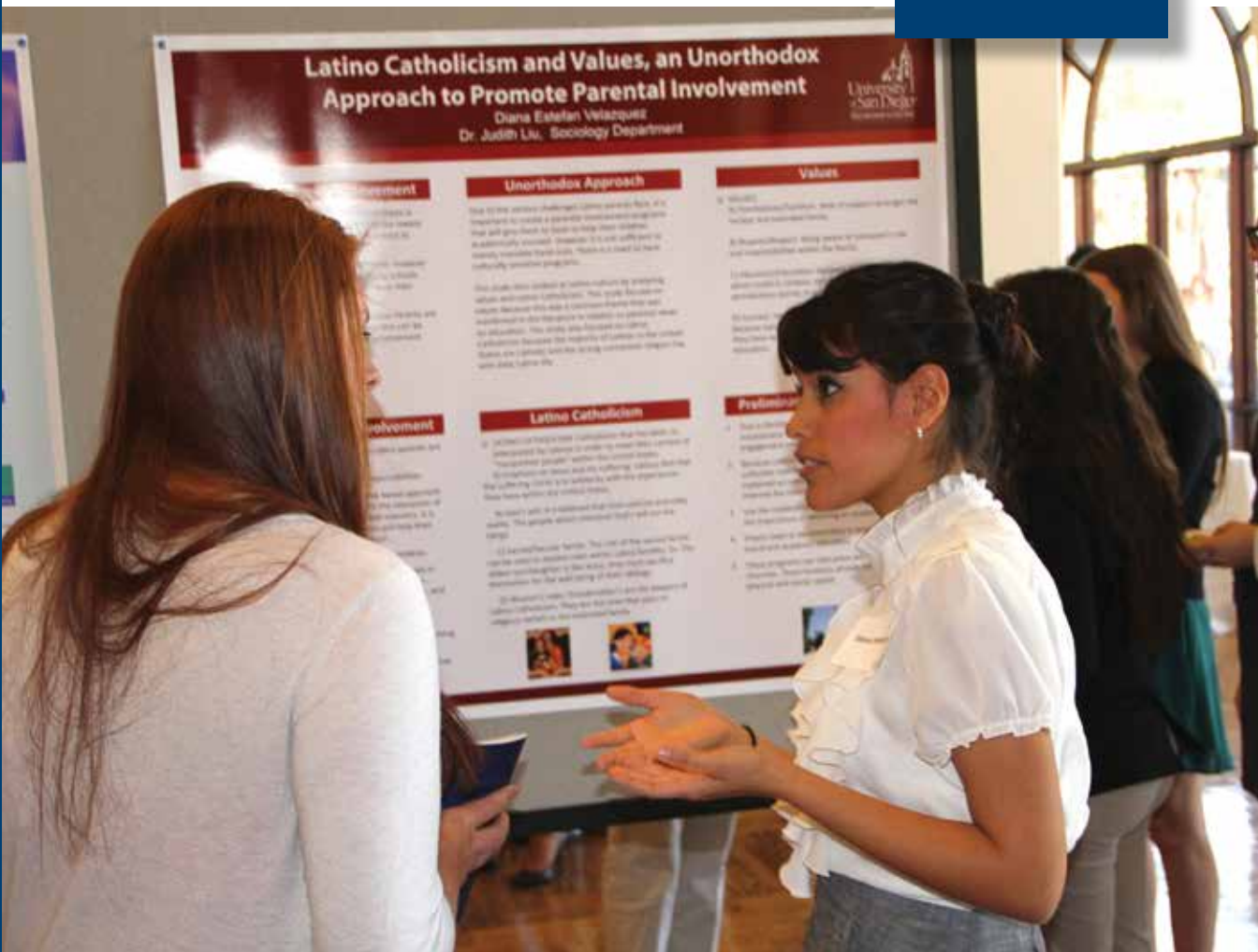


2014 CREATIVE COLLABORATIONS

UNDERGRADUATE RESEARCH CONFERENCE



APRIL 10, 2014 > 12:15-2:15 p.m.
HAHN UNIVERSITY CENTER

student-faculty
research
scholarship
internship
creative works
www.sandiego.edu/urc



The Office of Undergraduate Research was established in September 2011 to promote research, scholarship and creative activities across campus. The office aims to ensure that USD undergraduates have the opportunity to engage in these activities both inside and out of the classroom. The Office of Undergraduate Research provides services to both students and faculty, and encourages collaborations across departments and disciplines.

