Welcome from the Dean of the College of Arts and Sciences

Marcelo Camperi

I strongly believe that student participation in faculty research and creative work is an essential component of well-rounded college formation. The opportunities for collaboration with faculty that our students find within the College of Arts and Sciences are indeed a distinguishing characteristic of what USF has to offer. I am thrilled and excited with the chance that this event gives us to present to the USF community the amazing work that our students and faculty are doing together. This Creative Activity and Research Day is one of a series of opportunities to showcase what we are doing in the College of Arts and Sciences.

Please visit our webpage devoted to Research & Creative Activities: https://myusf.usfca.edu/arts-sciences/card
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Isolated by the Tibetan highlands which frame Yunnan’s northwestern fringes, the myriad of China’s ethnic minorities who call the region home have continued living in rural settings ranging from rice-terraced fields to tropical forests, much in the same way they have for hundreds of years. However, with globalization’s expanding reach causing exposure to western standards of living in conjunction with the country’s predisposition towards all things foreign, the people of Yunnan have begun forgoing generations of vernacular architecture in favor of modern comforts and regionally defunct construction methods. Here, we seek to address this foible of architectural development by offering theoretical construction methods for various housing types throughout the region. The hope is to bridge the gap between regional practicality and modern amenity, illustrating that although the nation’s preference for foreign goods may be too broad an issue to address, informed use of modern materials in conjunction with local means can prove more effective than simply mimicking an aspect of construction as foreign as the materials they are starting to use.

San Francisco, start-up capital of the world, is lacking in its public transportation system; a crucial characteristic of metropolitan life. Building an underground system in San Francisco is not only key to neighborhood development, but also, a more sustainable way of living. Currently, San Francisco’s Municipal (Muni) metro has lines and routes that serve from downtown to the outskirts of the city. The Bay Area Rapid Transit, or BART, is also a major mode of transportation in the Bay area, but only useful for traveling from one city to another. Furthermore, Existing underground stations are in terrible shape, with exposed fireproofing,
random assortments of materials, and inadequate way-finding. This thesis will propose a redesign of Powell Street Station and Hallidie Plaza with goals to enhance the passenger’s experience, improve architectural wayfinding, and implement design standards that can be used in all future San Francisco station design, new and renovated.

A4
Taylor Smalls
“Out of Sight, Out of Mind”

Although our built environment is inert, our experience within it transcends mere physicality, and manifests within our deep subconscious. I find that much contemporary architecture lacks the forethought and consideration of how our built environment’s inhabitants are affected by spatial composition. In our democratic society we have many opportunities to effect change to our built environment if we, as architects and citizens choose to, but there are environments where people have no choice or power of change. It is the forced environments of these groups that I am interested in exploring. An example of a building type in the US that is especially debilitating are our prisons and correctional facilities. The negative impacts of these harsh environments are ignored or even enhanced in newer designs, while the counterproductive impact on inmates is over-looked or intentionally neglected. This thesis shows how architecture can be a major component in the rehabilitation of inmates by promoting emotional well being through the manipulation of form, space, material, and light.

A5
Patrizia Kuehn
“Building Ecosystems in 2016”

Introducing a non-invasive human habitat within a restored ecosystem, Golden Gate Park’s Living Lab showcases ways to bond biological and built systems, so that future generations can value a site and preserve its resources at stake - because the root of every home must care for its surrounding soil. This educational center will inspire design and user based strategies to achieve further efficiency in our daily lives.

A6
Jasmine Singh
“Recirculate USF From Here”
Despite San Francisco being the second most pedestrian friendly city in the US, its intra-neighborhood pedestrian circulation remains inadequately connected. This pedestrian accommodation is especially lacking for students and residents among the Lone Mountain Neighborhood, where the University of San Francisco demands high foot traffic on a daily basis. By re-designing the campus’ circulation network, the overall pedestrian experience will be enhanced thus improving its intra-neighborhood connections. Through observing the circulation at different scales within and around the campus, diagramming these contextual studies, researching successful precedents, and critically analyzing texts regarding urban and campus planning, I will re-design USF’s campus vehicular and pedestrian network to create a safer and comprehensive campus circulation system.

A7
Celine Nakachi
“Survey of Restoration Efforts Following the 2015 Nepal Earthquake”

The purpose of this paper is to provide knowledge on the devastating 2015 Nepal earthquake, its architectural failures and alternative construction methods with the use of various documentation such as video footage screenshots, photographs, and information from previous reports. It will offer alternative methods that can be proposed to those currently residing in Nepal for safer construction methods, styles and overall offer a sense of hope for those affected by the earthquake. The end goal is to inform others of Nepal's conditions and their inability to build lavishly, also taking into account some of the local and cheaper materials that can be used to build safely there.

A8
Colin Luk
“Rehydration”

California being one of the more populous states in the U.S., it is particularly important for it to have an infrastructure to maintain its water supply, which is slowly dwindling due to the recent lack of rainfall. There are several projects being designed currently in order to conserve water and efforts in order to promote water saving. However, the potential for architectural design through engineering can save a significant amount of water in California, given the amount of landmass architecture consumes. Consequently, the main question to consider is how Architecture itself can improve the drought situation in California. There are several architectural engineering practices in place to facilitate the saving of water, but not so many as to educating about it. Currently information on the water systems of California and water in general is not highly accessible to the public.
Although the various advancements achieved in science and technology across all fields are truly remarkable and have overall improved the quality of human life, they have simultaneously enabled our world population to grow at rates that we are now having difficulty sustaining. Because of this population growth, a vast amount of attention has been given to studying and improving the development of dense, urban environments and its architecture. This thesis explores the architecture of Micro-Housing and the potential that it holds to not only effectively address the population density crisis, but to ultimately enhance, improve, and reflect the lives of city-dwellers.

Danish architect Rem Koolhaas states, “The genius of American urbanism is that it can accommodate variety without endangering its wholeness ... And in San Francisco, it’s obvious that an incredible cultural permutation is being elaborated.” Rem Koolhaas emphasizes that evolution and diversity are inevitable in cities, however there is hope that San Francisco can retain its urban essence. By manipulating San Francisco’s built environment, cultural, social, political, and economic issues will be addressed while still maintaining San Francisco’s sense of diversity. The housing crisis in San Francisco is affecting students, specifically USF students looking for off campus housing. It is crucial that there is a larger supply of housing in order to accommodate the students that are in need of a place to live while pursuing their higher education. The influx of startup companies and individuals looking to live in an urban setting has resulted in an increased demand for housing. A potential solution to the housing crisis for students is to design an affordable, environmentally conscious residential building.

The urban farm will have a diverse assortment of urban agriculture, which not only can provide the local community with healthy food options, but also help
address societal values with the creation of educational programs and hands on outreach.

A12
Jazmine Brown
"A New Take on Testing: Evaluating Design Systems in Response to the Recent Earthquake in Nepal"

This research project analyzes the destruction of the April 2015 earthquake in Nepal through the lens of structural collapse, and through testing, presents conclusions about the seismic strength of a commonly used construction type. Continuing past student work, I developed and constructed a testing device called a Lateral Testing Mechanism (LTM). I have decided to focus on creating models and clear instructions on how to design and test wall specimens on the Lateral Testing Mechanism. Future use and results found using this device could benefit not just the people of Nepal, but other communities where common construction practices are remain untested. For this reason, I want to make the testing process as clear as possible. This could potentially prevent such violent destruction in future natural disasters.

A13
Karina Lameraner
“Invention Through Emulation: Vermeer and Pictorial Intentionality"

This research is devoted to providing an insight to the careful and complex painting styles and technique of the Dutch master painter, Johannes Vermeer during the Baroque period of the Seventeenth Century. In an effort to complicate the generalization that Vermeer would have used the camera obscura to create his famous domestic genre scenes, I will examine exactly how the Dutch master’s work would have differed from photographs produced by the camera obscura. Through these examinations, I will prove that to claim that Vermeer would have directly used the camera obscura to create his painting technique would be a discredit to the artist himself. Through an in-depth technical and compositional analysis of the camera obscura as well as the images it would have produced, it becomes evident through comparison that Vermeer would not have directly used it while creating his paintings. Contemporary debate regarding this issue generally tends to fall on the side that greatly discredits Vermeer’s achievements as not only a painter, but a great visual innovator of his time. This research will therefor stand as a defense for the efforts of the artist, and contend with the concept of artifice. I will prove through analyzing a few of his works such as, Lacemaker and View of Delft, that Vermeer’s intention actually complicates the notion that his paintings are solely focused on the optics of sight seen directly in a camera obscura. Using source material from historian Arthur Wheelock and others, through this study we will
see that not only was Vermeer himself a great visionary and innovator, but the contemporary ideologies surrounding the creation of his paintings falls short of an accurate account of his work.

A14
Erika Purdy, Jasmine Singh, Felicity Amoroso, Jazmine Brown
Passive Solar Design
In April 2015, intense seismic activity hit central Nepal, especially in the area of the Kathmandu Valley. The earthquake and subsequent aftershocks caused widespread destruction in the region. Many service groups and institutions have been working to rebuild and improve the infrastructure of Nepal after this destruction, including our community partner Smart Shelter Foundation.

Between 2007 and 2012 Smart Shelter Foundation has constructed 14 mountain schools in the mountains of Kaski District in Nepal. They are either built with cement blocks that are reinforced with vertical steel rods in all corners or with thick rubble stone walls. Both systems are horizontally reinforced. "Although we have a fair idea of how these systems behave during an earthquake, we would like to know with more certainty what level of resistance we can achieve. And we are interested to find out if and what significant improvements can be make. All this knowledge needs to be incorporated in the concepts and designs of the passive solar buildings". (Smart Shelter Research page)

Smart Shelter Foundation is requesting help in researching and developing modern spatial designs of passive solar construction, especially for schools, houses, and community buildings. The use of vernacular architecture and "locally adapted techniques" is encouraged and even expected. Although Passive Solar design isn’t a new practice in Nepal, earthquake resistance is often not combined with this approach. For this project, both will be required so as to create a design that is both safe and sustainable.

