I will then blend the quantitative and qualitative data to test my hypotheses. Whole-person or “holistic” advising includes individualized advisement (Schroeder et al, 2015), in the case of student-parents providing resources for childcare, financial aid, academic and professional advisement. 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 their struggles.

Veronica Khalil, Graduate Student

A Bilingual Study-Utilizing Dynamic Assessment to Measure Narrative Language in English Learner Preschool Students with a Speech and Language Impairment.

Faculty Mentor: Kai Greene, Special Education

The purpose of this study is to analyze the effectiveness of a bilingual narrative-based intervention to increase narrative production for preschool age English-Spanish bilingual children with a language impairment. This study will analyze results of narrative samples of preschool English Learners (ELs) identified with a speech or language impairment (SLI). Participants of this study will receive a dynamic assessment (DA) intervention in both English and Spanish over the span of four weeks. Dynamic assessment is an effective intervention tool because it focuses on learning rather than norm comparisons (Pena 2014). This study will also include a pre-assessment which will take place prior to intervention and a post-assessment, administered after intervention. Due to COVID-19 the study will be conducted virtually via ZOOM. Intervention will focus on expressive language and narrative production skills. Participants of this study will be four-year-old bilingual students with a speech or language impairment. The results of narrative samples in English and Spanish will be compared and analyzed. Potential benefits for the students include increase in narrative language production. For teachers, this research can provide alternative strategies and teaching techniques that can help increase narrative production for bilingual students with a speech or language impairment within the preschool classroom.

Kelsey Loup, Graduate Student

Game Point: Career Readiness among College Athletes

Faculty Mentor: Pamela Robinson, Graduate Education

Student athletes are a part of the conversation on every campus near and far. From NCAA regulation violations to grade changes for the star quarterback, student athletics are widely discussed amongst the college realm. However, career readiness is seldom the topic being discussed in regards to these college celebrities. The reality is that many of our star athletes will not progress to professional status upon exiting college. As the students who do not become successful athletes outside of college begin to explore career options, it begs the question, are they prepared for life after college and what has the college campus done to prepare them? Through personal conversations with former collegiate athletes, it has been noted that student athletes do not receive the career services necessary for them to be successful after college, nor do they have the time to participate in career service opportunities due to athletic obligations. The proposed research would explore student athletes' definition of career readiness, their own perceived capabilities in regards to career readiness upon leaving college, and their personal experiences with career service centers on campus. It is hypothesized that student athletes will be unable to define career readiness, that they will rank their own career capabilities higher than they actually are, and that they will have little to no experience with career service centers on campus. Future research would explore ways to engage student athletes in career readiness on college campuses and better prepare them for life after collegiate athletics.

Engineering and Computer Sciences

Anand Mishra, Graduate Student

Improving Sentiment Analysis by Introducing Emotion Detection

Faculty Mentor: Mohsen Beheshti, Computer Science

This project revolves around the idea that we can program a computer to understand and react to basic human emotions and ideas. Currently, there are two very promising and popular systems that are competing for mass acceptance and popularity are TensorFlow and PyTorch developed by giants of the technology world Google Inc. and Facebook respectively. They take two completely different methodologies in the ways of processing the Natural Language processing system that is essential in the learning process. Pytorch takes the approach that the system can be developed using purely software perspective whereas the Tensorflow system uses a combination of specialized hardware and software combination to give us the best and purest Machine learning experience. In this project, I have attempted to learn how to use various techniques based on the TensorFlow Libraries and Keras Framework to analyze reviews and create a Convolutional Neural Network that can determine if a review is positive or negative based on the terms and words that the reviewer has used. On the second part I shall show how to use PyTorch and BERT to analyze, compare and contrast the differences between the two fundamental approaches to Sentimental Analysis using ML and Deep Learning which is a branch of artificial intelligence employing deep neural network architectures that has significantly advanced the state-of-the-art in computer vision, speech recognition, natural language processing, and other domains. In this paper we shall go over some of the steps that I have used to implement the project as well as introduce and familiarize ourselves to the concepts of Convolutional Neural Network, Machine Learning, TensorFlow, Keras, Datasets, etc. Alongside this, we shall shed some light over basic concepts and techniques that are considered as the industry standard in ML and AI applications. Keywords: Keras; TensorFlow; Convolutional Neural Network; Machine Learning; Framework; Deep Learning