The University of San Diego is an enhanced institutional member of the Council on Undergraduate Research.

WELCOME

to the 2014 Undergraduate Research Conference!

Creative Collaborations showcases the outcomes of undergraduate research, scholarship, internships and creative works. USD has a long and proud history of encouraging students to participate in research alongside faculty members who are distinguished teacher-scholars. As a testament to this tradition, over 200 posters will be presented today as part of USD's 24th Annual Creative Collaborations. The explosion of student research on campus is notable, significantly up from 92 presentations in 2006. Undergraduates have opportunities to engage in extracurricular research in a discipline of their interest. Additionally, many students participate in co-curricular research activities through research-based courses and capstone experiences. All of these activities are in keeping with our mission to promote undergraduate research and creative inquiry as a distinguishing feature of an undergraduate education at USD. We invite you to browse the Office of Undergraduate web page (www.sandiego.edu/ugresearch) for information about undergraduate research opportunities for students and faculty.

We are so proud of our students whose excellent work will be presented today. We are indebted to the faculty who direct undergraduates in research activities, and are thankful to those whose funds help support the work.

We look forward to learning about all the exciting research that continues to take place on campus and to honoring the students and faculty that have challenged themselves to extend learning beyond the classroom.

Sincerely,



Andrew T. Allen, PhD
Vice President and Provost



Sonia Zárate, PhD
Director, Office of Undergraduate Research

Brown carbon formation by aqueous-phase aldehyde reactions with amines in the presence of calcium sulfate

Michael J. Evans, David O. De Haan
University of
1000 Acula Park



This work was supported by NSF grant AGS-1129852

Abstract: Brown carbon (BrC) formation in the atmosphere is a significant component of secondary organic aerosols. BrC is formed by the oxidation of volatile organic compounds (VOCs) and is known to absorb light in the visible and near-ultraviolet regions of the spectrum. The formation of BrC is a complex process involving a variety of chemical pathways, including the reaction of aldehydes with amines in the presence of calcium sulfate. This study investigates the formation of BrC from the reaction of aldehydes with amines in the presence of calcium sulfate under various conditions. The results show that the presence of calcium sulfate significantly increases the yield of BrC, and that the reaction is highly dependent on the concentration of the reactants and the reaction conditions. The BrC formed in this study is characterized by a strong absorption in the visible and near-ultraviolet regions of the spectrum, and is highly hygroscopic. The study also shows that the BrC formed in this study is highly soluble in water, and that the reaction is reversible. The results of this study have important implications for the understanding of BrC formation in the atmosphere, and for the development of strategies to reduce BrC emissions.

Figure 1: Plot of absorbance vs. wavelength (nm) for BrC formed in the presence of calcium sulfate. The plot shows a strong absorption peak at approximately 360 nm, and a secondary peak at approximately 420 nm. The absorbance decreases significantly as the wavelength increases beyond 450 nm.

Figure 2: Plot of absorbance vs. wavelength (nm) for BrC formed in the presence of calcium sulfate at different concentrations. The plot shows that the absorbance increases linearly with the concentration of the reactants, indicating that the reaction is first-order with respect to the reactants.

Figure 3: Plot of absorbance vs. wavelength (nm) for BrC formed in the presence of calcium sulfate at different reaction times. The plot shows that the absorbance increases with reaction time, indicating that the reaction is time-dependent.

Figure 4: Plot of absorbance vs. wavelength (nm) for BrC formed in the presence of calcium sulfate at different temperatures. The plot shows that the absorbance increases with temperature, indicating that the reaction is temperature-dependent.



Schedule

Welcome

12:10 p.m.

Sonia Zarate, PhD
Director, Office of Undergraduate Research
Front of the Hahn University Center

Student Presentations

12:15 – 1:15 p.m.

First Session

Interactive Exhibits: Hahn University Center East and West
Alcoves & Forums
Visual Arts Exhibits: Hahn University Center Exhibit Hall
Poster Presentations, odd-numbered: Hahn University Center
Forums

1:15 – 2:15 p.m.