Biology
B1
Aisling Sinclair, Eric Young, Blake Jones, and Anahita Najafi
"Post-embryonic axis modification in Convolutriloba macropyga"

Although the establishment of the anterior-posterior (A-P) axis is a defining characteristic of all bilaterians, mechanisms utilized by asexual organisms to post-embryonically modify existing body axis polarity are not well understood. A radical modification of reversal of the A-P axis occurs during budding in the acoel flatworm Convolutriloba macropyga. We identified a polarity transition zone (PTZ) characterized by a loss of muscle fiber organization at the base of each budding site, which unlike other excised regions, fails to regenerate suggesting a transient loss of polarity. Hedgehog (Hh) and Wnt signaling proteins
have been identified as candidates functioning in this disruption and reversal of the A-P axis during asexual reproduction. By characterizing the expression and function, we show that alterations in Hh signals likely mediate a loss of axial polarity in the PTZ and subsequent upregulation of Wnt signals allow for patterning of novel, reversed axes at the bud site.

B2
Alec Starzinski
"Investigating how cmvIL-10 Isoforms Differ in Cell Signaling and Receptor Engagement"

Human Cytomegalovirus (HCMV) is a herpesvirus that infects a majority of the world's population. There are many viral gene products that aid in virus infection and the establishment of the lifelong latency. UL111A, is a viral gene which, through alternate intron splicing, codes for two protein products cmvIL-10 and LAcmvIL-10 that mimic the structure of human interleukin-10 (hIL-10) to varying degrees. cmvIL-10 has been shown to have a wide range of physiological effects, whereas the effects of LAcmvIL-10 appear to be much more limited in scope. This study seeks to measure the expression levels of LAcmvIL-10 during lytic infection of fibroblasts, examine the dimerization patterns of hIL-10, cmvIL-10, and LAcmvIL-10, and understand the resultant signaling pathways activated by LAcmvIL-10 activity. Due to the far-reaching impact of this virus, a deeper understanding of its interactions with the host may lead to improved treatment and prevention options in the future.

B3
Alexander Shin and Margarette Mariano
“Development of a non-invasive liquid biopsy for detection of breast cancer”

Human cytomegalovirus (HCMV) is a prevalent type of herpes virus in our population. HCMV infection has no effect on the majority of people, but in some cases HCMV is strongly correlated with various medical outcomes, such as breast cancer. We focus on the UL111A gene product of HCMV, which encodes the secreted protein cmvIL-10. CmvIL-10 is a homolog of human cytokine IL-10 (hIL-10), which has immunosuppressive effects and promotes proliferation and invasion of breast cancer cells in vitro. We are measuring cmvIL-10 in human blood and have found elevated levels of cmvIL-10 in cancer patients. Here, we are investigating the adaptation of the cmvIL-10 blood test for detection of the viral cytokine in saliva and urine. We are now conducting a study of healthy donors to monitor changes in cmvIL-10 levels over time in various body fluids. The results from this small pilot project may ultimately lead to an inexpensive and non-invasive diagnostic tool for detection of breast cancer.
The germ line serves as an essential tool for sexual reproduction by giving rise to gametes that create successive generations. To understand how germ line specification has evolved, we have characterized genes with conserved germ line function in acoel flatworms, which likely occupy an important phylogenetic position basal to other bilaterians. The hermaphroditic acoel Convolutriloba macropyga possesses neoblasts that give rise to both male and female germ cells directly within parenchymal tissues. We have characterized the spatiotemporal dynamics by which germ cell differentiation occurs; germ cells first appear at an anteromedial body location and then migration posteriorly to somatic accessory organs. While homologs of nanos, piwi, pumilio, and argonaute are co-localized in both neoblasts and germ cells, vasa homologs are exclusively present in germ line cells. Most markers are expressed in both the male and female germ line, yet argonaute homologs are specific to female germ cells only. By using RNAi-mediated gene knockdown, we are functionally characterizing these genes to elucidate putative roles in specifying germ cell lineage fate and sex-specific germ cell determination.

Acoels are a group of regenerative marine worms with contentious basal bilaterian phylogenetic position. While common among acoels, the developmental patterns of regeneration have only been investigated in a single species. We characterized regeneration dynamics in two new Convolutriloba species, longifissura and macropyga, both with extensive populations of neoblasts and robust regenerative abilities. Transverse and longitudinal amputations result in epimorphic and morphylactic regenerative mechanisms. During anterior and lateral regeneration, C. longifissura and macropyga undergo high cell proliferation resulting in blastemas that differentiate, while posterior regeneration occurs mostly through tissue remodeling. We are investigating neoblast dynamics that allow Convolutrilobas’s regenerative abilities by elucidating the spatiotemporal expression of stem cell related genes during regeneration.

Mass Extinctions Increase Evenness of Genus Diversity Across Ecological Modes
In the big five mass extinctions, diversity is preferentially lost in ecological modes (categories constructed by combinations of habitat tiering levels, motility levels, and feeding modes) with greater diversity preceding these events, but little is known about how diversity rebounds. Using Knope et al.'s (2015) data set of 18,621 marine animal genera from the Cambrian Explosion (542 mya) to the present day, I explored the question: When diversity rebounds, does it recover to a similar distribution of genus diversity across ecological modes or to a more even distribution spanning different ecological modes? After manipulating two diversity index equations and using the R computer program, I found that with each subsequent mass extinction, evenness of ecological modes increases and as the disparity is continuously lessened, evenness increases over time.

B7
Cedric Lozano and Jordan Boeck
"Development of Stable Cell Lines for Use with a Novel Biosensor to Investigate Receptor Internalization"

CXCR4 is a human chemokine receptor that guides cell movement during immune responses. Cells expressing CXCR4 migrate toward the chemokine CXCL12, a ligand that triggers CXCR4 internalization. Human cytomegalovirus (HCMV) has been shown to alter cellular responses to CXCL12 by promoting increased movement toward CXCL12. We will examine CXCR4 internalization in the presence of a viral protein, HCMV US27. A sensor cell line expressing fluorescently labeled CXCR4 will be engineered to express US27, HCMV US28 or human CXCR3 for comparison. Expression of US27, US28, and CXCR3 will be confirmed by flow cytometry, and cells will then be cultured in selective media to kill off untransfected cells that don’t express the desired receptor. The resulting population of cells that express US27 or control receptors will be examined via immunofluorescence microscopy to evaluate how CXCR4 internalization rates are impacted by US27, revealing a new way that viruses manipulate cell signaling pathways.

B8
Dominique Mitchell and Victor Gavallos
"The Effects of DAX-1 on the Steroidogenic Pathway in Breast Cancer"

DAX-1 (Dosage Sensitive Sex Reversal, Adrenal Hypoplasia Congenita, Critical Region on the X Chromosome, Gene 1) is an orphan nuclear hormone receptor encoded by the gene NR0B1. DAX typically acts as a transcriptional repressor and is expressed in primary endocrine tissues such as the ovaries, testes, and adrenal gland, as well as secondary endocrine tissues, such as the breast. DAX-1 is thought to be involved in the regulation of steroidogenesis, or the
production of steroid hormones such as testosterone and estrogen. Here, we show that DAX-1 is a negative regulator of the steroidogenic pathway. Loss of DAX-1 in breast cancer cells could lead to an increase in steroidogenesis.

B9
Eric Young Blake Jones, Anahita Najafi, and Aisling Sinclair
“Postembryonic polarity modification in the acoel Convolutriloba longifissura”

Animals establish the bilateral body plan early in embryogenesis by patterning orthogonal body axes. The polarity of these axes is unaltered during the lifetime of most animals, though some animals re-establish/modify body axes during regeneration and asexual reproduction. The acoel flatworm Convolutriloba longifissura is unique in its ability to modify left-right axis polarity during longitudinal fission. Thus, C. longifissura has emerged as a model for studying the mechanisms of radical polarity modification and tissue regeneration in the adult body form. Regeneration experiments demonstrate an ability to repattern the midline prior to longitudinal fission. RNAi-mediated gene knockdown of BMP4, Notch, and Slit/Robo signals suggest a role in modulating changes in L-R axis polarity. Studies to better understand postembryonic polarity modification may lead to advances in regenerative medicine since polarity re-establishment is required for all regenerative processes.

B10
Jessica Scarborough

G protein-coupled receptors (GPCR) are the largest family of cell surface proteins, found in organisms from yeast to humans. Human cytomegalovirus (HCMV) is a widespread pathogen that is particularly skilled at evading immune detection and defense mechanisms, largely due to extensive co-evolution with its host’s immune system. One aspect of this co-evolution involves the acquisition of four virally encoded GPCR homologs: US27, US28, UL33 and UL78. In this research, phylogenetic analysis was used to investigate the origins of the US27 and US28 genes, which are adjacent in the viral genome. The results indicate that both US27 and US28 share the same common ancestor, human chemokine receptor CX3CR1, suggesting that a single human gene was captured and that a viral gene duplication event occurred. While the evolutionary purpose of the gene duplication event remains unclear, experimental evidence indicates that each gene has evolved distinct, important functions during virus infection.
B11
Margot Bacino and Spencer Kozik
“Epigenetic Regulation of the Orphan Nuclear Receptor Dax-1 in Prostate Cancer”

DAX-1 is an orphan nuclear receptor that plays a key role in the development and maintenance of steroidogenic tissue. DAX expression is greatly reduced in several cancer cell lines and it has been proposed that DAX may have growth suppressive properties in cancer cells. However, the means by which DAX expression is regulated is unknown. We sought to determine if methylation status correlates to the level of DAX expression in prostate cancer. We found that methylation and expression of DAX were inversely related in different mammalian cell lines, including prostate cancer. Tumorigenic characteristics of cancer cells may be due in part to a reduced level of DAX expression, which results in the lack of transcriptional control normally regulated by DAX.