Health, Nutrition, and Clinical Sciences

Cesar Ovando, Undergraduate Student

Sobrevivendo en las Tierras Altas: Guatemalan Maya Continuities, Resistance, and Adaptions in the Colonial Era

Faculty Mentor: Doris Namala, History

For centuries, our perception of the colonial period in Spanish America has first and foremost been understood from a Eurocentric perspective. As Iberian accounts continue to have a dominant influence over several American societies, the portrayal of the colonial period has rashly triumphed the Spanish's efforts in military campaigns, forced conversions, and colonization. However, that wasn't the case as scholars have recently turned to archival materials, particularly indigenous language texts, to question and argue against the traditional Eurocentric narrative. This direction became a school of scholarship known as the New Philology, a branch of Mesoamerican ethno history that uses indigenous accounts to investigate and reconstruct native peoples' perspectives in history. By doing so, scholars promote indigenous agency. The New Philology has dominantly focused on colonial Central Mexico due to the research that was conducted by James Lockhart in the twentieth century. However, other scholars like Matthew Restall and Kevin Terraciano have expanded the historical school's research pool into other regions beyond Central Mexico like Yucatan and Oaxaca. While no notable scholar has claimed Guatemala, precisely the highlands, fit within the scope of the New Philology, I believe it does since the indigenous peoples of Guatemala, the Maya, were affected by this Eurocentric narrative. For my research project, I hope to investigate the Mayas' cultural continuities, resistance efforts, and adaptation techniques during the colonial period. I will mainly focus on the K'iche and Kaqchikel Maya communities as they were mostly involved and impacted by colonial institutions and policies. Despite the current situation with the pandemic, I managed to encounter various online sources, both primary and secondary, to aid me in my research to investigate and reconstruct the Maya's image and perspective in the colonial era.

Myrta Rivera, Graduate Student

Media Mass Murder

Faculty Mentor: Brian Jarrett, Negotiation, Conflict Resolution & Peace Building Program

The study I plan to undertake examines the social construction of white and blue color crimes through the news production process. I plan to interview law enforcement, media personnel, and dark web media outlets, three parties integrally to get their input into their production process. It is used to investigate respondents' opinions regarding the news they post. Respondents will be questioned about their awareness of and views concerning the news/media production process, the underlying issues raised by their research, where they get their news, and how they examine it. My research will provide both the descriptive and analytical findings that emerge from the narrative investigation and the data collected. Interviews will reveal the tripod themes affecting how news changes our society and how the respondents who watch these news outlets are desensitized and sensitive to the information that runs through the telecommunication systems. My research will include the role of public information officers, the business and media constraints, the media's construction of its news, and how it impacts our criminal justice policy. The study will outline a framework of themes that serve as filters and lenses that currently shape how our crime news is being shown to society on an hourly basis. I want to investigate to what degree each group is aware of their distortions, the symbiotic and/or conflictual relations they produce, their rationale, and justifications for their actions. The why behind their opinions, justifications, and processes that shape crime in the news outlets and social media dark web.

Physical and Mathematical Sciences

Jason Guerrero, Undergraduate Student

Identification of Bioactive Natural Products from Marine Sponges that Exhibit Selective Cytotoxicity Against Solid Tumor Cell Lines.

Faculty Mentor: Erin McCauley, Chemistry

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, as over 65% of all approved therapeutic drugs are either natural product, natural product derivatives, or their pharmacophores are natural product inspired. The success of natural products and their derivatives as therapeutic agents is largely due to their high structural diversity and specific biological targets. Marine sponges have proven to be an excellent source of cytotoxic compounds and there are currently three sponge derived anticancer drugs that have been clinically approved and one that is in phase III clinical trials. This research project was achieved in partnership with Dr. Fredrick Valeriote at the Henry Ford Health System. Dr. Valeriote screened hundreds of marine sponge extracts from the National Cancer Institute–Natural Products Repository (NCI-NPR) against a panel of solids tumor cell lines with low five-year survival rates including pancreatic (PANC-1), lung (H-125), ovarian (OVC-5), brain (U251N), and liver (HepG2). My research project involved the isolation of the pure natural products from the complex sponge 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.