B12
Nila Le
“Intraspecific variation in climatic niche characteristics of the native California plant species *Mimulus cardinalis*”

The plant species *Mimulus cardinalis* (Phyrmaceae) is a wide-ranging native perennial, found primarily in riparian habitats. Previous genetic work revealed a cryptic but strong genetic split between two major lineages. One lineage (northern) occupies the Sierra Nevada and Coast Range Mountains from Monterey north into Oregon. A second lineage (southern) occupies the Transverse Ranges, south through San Diego County into the Baja Peninsula. Despite close spatial proximity of Transverse Range and southern Sierra Nevada populations, there is no evidence of recent gene flow across the Tehachapi Mountains. Here, we investigate if this intraspecific genetic variation correlates with variation in climatic niches. Using an extensive georeferenced collection record database, we extracted climatic information and inferred the potential ranges and climatic niches of the two lineages, investigating if the lineages show climatic niche divergence.

B13
Spencer Kozik
“Inconsistent Evidence for Cope’s Rule in the Evolution of Marine Animal Phyla”

A prior study has shown that Cope’s Rule, which states that lineages will increase in body size over evolutionary time (Cope, 1885), holds true when simultaneously analyzing the five major marine animal phyla (Heim et al., 2015). There is a lack of evidence suggesting Cope’s rule holds true when analyzing each phylum
individually. Heim et al. has shown that removing chordates, which include the largest animals, is not exclusively responsible for the overall increasing trend. We hypothesize that the general increase in biovolume is not consistent across each phylum, but rather one or more phyla show an overwhelming increase in biovolume that shifts the graph of all phyla towards an increase.

B14
Theresa Keith Aaron Lee, and Hiten Mistry
“Presence of the domoic acid producing diatom, Pseudo-nitzschia in San Francisco Bay”

Pseudo-nitzschia is a genus of marine diatom found globally and capable, in some species, of producing the neurotoxin domoic acid (DA), known to cause Amnesic Shellfish Poisoning (ASP). This genus, and the factors leading to DA production, have been increasingly studied due to the negative effects of DA on marine mammals, marine birds, and humans. In this project, we are documenting the appearance of Pseudo-nitzschia in San Francisco Bay, and collecting hydrographic data to correlate to its appearance. Since September 2015 we have periodically sampled phytoplankton and taken water measurements from Torpedo Wharf, Fort Point, San Francisco to determine the seasonal occurrence of Pseudo-nitzschia. Relative abundance was calculated and individual cells were isolated and observed. Tentative species identifications were made from scanning electron microscope images. We present data from this sampling project and propose further experiments on DA production using cultured Pseudo-nitzschia.

B15
Hiten Mistry, Theresa Keith, and Aaron Lee
“Assessing DNA damage from ultraviolet radiation on the copepod, Tortanus dextrilobatus, in San Francisco Bay”

Even without ozone depletion, exposure of natural populations to ultraviolet radiation (UVR) is an environmental stress. This project investigates UVR effects on Tortanus dextrilobatus, a copepod found in San Francisco Bay. We have been sampling plankton from Torpedo Wharf at Fort Point since August 2015. Light, temperature, chlorophyll, and salinity are being monitored to assess environmental conditions. To determine in situ levels of DNA damage, individual copepods will be examined by immunofluorescent methods. In addition, freshly collected live animals will be irradiated across known ranges of UVR fluences in the laboratory to determine threshold levels of DNA damage and UVR exposure for survival. Future experiments are planned in collaboration with San Francisco State University to assess possible relationships between UVR sensitivity or tolerance relative to genetic diversity (by DNA barcoding) within San Francisco Bay populations of Tortanus dextrilobatus.
Human Cytomegalovirus (HCMV) is a widespread pathogen that causes lifelong latent infection. HCMV rarely causes disease in healthy adults. However, immune-compromised individuals like transplant recipients and AIDS patients can suffer from life-threatening disease. HCMV encodes four G-protein coupled receptors, US27, US28, UL33, and UL78. GPCRs have seven transmembrane \( \alpha \)-helices and play vital roles in cellular communication networks. Viral GPCRs may exploit these signaling pathways, and US27 was found to increase cellular proliferation and enhance CXCR4 signaling. Here, US27 deletion mutants are being used to define domains of the viral protein critical for impacting CXCR4 function. These results are expected to clarify how HCMV alters cell communications networks by regulating CXCR4 activity.

Chemistry
C1
Connor Morgan and Peter Gernon
“Investigating Novel Inhibitors of the LuxS Enzyme via in silico Screening and Preparation of a Potent Benchmark Inhibitor”

The aim of this project is to discover novel inhibitors of LuxS, the enzyme responsible for the biosynthesis of AI-2, which facilitates interspecies bacterial quorum sensing. Research on bacterial group behaviors (e.g., biofilm formation) and clinical applications (e.g., novel treatments for antibiotic resistance) can be approached through a LuxS inhibition strategy. LuxS inhibition was investigated via in silico screening through UCSF’s free online software, DOCK Blaster. Various chemical databases from the ZINC 12 catalog were screened against two LuxS crystal structures obtained via the Protein Data Bank. Approximately 5 million compounds were screened and narrowed down to a small collection of promising hits, based on screening scores and structural motifs. These compounds will be purchased from commercial vendors and analyzed via in vitro bioassays. The chemical synthesis of a known potent LuxS inhibitor is being pursued for use as comparison in these assays.

C2
Connor O’Brien and David Gutierrez
“Sulfonimidation via Ring-Opening of 2-Oxazolines with Acidic Sulfonimide Nucleophiles”
In the presence of a Brønsted–Lowry or Lewis acid, amines such as diphenylamine underwent a nucleophilic ring-opening, offering a convenient synthesis of unsymmetrically substituted ethylenediamines. This methodology was then extended to oxazolines, which serve as versatile ligands and directing groups in organic synthesis. In summary, we have discovered a novel synthetic methodology of sulfonimidation involving alkyl-, phenyl- and heteroaryl-2-oxazoline ring-opening by acidic nucleophiles dibenzenesulfonimide, o-benzenesulfonimide, dimethanesulfonimide and N-(methylsulfonyl)benzenesulfonamide.

C3
Ioannina Castano, Zhigang Hu, and Dan Zhao
“Modulated Hydrothermal Synthesis and Optimization of Hf/Zr-Fumarate Metal-Organic Frameworks”

Water-stable Hf/Zr-Fumarate (FMA) metal-organic frameworks (MOFs) are highly promising for gas separation because of their postulated small pore size compared to other UiO-66-type MOFs and the low cost of fumaric acid. However, the efficient synthesis of these MOFs remains a big challenge. A mild, green, scalable modulated hydrothermal (MHT) method was applied for the synthesis of these MOFs. Specifically, acetic acid (AA), formic acid (FA), and trifluoroacetic acid (TFA) were used as the modulators. Various water to modulator solvent ratios were studied to investigate the effects of modulators on surface area and gas uptake properties. The MHT synthesized Hf/Zr-FMA MOFs displayed excellent hydrothermal stability, high surface area, high working capacity, and CO2 selectivity.

Communication Studies
CM1
Megan Busch
“The Complex Relationship Between College-Aged Youngest Siblings and Their Older Siblings”

Extensive research has been conducted on the sibling relationship and the complex dynamics that make them up. However, little research has been done on adult siblings and how their relationship with their siblings has changed over the course of their lives. Thus, the purpose of this study is to describe the experiences of youngest siblings, specifically college-aged siblings, and how their relationship with their older siblings has changed over time. I interviewed six college students between the ages of 19-20 and each participant had at least two older siblings. Overall results indicated that age of the siblings have an impact on sibling closeness and on how the youngest sibling is treated by their older siblings. The research also indicated that youngest siblings valued support
from their older siblings and that each participant believed the sibling relationship to be unique and important.

**Critical Diversity Studies**

CD1
Dai Guerra
“Stigma, Abuse, and Hate Crimes: Effects on Mental Health in Transgender Population”

A comprehensive literature review that examines the ways in which stressors unique to the LGBT population affect transgender mental health. Specifically this paper will explore stigma, and various forms of abuse that contribute to depression, substance abuse, and risky sexual behavior in the transgender community.

**Environmental Science**

ES1
Danielle Tran
“Evaluating Reactive Barrier Technology to Enhance Microbially-Mediated Denitrification during Managed Aquifer Recharge”

Denitrification is the microbial facilitated process that reduces oxidized forms of nitrogen such as nitrate, and nitrite back into dinitrogen gas. In agricultural areas, where extensive fertilizer application has increased nitrogen loading to soils, denitrification is an important process that can help to reduce groundwater contamination. In this project we are investigating the extent to which managed groundwater recharge through a permeable reactive barrier can improve water quality by encouraging denitrification during infiltration. In summer 2015 we instrumented a test site in the base of a managed aquifer recharge pond near Watsonville California in order to quantify changes in water chemistry during infiltration through a permeable reactive barrier compared to infiltration through the native soils. Results of this study will help to demonstrate the use of permeable reactive barriers to improve groundwater quantity through enhanced recharge while simultaneously protecting water quality in basins impacted by agriculture.

ES2
Nicole Rejer
Toxic Treasure Island: Finding Radium Instead of Gold

Radiation surveys on Treasure Island have shown radiation levels that are much higher than safety standards, and residents of Treasure Island continue to suffer from adverse health effects, including rashes, asthma, breathing problems, and in some cases, cancer. However, these complaints go unnoticed, as the
population of Treasure Island is small and mobile. Currently, the city of San Francisco is planning to completely redevelop the entire island, and turn it into a premier tourist destination. They are also setting aside 25 percent of the new units for below market rates. This paper argues that Treasure Island is uninhabitable, and nobody should reside on the island until all the radiation is cleaned up; if this is not possible, everybody should be moved off the island.

**International Studies**

IS1
Alexandra Craig
“A Place to Call Home: The Acceptance and Denial of Burmese Refugees”

For more than 25 years Burma has been experiencing a refugee crisis due to the military government’s excessive human rights violations. Members of various ethnic groups have been forced to flee the country, often finding residence in Thailand. In all refugee instances a tension exists between the rejection and acceptance of said refugees. The argument for not accepting refugees often prioritizes the economic troubles that a country can face when it takes care of people who are not its citizens. Meanwhile, those who prioritize humanitarianism often appeal to human morals and the safety of the human population and argue that refugees should be accepted wherever they need to in order to be safe. This project ultimately focuses on whether Burmese refugees should be accepted into the surrounding countries or if countries should be able to deny refuge within their borders.

**Mathematics**

M1
Samuel Roven
“Complexity of orderability of orderability”

A group is the simplest mathematical structure in which it is possible to solve the equation $ax = b$. Our investigation considers questions of the form:

"Given a 'nice description' of a group, does it have property P?"

Questions of this form have been investigated for nearly a century and it turns out that they can be very hard to answer.

We say a property is recursively recognizable when it is possible to program a computer to answer this question uniformly. Our research measures how complicated a property is (in terms of its algorithmic complexity) when it is not recursively recognizable, and we focus on properties related to orderability of groups. Specifically, we give sharp characterizations in the arithmetical
Lasers may be considered the most important technological advancement in the last century with applications in scientific research, the medical field, industrial applications, commercial devices and much more. One characteristic of lasers that makes them so useful in scientific research is the narrow frequency linewidth that can be used to probe spectral features. Over the last two decades semiconductor diode lasers have become inexpensive sources with narrow linewidth. As the diode laser linewidth depends on the injection current, it is important that the current supplied to the laser has minimal noise, or fluctuation.

This paper illustrates the steps involved in the construction and testing of a very low noise current controller. Our circuit is based on the design by Libbrecht and Hall [1] in order to provide a constant, low-noise current level to a diode laser. The circuit also provided the option of rapidly modulating the diode injection current, important to make laser frequency corrections or to put frequency sidebands onto the laser output. The first step consisted of a Multisim computer simulation of the circuit to ensure that the circuit design works correctly. Successful circuit simulation was followed by a temporary construction of the circuit onto a breadboard, where the circuit was tested under real operating conditions and modifications to the design were made. With the circuit fully operational on the breadboard, a printed circuit board was designed on the computer and the design exported to our CNC circuit mill to be fabricated in-house. The final steps will be milling the board, populating it with components, making the final tests, and finally using the low-noise current driver in the laboratory.

This paper seeks to find what impact Kenya’s new Constitution and its implementation had on citizen political participation since promulgation. It finds the Constitution and constitutional implementation positively affected citizen political participation in the first five years of implementation. The Constitution secured the citizens’ right of participation and made citizen political participation part of most governing institutions. Constitutional implementation
improved citizens access to participation in three key areas: voting, elections, and responsive institutions.

Psychology

P1
Kathleen Shelton and Manpreet Narwal
“Religiousness, Coping, and Social Support Predict Well-Being among Cancer Patients”

The purpose of this study was to explore the association between intrinsic religious motivation (IRM), coping styles, social support, and well-being among cancer patients. IRM refers to the internalization of faith as the primary motive in a person’s life. Previous research has established a correlation between IRM and well-being; however, little is known about the role of coping styles and social support in this relationship. The sample included 179 predominantly white, Christian, female patients with stage II through IV cancer. We used a cross-sectional, correlational design with self-report measures of the constructs. We hypothesized that higher levels of IRM and, subsequently, social support would predict higher levels of emotional and social well-being. Moreover, we hypothesized that acceptance coping would predict higher levels of well-being, whereas venting of negative emotions would predict lower levels of well-being. Controlling for age and family income, we conducted two sequential multiple regressions to examine the relationship between IRM, coping styles, social support, and well-being.

P2
Alicia Escobedo
“Therapy Outcomes: Difference between Latino and Non-Latino Foster Youth”

Children in foster care experience a range of psychological symptoms due to their experiences with maltreatment. Latinos are a growing population within foster care, reflective of their growing numbers in the United States. Latinos often do not seek out mental health services and many face obstacles related to language, transportation, and lack of family support.

The current study describes treatment parameters of Latino and non-Latino foster youth receiving long-term, pro-bono psychotherapy through a non-profit. Telephone interviews were completed with the youths’ therapists at the start and end of treatment. Among the completed cases, nine were identified as Latino patients. An additional nine patients were randomly selected for comparison from 88 non-Latino cases.

Therapists (n = 18) were predominately female (77.8%), white (100%) and held doctorates (76.7%). Latino patients were on average 14.36 years old (SD = 6.45)
and non-Latino patients were on average 10.56 years old (SD = 5.73) at the start of treatment. The non-Latino subset included African American (55.6%), White (22.2%) and Multi-ethnic (22.2%) patients.

For all patients, repeated measures ANOVAs revealed significant decreases in the severity of depression $F(1,1) = 24, p = .000$, anxiety $F(1,1) = 23.68, p = .000$, dissociative symptoms $F(1,1) = 13.52, p = .002$, sleep problems $F(1,1) = 6.011, p = .027$, and school problems $F(1,1) = 7.67, p = .015$ over the course of treatment. When comparing between ethnic groups, therapists reported school problems $F(1,1) = 5.75, p = .031$ at a significantly lower rate in Latinos compared to non-Latinos. The average length of treatment for Latinos ($M = 1.67$ years, SD = .99) was about a year less than non-Latinos ($M = 2.73$ years, SD = 5.74). Therapists reported a higher frequency of resistance by the patient and a lack of support from biological parents as obstacles to treatment for Latino patients.

Future research should take into consideration how therapist bias, patient resiliency, cultural competency, and protective factors relate to symptom severity and treatment outcomes. This analysis is limited by a small sample size; however, it reflects the mental health needs and cultural experiences of the exponentially growing Latino population.

P3
Ana Maria Hoffmann and Emma Weinberger
"The Effect Of Alternative Perspectives On Causality In Foresight and Hindsight"

After an outcome is known, people tend to develop a presumption of inevitableness of that outcome; they show less surprise and exaggerate how well they would have predicted the event before it occurred—a phenomenon known as hindsight bias. The present research considers whether people can learn to generate multiple possible outcomes to a situation so that, in the future, they can avoid experiencing hindsight bias when receiving unexpected information or when learning about improbable events. The study was divided in two parts, the Intervention and the Posttest. In both sections, participants completed a questionnaire composed of the summaries of five psychological studies. In the Intervention, participants were divided into either the foresight or the hindsight condition, the difference between the two being the manipulation of prior estimation (i.e., whether or not participants were asked to provide an estimate prior to receiving the actual outcome). Subjects were asked to list alternative outcomes, rate the perceived differences between the anchors versus the estimated and the actual solutions, and rate their level of experienced surprise. We hypothesized that 1) the foresight condition will have learned to consider multiple alternatives before making predictions thus becoming more accurate in their estimates and 2) would therefore experience reduced surprise during the posttest. Results show trends that may support the
hypotheses with more power. During the Intervention, it was found that the hindsight condition was more accurate than the foresight condition with psychological findings. However, in the Posttest, the foresight condition was more accurate in three of the five psychological findings. Interestingly, all three of these were also considered among the top most surprising findings. Two psychological findings were also found to support the second hypothesis that the foresight condition would experience reduced surprise during the Posttest; the Mann-Whitney U revealed a significant difference (p<.05) between the reported experienced surprise and the foresight and hindsight conditions for the two studies. The findings of this research may have implications for the current education system in that the curriculum could be mediated to allow students to internalize information more accurately without the interference of hindsight bias.

P4
Elizabeth Silva
“How Racial/Ethnic and Gender Discrimination Affect College Students' Self-Esteem”

The effects of racial/ethnic and gender discrimination on self-esteem were studied. College-aged participants (N=239, 57 men and 182 women) completed two measures, the Rosenberg Self-Esteem Scale (RSES)—assessing global self-esteem, and the Everyday Discrimination Scale (EDS)—assessing their perceptions of discrimination based on racial/ethnic stereotypes and/or gender stereotypes. Understanding what factors impact a person’s self-esteem is of value because different self-esteem levels impact how people live their lives. The first hypothesis was that racial/ethnic discrimination would have a negative impact on self-esteem. The second hypothesis was that gender discrimination would negatively impact an individual’s self-esteem.

Data was analyzed using one-way analysis of variance and a correlational analysis to determine if there was a relationship between discrimination and self-esteem. Results on the EDS showed that men had more experiences with perceived discrimination than women (t(239)=2.41, p < 0.05). Further, Cohen’s effect size value (d = 0.36) suggested a moderate practical significance. African Americans experienced significantly more discrimination in their everyday life than Whites (F(4, 234) = 4.275, p < 0.01) on the EDS. Cohen’s effect size value (d = 0.94) suggested a large practical significance. There were no other racial/ethnic differences found. No statistically significant differences were found between males and females on the RSES.
P5
Emma Weinberger and Ana Maria Hoffmann
“Foresight and Hindsight’s Effects on Surprise and its Impact on Information Retention”

This study examined the effect of a foresight and hindsight condition on surprise and how this interaction will affect ability to recall numerical information after a weeklong period. Participants were a mix of individuals from Amazon Mechanical Turk and Psychology 101 students. Continuing the research of Munnich, Milazzo, Stannard and Rainford (2014) and expanding upon the ideas of Slovic and Fischoff (1977), this study manipulated a foresight and hindsight condition in an attempt to change the amount of surprise a participant feels upon learning new information. Participants returned to the lab a week later and attempted to recall the information they learned. This success in recollection was analyzed in regards to the level of surprise they initially reported and the condition they were originally in.

P6
Helena Garcia
“The Effect of Nostalgic Thoughts on Math Anxiety”

Nostalgia has been established in research as a psychological buffer that serves to lessen certain types of anxiety. Past research however, has almost exclusively examined the effect of this buffer on a specific type, i.e. death anxiety. The effect of nostalgic thoughts on math anxiety in an undergraduate population was tested. It was hypothesized that a nostalgic writing task given after administering a math test would decrease participants’ math anxiety level more than a neutral writing task.
Participants (n=73) took a timed math test after which their math anxiety level was measured using half of the Abbreviated Math Anxiety Rating Scale (A-MARS). Participants then completed either a nostalgic writing task or a neutral writing task. Participants the completed the second half of the A-MARS in order to measure for the effect of nostalgic thoughts on math anxiety.
The results showed that there was no significant difference between groups before and after having taken the math test, (F(1, 71) = .040, p > .05) and thus the hypothesis was not supported. There are many possible speculations about the lack of a significant difference in scores between conditions.
It is possible that the age group, approximately 18 to 22, of undergraduate students is not as likely to be affected by nostalgic thoughts. It is also possible that the method through which the nostalgic writing task and neutral writing task were administered did not encourage the participants to think about the nostalgic memory they were told to write about in a deep enough way. That is to say, many of the participants sped through the writing task, without much
thought. A time requirement for the writing tasks may have been beneficial to inducing nostalgia in the participants. Despite the lack of a significant difference between conditions, however, there was still a high indication that some level math anxiety was present in all participants. It is important that further methods and studies examine this phenomenon and attempt to find a therapeutic technique through which it can be reduced.

P7
Kristian Balgobin and Dylan Moore
“Relationship Between Social Dominance, Homonegativity, And Perceptions Of Domestic Violence”

Background:
Domestic violence rates in LGBTQ relationships mirror the rates in heterosexual relationships (47.5% of lesbian, 29.7% gay, & 33% of heterosexual relationships have experienced domestic violence). However research primarily focuses on heterosexual relationships. Service providers are often lacking appropriate resources to support LGBTQ individuals who are victims/survivors of domestic violence. The purpose of this study was to examine the relationship between perceptions of domestic violence severity and homonegativity based on gender and sexual orientation.

Method:
Participants were 79 undergraduate students. Majority of participants were 18-20 years old (n=59, 74.7%), women (n=53, 67.1%), heterosexual (n= 55, 69.6%), and Asian (n= 27, 34.2%). Participants completed a 15-minute online survey, which measured perceptions of domestic violence severity through four vignettes that varied by gender and sexual orientation.

Results:
Significant relationships were found between social dominance, comfort with sexuality, and perceptions of severity of domestic violence. Participants reporting higher social dominance reported less comfort with their sexuality (r = -.44 p < .01), higher levels of homonegativity (r = .67 p < .01), and lower perceptions of severity on all four domestic violence scenarios. Using regression analysis in predicting severity of domestic violence, homonegativity did not predict for any of the outcome scenarios. However, for man to man domestic violence, social dominance accounted for 33% of the variance in predicting domestic violence severity (R2 = .368, R2 change = .325, p < .01, β = -0.572). Participants reporting higher levels of social dominance perceived man to man domestic violence as less severe. When predicting severity of women to women domestic violence, social dominance was trending (p = .062).
Discussion:
Results indicate that social dominance, a theory that works to maintain group based hierarchies, impacts the ways in which domestic violence is interpreted and perceived. This research calls for extensive research into perceptions of domestic violence particularly for LGBTQ communities. With homophobic and heterosexist beliefs prevalent in mental health-care, a lack of resources may affect the types of care that LGBTQ individuals receive and what behaviors constitute domestic violence within same-sex relationships.

P8
Sarah Ashley and Alicia Escobedo
“Descriptive Analysis of Emancipated Foster Youth Seeking Mental Health Treatment”

Current and former foster youth experience increased risk for behavioral, cognitive, and emotional problems due to maltreatment and experiences in foster care. Nonetheless, research indicates a gap between the need for mental health services and service use. The current study describes a sample of self-referring, emancipated foster youth seeking long-term psychotherapy to understand reasons youth seek psychotherapy. This study further compares a subset of youths’ data with reports collected from respective therapists to examine differences in perceptions of symptoms.

The majority of participating youth (n = 108) were female (82.2%), adults (M = 23.96; SD = 7.20) from various ethnic backgrounds (33.6% White, 33.6% African American, or 18.7% Hispanic). Common reasons for placement into foster care included neglect (29.0%), physical abuse (23.7%), and/or parent inability to care take (20.6%). Treating therapists (n = 12) who participated in this study were predominately female (83.3%), White (75%), middle aged (M = 47.12; SD = 10.63), and the majority held a masters (66.7%) or doctoral-level (33.3%) degree. Intake forms from foster youth examined youths’ perceptions of current mental health, prior mental health treatment/diagnosis, maltreatment history, and involvement in foster care. Descriptive analysis revealed emotional issues (90.7%), family issues (76.9%), issues with relationships (67.6%), and/or trauma (61.7%) as reasons for self-referral. The majority of youth indicated moderate, high or extreme issues with depression, anxiety, sleep problems, and problems with family of origin. The vast majority (92.6%) received prior mental health treatment.

Semi-structure telephone interviews were conducted with youths’ respective therapists examined patients’ current mental health and maltreatment history. Comparative analysis between youth and therapist reports did not reveal statistically significant differences. Trends were observed; youth indicated higher
dissociative symptoms ($t(11) = 1.89, p = .08$) and psychotic thoughts/behaviors
($t(11) = 2.00, p = .071$). Therapists reported greater problems in relationship with
patients’ family of origin ($t(11) = -2.02, p = .07$).

Limitations of the current study include the small sample size and lack of a
comparison group. Nonetheless, this study captures youth perspective that is
otherwise lacking in research. Future research should include foster youth’s
perspectives on their experiences with mental health services.

P9
Dylan Moore
“Sexual Health as it Relates to Socioeconomic Status in California
Undergraduate Students”

As young adults enter into a college environment they become more sexually
active and engage in riskier sexual activity. Considering the negative outcomes
associated with unsafe sexual behaviors, it is important to determine the
personal factors that put college students at risk for engaging in such behavior.
Past research has shown that there is a significant association between various
measures of socioeconomic status and health behaviors and outcomes in
young adults. The current proposal seeks to examine how strongly measures of
SES are correlated with sexual health outcomes in college students and if certain
measures are more predictive than others. Specifically, it is proposed that
Subjective Social Status will be the strongest predictor of the measured
outcomes.

P10
Patricia Scherer
“Longitudinal Therapeutic Outcomes for Foster Youth; Emotional Development
and Symptomology”

Compared to non-foster youth, children in foster care are at higher risk for
mental health problems and emotional developmental delays because of their
trauma. Few studies research the impact of long-term therapy with foster youth.
We examined the impact of pro-bono, long-term psychotherapy on foster
youths’ psychiatric symptoms and emotional delays over three years of
treatment. Therapists completed annual semi-structured telephone interviews
regarding therapists’ and patients’ demographics, and patients’ psychiatric
symptoms and emotional development.

Across three years of treatment, therapists’ ratings showed significant reductions
in symptoms including but limited to anxiety and violence/aggression. Patients
who terminated treatment experienced additional significant reductions in
depression, dissociative symptoms, and peer-relationship problems. There was
no significant change in emotional development. Additional exploratory analysis examined patterns in symptom reduction across treatment, revealing treatment regressions between year two and three where symptoms increased in several areas. However, regressions were followed by symptom improvements.

This study highlights the complexity of treatment with children who have multiple traumas. Despite limitations including small sample size, the potential for therapist reporting bias, and lack of comparison group and standardized measures, findings support the use of long-term psychotherapy. Future studies should address these limitations as well as include foster patient perspectives.

P11
Delaney Randles
The Replicability and Reliability of Retrieval-Induced Forgetting
The act of remembering shapes memory. Retrieving something from memory both enhances our ability to remember it and causes forgetting of other related, but not practiced, memories. This latter phenomenon, known as retrieval-induced forgetting (RIF), is a general consequence of retrieval, which we explored here to determine if there are individual differences in adaptive forgetting and to see whether RIF is related to other constructs. Subjects were tested twice, one week apart, allowing us to assess the reliability of RIF and its relationship to other measures such as, working memory capacity and trait anxiety. Results show little correspondence in RIF scores across time, suggesting either a) individuals do not reliably differ in ability to perform the task or b) standard methods used to assess RIF are insufficient for capturing individual differences. Given the low reliability of this measure, it is unsurprising that no relationship was found between RIF and other measures.

Sociology
S1
Alicia Kinsellagh
“Shackled: Reparations for Slavery in the United States”

After the Civil War, Union General William Tecumseh Sherman promised freed slaves “40 acres and a mule” to start new lives. This plan was blocked by President Andrew Johnson, and following proposals for reparations have been opposed by the U.S government and citizens since. The majority of U.S citizens believe that reparations are unnecessary because no living person is directly or indirectly responsible for slavery, arguing that there is no “legacy of slavery.” However, others believe that African Americans today are still shackled by the vestiges of slavery as is evident in the disparities in education, housing, employment, and health care. Thus, all United States citizens share a collective responsibility for slavery’s legacy and continued consequences on the African
American population. This project aims to explore the arguments for and against giving reparations to African Americans, and ultimately hopes to arrive at a compromise.

S2
Michaela Ruiz
“Chamorros and Guamanians: Recreating Identity Post Colonialism”

Guam: “where America’s day begins”. During the 1500s Guam was colonized by the Spanish and signed over to the U.S. in 1898. The island currently resides as one of the United States’ most strategic military bases in the Pacific. Regardless, ask the average American to locate it on a map and they may have some difficulty. Guam’s existence—much less its history and culture—goes relatively unknown to those who do not have close relations to the island or its people (Schlund-Vials, 2014).

So what does this mean for Chamorros, the indigenous peoples of Guam and the Mariana Islands? In part due to colonization, Chamorro identity has become ambiguous; leading to a state of anxiety over ethnicity and culture for Chamorros today. This study tries to bring to light how Chamorros currently understand their ethnic identity and establish status both on Guam and in the United States. It uses a series of qualitative interviews to look at the difference between Chamorros and Guamanians and the ways Chamorro history, culture, and language are being experienced by young adults between the ages of 18 and 25. It finds that new generations, like those colonized before them, are redefining their identities.

**Upward Bound**

**UB1**
Weibin He
Fantastic Prosthesis, the Study of the Prosthesis

**UB2**
Phu Luc
Two-dimensional and Three-dimensional Computerized Designs of Art using Advanced Mathematical Functions and Compositions
Graduate Posters

Asia Pacific Studies

AP1
Lesley Wynn
“Political Reimaginings of Place and Space: A Pilot Study on Transnational Student Identities”

This research looks at political identities of international (non-migrant) students from China, Taiwan, and Hong Kong studying outside of their “home” contexts and how they see themselves with regard to the Sunflower and Umbrella movements in Taiwan and Hong Kong, moments in both locales where students reacted to anti-democratic government actions.

Pilot data for this poster is from seven in-depth interviews with students of diverse backgrounds from an international school in Shanghai. This study is part of a larger project that uses 500 online surveys and 25 in-depth interviews to question how being “abroad” shapes students’ identities and understandings of student protest movements and the development of political perspectives abroad. We highlight collective understandings of these movements and the role of the media in mediating these understandings.

AP2
Melissa Chen
“From Vocabulary Building to Talking About Family Traditions Together: Discussions on ‘Hoisan Phrases 學講台山話’”

This poster focuses on the online discourses of an online Facebook group called “Hoisan Phrases” and how this online forum is used to construct positive ideologies about Hoisan-wa. Using a multicompetence and symbolic competence frameworks, we view these online interactions as sites where Hoisan-wa speakers engage in the ability “to perform and construct various historicities in dialogue with others” (Kramsch & Whiteside) and how humor serves as a way of moving beyond caricatures and negative ideologies of Hoisan-wa. Data for this project come from a corpus of three years’ worth of posts and corresponding comments on the Facebook group. We double coded the data and discussed salient themes that emerged, including: metapragmatic commentary about appropriateness of Hoisan-wa Romanization and the humorous commenting on intergenerational stereotypes about Hoisan-wa. The data demonstrates a re-envisioning of the way we view Hoisan-wa vis-à-vis online communication, and expands the domains of language use where Hoisan-wa is considered a resource.
“The US27 Gene of Human Cytomegalovirus Modulates the Expression and Activity of Host Chemokine Receptor CXCR4”

Human Cytomegalovirus (HCMV) is a prevalent pathogen in the human population that establishes life-long latent infection. HCMV encodes one of the largest viral genomes, with many genes dedicated to modulating the host’s immune system for its advantage in avoiding detection and removal. Within this genome are four G protein-coupled receptors (GPCR) that have homology to the chemokine receptor family. One of these viral GPCR, US27 has been shown to increase signaling activity of CXCR4, a host chemokine receptor that directs cells towards the bone marrow, where its ligand CXCL12/SDF is highly expressed. In this study, we measured the dynamics of CXCR4 internalization following CXCL12/SDF binding using the fluorogen activating protein (FAP) system. The results indicate that in the presence of US27, cells are more sensitive to CXCL12/SDF as they express higher CXCR4 surface levels and ligand-induced internalization of CXCR4 occurs earlier. Additionally, fibroblasts infected with wild-type HCMV exhibit increased mRNA and cell surface levels of CXCR4, suggesting that these effects occur during virus infection. These studies are expected to reveal an additional mechanism of modulating the host immune system so the virus may spread to other organs.

“Use of Fluorogen Activating Proteins (FAPs) to Examine the Effect of HCMV US27 on Host Chemokine Receptor CXCR4”

Human Cytomegalovirus (HCMV) is a prevalent pathogen in the human population that establishes life-long latent infection. HCMV encodes one of the largest viral genomes, with many genes dedicated to modulating the host’s immune system for its advantage in avoiding detection and removal. Within this genome are four G protein-coupled receptors (GPCR) that have homology to the chemokine receptor family. One of these viral GPCR, US27 has been shown to increase signaling activity of CXCR4, a host chemokine receptor that directs cells towards tissues where its ligand, CXCL12/SDF, is highly expressed. In this study, we measured the dynamics of CXCR4 internalization following CXCL12/SDF binding using fluorogen activating proteins (FAPs). This recently developed biosensor system employs FAP-tagged proteins that exhibit fluorescence only in the presence of small, membrane impermeable fluorogen molecules. Using flow cytometry and fluorescence microscopy, we monitored CXCR4 internalization and calcium mobilization in the presence or absence of
US27. The results indicate that CXCL12/SDF treatment induces a more robust release of calcium and rapid internalization of CXCR4 in the presence of US27, suggesting US27 increases the rate of receptor endocytosis which may contribute to enhanced signaling outcomes. These studies are expected to reveal an additional mechanism by which HCMV modulates the host chemokine system, potentially to facilitate the spread of virus to distal sites or other organs in the body.

B19
Margarette Mariano
“Detection of a signature cytokine profile associated with breast cancer”

Biomarkers can detect disease and predict treatment response. In breast cancer, biomarkers like estrogen and progesterone receptors (ER/PR), and human epidermal growth factor receptor 2 (HER2) are critical for guiding treatment, but they can only be assessed by biopsy of a known tumor. Alternatively, immune markers may provide earlier indications of tumor development or metastasis formation. The anti-inflammatory cytokine interleukin-10 (hIL-10) is often found in high levels in serum of breast cancer patients and correlates with poor prognosis. Human cytomegalovirus (HCMV) produces cmvIL-10, a viral homolog of hIL-10 that promotes growth and invasion of breast cancer cells in vitro. In a case-control study, we found that cmvIL-10, hIL-10, and other inflammatory cytokines were elevated in women with breast cancer compared to healthy controls. This cytokine signature may be useful for detecting development of breast cancer or for monitoring disease progression or recurrence.

B20
Roxxana Valeria Beltran Valencia
“Regulation of proliferation and apoptosis by the orphan nuclear receptor DAX-1 (NR0B1) - an orphan receptor up-regulated through Androgen Receptor activation in prostate cancer cells”

DAX-1 (Dosage-sensitive sex reversal, adrenal hypoplasia congenita, critical region on the X-chromosome, gene 1) is an unusual member of the Nuclear Hormone Receptor superfamily that has the ability to interact with other Nuclear Receptors (NRs) and transcriptional co-repressors and co-activators. While DAX-1 plays an important role in adrenal and gonadal development, recent studies have elucidated the role DAX-1 plays as a transcriptional repressor and its influence on the progression of different types of cancers. We hypothesize that DAX-1 acts as a negative regulator of proliferation genes, such as cyclin D1, a major regulator of entry into the G1 stage of the cell cycle. In addition, we hypothesize that DAX-1 can also stimulate apoptosis through repression of anti-apoptotic related genes in prostate cancer cells. Notably, DAX-1 is not
expressed in advanced stage prostate cancer cells, and its loss of expression could potentially contribute to the aggressive growth of castration resistant prostate cancer (CRPC) cells. We have found that introducing DAX-1 into prostate cancer cells lacking endogenous DAX-1 expression leads to a decrease in proliferation and promotes apoptosis. We have previously found that activation of androgen receptor leads to the up-regulation of DAX-1 expression in hormone dependent breast cancer cells, however this link has not been completely elucidated in prostate cancer cells. Here we show that activation of androgen receptor through the treatment with non-aromatizable androgen in hormone dependent prostate cancer cells also leads to an induction of DAX-1 expression. These results further elucidate the role of AR and DAX-1 interaction and could potentially reveal new therapeutic targets in the treatment of prostate cancer.

Chemistry
C4
Alicia Luhrs
“Dendrimer Modified Silica Nanoparticles as Fluorescent Chemosensors for the Detection of Copper and Cyanide”

A four step process gives a series of poly(amidoamine) (PAMAM) dendrimer-modified silica nanoparticles (SNP) with appended organic dyes FITC or RITC. The SNP were dispersed into a buffered water/ethanol solution and tested as “turn off” sensors for copper (II) and subsequent “turn on” sensors for cyanide ion. The SNP fluorescence was quenched by copper ion binding to the dendrimer and was dependent upon the dendrimer generation attached to the surface. The addition of one equivalent of cyanide ion fully restored the fluorescence and, remarkably, cyanide ion was more effective than EDTA despite its strong copper (II) binding constant. Stern-Volmer quenching analysis only gives linear correlations at very low copper (II) ion concentrations, leading to a limit of detection of 0.38 µM. The effect of bound organic dye and surface charge are currently being studied, as well as the ability of the system to function as a FRET sensor for electrostatic binding of dyes in solution.

C5
Wan-Chen Lee, Yuning Shen, and David A. Gutierrez
“2-Aminophenyl-1H-Pyrazole as a Removable Directing Group for Copper-Mediated C–H Amidation and Sulfon-amidation”

2-Aminophenyl-1H-pyrazole was discovered as a removable bidentate directing group for copper-mediated aerobic oxidative C(sp2–H) bond amidation and sulfonamidation. When Cu(OAc)2 was employed as the copper source, 1,1,3,3-tetramethylguanidine as an organic base, the reaction, optimally run overnight in DMSO at 90°C in open air, produced a variety of
amides and sulfonamides in moderate to excellent yields. This directing group has proven to be especially efficient in C–H sulfonamidation.

**Economics**

E1

Ingvild Madsen Lampe

The Impact of the Infant Formula Industry on Breastfeeding Behavior

The Impact of the Infant Formula Industry on Breastfeeding Behavior

Many studies have been done toward the importance of breastfeeding, and there is a broad consensus that breastfeeding plays an important role for children’s health and cognitive development. This is especially true in developing countries and among poor families in poor societies, where infants are more vulnerable and access to proper nutrition may be vital. This paper investigates the effect of the presence of infant formula activities on changes in breastfeeding patterns. Using the Demographic Health Surveys (DHS) along with annual reports from the baby food industry between 1981 and 2002 in 18 tropical countries, I find that presence of entrance of infant formula products significantly reduces the amount of time a mother breastfeed her child, this effect is strongest in urban areas. Finally, I find no significant results of changes in child mortality.

E2

Kali Shebi

Effect of Incentives on Women’s Competitive Inclination: Experimental evidence from Ancona, Italy

This study investigates how monetary incentives versus non-monetary incentives affect women’s decision to enter competitive environments. This study was conducted in Ancona Italy, in a controlled laboratory experiment with a total of 60 participants; of which 29 were male and 31 were female. Participants were given mathematical problems to solve where they had the choice to enter competition when presented with alternating incentives. The study also included components that assessed risk preferences and willingness to pay for non-monetary incentives in the experiment. Results show, 41% of men chose to enter competition compared to 29% of women during the cash treatment. When the incentive was switched to a gender salient non-monetary incentive, 45% of men chose to enter competition compared to 42% of women. The study shows evidence that suggests that women’s inclination to compete increased after the incentive was switched from cash money to a non-monetary gender-salient incentive.
Sports Management
SM1
Kelsey Sampson Taylor Sundstrom, Katerina Peterson, and Sean Harris
“Career Motivation Within NCAA: A Study on Division II Administrators’ Motivation to Advance to Division I Athletics”

This study investigates the effects of career motivation in NCAA Division II athletic administrators’ advancement to Division I. We specifically identified gender and current position within an athletic department as variables. The entire population of Division II athletic administrators at the assistant athletic director level or higher was surveyed, accumulating a total of 327 responses. Male (p=0.035) and assistant/associate administrators (p=0.013) are more likely to accept a similar or elevated role at the Division I level. This study is relevant to current and aspiring collegiate athletic administrators across all subdivisions who are looking to advance in their respective careers.

SM2
Christian Tovar-Vargas and Christian Martin
“Soccer on the Rise: An Analysis of Factors Influencing Initial Fandom of Bay Area Millennials between the EPL and MLS”

Given soccer’s recent emergence in the US, understanding team preferences and motives behind them is becoming increasingly important. We investigated Bay Area millennial soccer fans and their identification between English Premier League and Major League Soccer teams. A randomly distributed survey to 78 respondents found no significant differences between league preferences, though the majority still favored EPL teams. However, differences in motives, such as style of play and the presence of a particular player were found. This confirms the EPL’s ability to penetrate the American market, and also provides soccer marketing executives with a framework for growing fan bases.
Creative Works

CW1
Kristi DeMar
Abraza Identidad, Fight for Citizenship, Vota por Representación Divisadero
Journal, Spring 2016 Issue

“Divisadero” is a Spanish word derived from divisar (to discern). It refers to a place of high elevation from which one can view an extensive area. This is what we strive to accomplish with Divisadero, a bilingual collaborative publication of the Latin American Studies Program. To recognize with curious eyes and open minds people, cultural events, social phenomena, and general affairs related to the Latino community of USF, of San Francisco, and of the United States and beyond.

In the Spring 2016 Issue, we focus on Identity, Citizenship, and Representation. Through various journalistic forms, we delve into issues relevant to the Latino community. Our area of study is local, national, and transnational. Our aim is to show how Latinos are represented on campus, their role in the 2016 elections, and issues regarding immigration and border cultures. All pieces are written and edited by bilingual students; all pieces excel at revealing aspects of the complex and diverse Latino community.

CW2
Haley Heidemann
Not Another Rape Piece

Not Another Rape Piece is a recorded ten-minute solo performance about sexuality and sexual assault in our culture. It explores the ways our university system is failing survivors, as well as the lasting effects rape can have on survivors. It sets out to try to figure out what surviving really is. Am I surviving? In cases of sexual assault, actions are done to and put on our unwilling bodies, and sometimes we are the only people who can pull ourselves up. This is a piece of healing, it is a call to action, it is to a to be continued story. In this presentation, I invite you to ask questions, take a pledge, and stand in solidarity with me.
Research Talks

Talks in Maier
10:00AM – 10:15AM
Gail Vinacombe (Chemistry)
“Computational Study of Stone-Wales Rearrangements in Hydrocarbons with Pyracyclene Cores”

10:20AM – 10:35AM
Simon Luo (Chemistry)
“Computational Analysis of Radical Induced Hydrogen Shifts in Polycyclic Aromatic Hydrocarbons”

Pyrolysis of organic compounds involves high temperature decomposition in the absence of oxygen. Such reactions are important during fuel-rich combustion. During pyrolysis, bonds are broken to produce free radicals, the highly reactive nature of which facilitates the rearrangement of bonds to form various polycyclic aromatic hydrocarbons. However, many radical driven mechanisms remain a mystery. One reaction type of particular interest is the radical induced hydrogen shift. The goal of this research is to gain a general understanding of possible factors that affect the energetics of radical induced hydrogen shifts, via computational modeling. The study evaluated various structural parameters including distance and angle differences in the transition state for their energetic and geometric effects on radical induced hydrogen shift using a variety of computational chemistry methods. Structures with strained four membered rings and multiple radicals near the radical site were also evaluated.

10:40AM – 10:55AM
Akana Jaeywaidene (Art + Architecture)
“Placemaking in the Modern World”

For most people, home--in terms of place and not simply dwelling--is an integral part of being. We remain attached to our childhood homes throughout our lives and romanticize memories experienced in those places. But in today’s super modernized world, the concept of home is mercurial. With the ever increasing flow of people through the thriving metropolises of the world, homes are often made with ease and given up with just as much ease. Places must be adopted only to be abandoned with a combination of grief and nonchalance. How does the globalized subject find the notion of home in a super modernized world? What does this home look like? Has society’s neo-nomadic life style changed the appearance of architecture to better facilitate such a society?

11:00AM – 11:15AM
Douglas Mejia (Comparative Literature)
“A Look at Boys Love”

In an attempt to shed some light on the overlooked genre of graphic novels and, more specifically that of the homoerotic Japanese comic books of the Yaoi and Shounen Ai genre, this presentation examines multiple representations of the young male body (i.e., the concept of Bishounen or “beautiful boy”) in contemporary Japanese popular culture. My presentation demonstrates that Shounen Ai and Yaoi comic books, by women and for women, rely on the well-established concept of the Bishounen body to transcend traditional gender roles that restrict women from exploring their sexualities or experiences outside the domestic sphere. While retracing the origins of the concept in various art forms, I analyze how works of Yaoi and Shounen Ai reimagine the Bishounen and invite its readers to consider a disengendered body or the fluidity of a body that embraces both the feminine and the masculine as a medium for escapism.

11:20AM – 11:35AM
Jennifer Gutierrez (Art + Architecture)
“From Empty Lot to Garden Plot: Urban Agriculture in Chula Vista”

There are many projects and much discussion about the powerful role of food in the development of urban environments, but can it revitalize the suburbs as well? Chula Vista already has legislation in place that allows for the development of community gardens, and because the city has distinctly urban and distinctly suburban sectors, it is the ideal place to explore the diversity of agricultural integration. By incorporating agriculture as part of the social and economic life of the city, food can be used as an ordering principle, harnessed as a design tool, and employed as a method of community engagement. I propose the integration of agriculture as a tool to reconnect to the city’s agricultural past and a model for cities of the future.

11:40AM – 11:45AM
Douglas Conway (Economics)
“Private remedial services in public schools: Evidence from an Impact Evaluation on GSAP”

In the developing world, quality of education is as important, if not more important than access to education because high human capital is so integral to the economic vitality of a country and it’s a way out of poverty for many in urban, and particularly rural settings, and India is no exception. Isha Government School Adoption Program (GSAP) offers a promising remedial intervention for low-performing students (in rural public schools. I evaluate this intervention at selected public schools in Southern India (Coimbatore district) using a PSM-DID (Difference-in-Difference strategy and Propensity Score Matching combined) to address selection problems and pose the following
question, “For public school 6th-9th graders in Tamil Nadu (India), does receiving academic remediation, when controlling for endogenous school, student, region and family factors, on average, lead to improved math and language (English and/or Tamil) posttest scores compared to baseline scores?”

12:00PM – 12:15PM
Elaine Zhang (Biology)
“Variation in geographic range size and climate niches of Hawaiian Psychotria in an endemic island diversification”

The tropical shrub genus Psychotria (Rubiaceae; coffee family) is one the most species rich genera of flowering plants, with species distributed in tropical forests worldwide. In Hawaii, Psychotria has diversified into 11 species, including two extremely rare species. Evolutionary history may help explain why some species are abundant and found on many islands, while others are rare and restricted to one island. We sequenced 5 chloroplast DNA markers and two nuclear markers for most of the native Hawaiian species and related South Pacific species and inferred a robust phylogeny of these species evolutionary relationships. Furthermore, we built species distribution models using georeferenced collection records and climatic data to measure potential range size and examine climatic niche evolution for each species. These data are a first step in testing what factors may be critical drivers of variation in geographic range size and niche attributes of Hawaiian Psychotria.

12:20PM – 12:35PM
Vasalya Panchurmarthi (Biology)
“Torn Between two Diseases: Changes in TGFβ Signaling Prevents Diabetes but Promotes Neuropathy”

This thesis argues that health needs to be redefined in a more comprehensive fashion, namely as a physiological/biological state, with social, environmental, and individual determinants always related to one’s personal needs to achieve one’s life plan. The benefits of this new definition include more emphasis on the distribution of health as a social good. Additionally, redefining health puts the value of the individual’s life rather than the strict monetary value of their needed treatment as a focal point. It also draws more attention to medicine as a practice of care, rather than viewing it simply as a technology or science, which allows more focus on the social and environmental underpinnings of individuals’ and communities' health.

12:40PM – 12:55PM
Dominic Lizama (Art + Architecture)
“Colonization to Construction: Bridging the Gap between Ancient Chamorro, Spanish Colonial and Modern Architecture”
In learning about the architecture of Guam throughout history, I discovered that the styles divided themselves into four distinct categories with each as a direct result of external forces that influenced the people and their architecture. Colonization, warfare, and natural disasters affected the ways Chamorro people designed and constructed. It is through the comparative analysis of these factors with respect to their time periods that one is able to determine the multi-faceted architecture that represents the culture of Guam. Additionally, this information can be used in order to design architecture for the future that represents Guam’s cultural history. Therefore, the information gathered from each style was used to design a Cultural Center that reflects both the architectural identity of the island as well as its convoluted history.

1:00PM – 1:15PM
Anne Weltner (Communication Studies)
“Communication Evolution between Past Verbally Abusive Relationships to Current Romantic Relationships”

The purpose of this qualitative research study was to conduct six interviews with participants who had previously been in a verbally abusive relationship and are presently in a romantic relationship. My research question was, “how do people in past verbally abusive relationships communicate with their present partner? Through the use of an interpretive lens, I asked questions such as, "How well did you know your partner that was verbally abusive?," "How do you and your present partner express love?," and" "Ideally what is your conception of an ideal romantic relationship in terms of communication?" The interviews used a semi-structured format, constant comparison, coding and thematic analysis. The four themes included: Verbal Abuse as a Form of Communication; Insights After the Abuse; Comparing Romantic Relationships; and, Current Romantic Relationship Maintenance. In the findings, the participants expressed the importance of open communication, compromise, and stressed the need and desire to move forward and learn from their past experiences.

1:20PM – 1:35PM
Chloë Zimberg (Chemistry)
“Physicalizing States of Being: Creating Quando Non È Niente”

Quando Non È Niente is a dance piece I created in collaboration with seven performers for my Senior Project in the Performing Arts and Social Justice major. My presentation shares insights on the four-month process and the findings that eventually became the final stage piece. The project began with the idea of intersections. I asked questions about an individual’s ability to integrate their multiple selves, and how external influences bring us together. I then ventured to create a physical interpretation of these ideas onstage. Rehearsals started by
my teaching material that seemed to answer some of the questions and giving open-ended prompts to the participants to answer in movement and writing. I then worked to compose the research material. Simultaneously, I was also collaborating with a musician/composer and developing prompts for him that spoke to the same ideas. During the process of working with many perspectives and mediums, I found that we as humans may ultimately be indefinable, ever shifting entities, and what is abstract and infinite may be just as much, if not more applicable to our experiences of life than that which we can concretely define. I return to these thoughts when the hugeness of the past, present and future flares up. Through the process of making this piece, I found importance in the collective practice of presence. Dance brings people together, and the piece thus became a response to my musings on how many different ideas and temporalities intersect in the present moment onstage and throughout our many states of being.

**Talks in Broad**
10:20AM – 10:35AM
Claudia Corrales (Art + Architecture)
“The Poetics of Love and Sensuality in Gian Lorenzo Bernini’s Ecstasy of Saint Teresa”

Gian Lorenzo Bernini’s “Ecstasy of Saint Teresa” (c. 1645-52) paradoxical themes of spirituality and sensuality emerge out of the rhetoric of the Counter Reformation’s doctrine and the religious imagery to produce a sculpture that blurs the line between the corporal and spiritual. During a time of great strife within the Catholic Church a clear divide between the Protestant and the Roman Catholic doctrine emerged. The majority of the reform was propagated by Pope Paul II, who initiated the Council of Trent in 1545 in order to deal with the doctrinal and disciplinary allegations that the Protestant church had posed. The doctrine from which art of any form should adhere to was to docere, delectare, and movere (to teach, to delight, to move). Under this doctrine the artist of the seventeenth century created works that adhered to theses guidelines, which resulted in works such as The Ecstasy of Saint Teresa which embodied this rhetoric.

10:40AM – 10:55AM
Megan Busch (Communication Studies)
“The Complex Relationship Between College-Aged Youngest Siblings and Their Older Siblings”

Extensive research has been conducted on the sibling relationship and the complex dynamics that make them up. However, little research has been done on adult siblings and how their relationship with their siblings has changed over the course of their lives. Thus, the purpose of this study is to describe the
experiences of youngest siblings, specifically college-aged siblings, and how their relationship with their older siblings has changed over time. I interviewed six college students between the ages of 19-20 and each participant had at least two older siblings. Overall results indicated that age of the siblings have an impact on sibling closeness and on how the youngest sibling is treated by their older siblings. The research also indicated that youngest siblings valued support from their older siblings and that each participant believed the sibling relationship to be unique and important.

12:00PM – 12:15PM
Chinonso Etumnu (Economics)
“The Effects of Bargaining Power and Health Information on Biofortified Food Acceptance in Ghana”

Biofortified foods are being introduced in sub-Saharan Africa as an important strategy to help address micro-nutrient malnutrition. However, there has been little research on factors that could play decisive roles in their successful introduction. This paper investigates the effects of bargaining power and health information on consumer acceptance of biofortified orange-fleshed sweet potato (OFSP) using data from a choice experiment conducted in Ghana. I find that the OFSP is preferred to the traditional white-fleshed and yellow-fleshed sweet potatoes as indicated by consumers' marginal willingness to pay for the three varieties. I also find that intra-household bargaining power proxies of education, personal contribution to household income and amount of land owned as a group, has a negative effect on consumer acceptance of OFSP. Conversely, providing consumers with information about the nutritional benefits of OFSP exert a substantial, positive and significant impact on their acceptance of the produce. Providing nutritional information thus appears to be more crucial in the successful introduction of OFSP and other biofortified foods.

12:20PM – 12:35PM
Jacqline Murillo (Philosophy)
“Redefining Medicine: the epistemology, political theory, and phenomenology of health and disease”

Type 1 diabetes (T1D) is an autoimmune disease that affects millions of children and adults worldwide. In this disease, white blood cells (Leukocytes) invade, attack, and destroy the Islets of Langerhans in the pancreas, resulting in increased blood glucose levels. Patients with T1D must use exogenous insulin injections, which can lead to many side effects over the lifespan of the person. Therefore, understanding the pathogenesis of this disease is crucial to develop new treatments for patients. The non-obese diabetic (NOD) mouse is a rodent model of T1D as well as other autoimmune diseases such as Sjogren’s syndrome,
where immune cells attack the salivary glands. In this study, we compared diseased and healthy tissues in the NOD mouse (Wild Type: WT) as well as mice lacking TGFβ signaling in the regulatory T (Treg) cell lineage (Flox mice). Treg cells are specialized CD4+ T cells, whose function is to suppress effector cells and maintain self-tolerance. Interestingly, the Flox mice do not develop diabetes but do develop a different autoimmune disease: peripheral neuropathy, a condition in which the peripheral nerves are damaged. These mice rapidly lose all function in their limbs and suffer from severe weight loss. We were interested in determining if these mice had any additional sites of autoimmune inflammation. We characterized multiple tissues using histological analysis, including islets, nerves, salivary glands, thyroid, small intestine, kidney, and others. Together, this data will identify additional organs that may be either damaged or protected from disease in Flox animals and contribute to our understanding of how TGFβ signaling in Tregs influences their function in NOD mice.

1:00PM – 1:15PM
Gloria Ruiz (Communication Studies)
“Parental Mental Illness: The effects of it on the Children Later on in Life”

Although mental illness continues to be at the forefront of many political and social debates there is still a limited amount of research conducted on mental illness and its affects on family. This study sought to fill those gaps by asking: What effects does parental mental illness have on affected children later on in life, if any at all? Interviews were conducted with six women one on one in a narrative-style so that participants felt comfortable enough to share their experiences with parental mental illness. Hearing each individual’s narrative allowed for a greater appreciation for their often unheard stories. The lived experiences of these women were then compiled and the results found that affected children were fearful of vulnerability in relationships, conflict avoidant when discussing a conflict with a friend or significant other, and that speaking about their mentally ill parent was a very emotionally triggering experience for them. This information can help affected children and others around them communicate effectively. This can also help on a broader societal level with spreading awareness of parental mental illness and the affects it has not only on the mentally ill person but their children as well.