Second Session

Interactive Exhibits: Hahn University Center East and West
Alcoves & Forums
Visual Arts Exhibits: Hahn University Center Exhibit Hall
Poster Presentations, even-numbered: Hahn University Center
Forums



Interactive Exhibition

Location: UC Alcove

RFID Temperature Sensor

Moath Alzahrani, David Polo, Sergio Palacios, Samuel Wood

Faculty Advisor: Kathleen Kramer

Shiley-Marcos School of Engineering, Electrical Engineering

Advantageous Systems LLC has the desire for a Radio Frequency Identification (RFID) temperature sensor with a visual cue that will be set when a critical temperature is reached or surpassed. The visual cue will be attached to the RFID tag itself. The semi-passive tag will be able to log temperature data as well as set the visual cue if the critical temperature is reached. The RFID tag itself will be no larger than 2 cm x 2 cm x 0.5 cm (L x W x H). The RFID tag must have the visual cue attached to it and be able to log temperature data. The RFID tag will be read with a near field communication (NFC) compatible Android phone. The battery on the RFID tag will only be used for data logging and for setting the visual cue. In order to try and preserve battery life the visual cue will only be set once. If the RFID tag indicates that critical temperature has been reached, handlers can use an Android phone to read the RFID tag, and the Android phone application (app) which will present the data in a convenient way. At this design stage, the RFID tag can be read by an Android phone. The visual cue application, tag programming and phone programming are still in development at this stage.

Location: UC Main

We Walk the Line//Caminamos La Linea

Jillian Grant

Faculty Advisor: Andrew Cross

Department of Art, Architecture, & Art History

Through photographic mediums I explored how the U.S.-Mexico Border impacts the lives and shapes the identities of young Mexican-Americans. The pictures and interviews aim to reveal the true stories of what is transpiring between the U.S. and Mexico in terms of border relations and immigration policy, and how it is affecting young people in the border community. I worked with fifteen informants, interviewing each person about their upbringing, what role the U.S.-Mexico Border has played in their lives, and if they have experienced racism from U.S. government officials. There are two photographs for every informant, one being contextual in the location of the informant's choosing; a place that relates to the informant's experience with the U.S.-Mexico Border. The second is a straightforward headshot of the informant. The goal of the work is to raise awareness about how the border is affecting its inhabitants in their every day lives.

Location: UC Alcove

Dramatic Monologue Live Performance

Angela Marie Hassenius

Faculty Advisor: Lisa Hemminger

Department of English

For our project, Professor Hemminger and I will write a dramatic monologue poem and perform the piece live. The poem will be written collaboratively, and in the presentation, I will be the speaker of the poem who addresses a third person, who will play a silent auditor. Professor Hemminger will portray the subject of the poem, and the innovation on the dramatic monologue form is that the audience can see the subject's reactions while the speaker (myself) remains ignorant. In this way, the dramatic tension of the form is heightened and involves the audience, which takes on the role of the listener who hears and understands the contradictions of the speaker but cannot react. We believe the creative spin on the expressive, persuasive form of dramatic monologue will create a dynamic and moving experience for the audience.

Location: UC Alcove

i-Hearing

Whitney Robinson

Faculty Advisor: Kathleen Kramer

Shiley-Marcos School of Engineering, Electrical Engineering

The Remote Hearing Transmitter and Receiver (RHTR) system is a set of devices designed to alert the Deaf and Hard of Hearing (HOH) people. Hearing loss presents many everyday challenges from basic communication to accomplishing daily tasks. The RHTR system is designed to help the deaf and HOH people be alerted of household alarms such as a doorbell, a washer buzzard, or telephone call. Our system will allow the user to be mobile around house and be alerted at the same time. The transmitting device will be a small compact device that can be placed next to a washer, telephone or baby. The user will need to record a sound it wishes to be alerted by, the device will then be able to distinguish if that sound has been heard through matching technology. It will then send a message via Radio Frequency to the receiving device. The receiving device will be small and be able to be carried or worn by the user. The receiver will alert the user that a household alarm has happened. This system will improve the user's ability to accomplish household tasks by alerting them more efficiently than current technology available.

Location: UC Alcove

Expressions of Barriology in Logan Heights and Barrio Logan

Sharlene Swanberg, Erik Romero, Lee Ryan, Andrea Sosa, Natasha Mahapatro, Sam Weinstein, Jillian Grant

Faculty Advisor: Alberto Pulido

Department of Ethnic Studies

Our class will engage in a research project in collaboration with the Logan Heights and Barrio Logan Communities to examine the legacies of Barrioization (situations imposed on them) and their creative responses of Barriology (resistance) over the many years of their existence. Our overall goal is to engage with our community by honing in on the history and conflicts that exists over the years within this community. Once we have a vivid and cohesive understanding of the Logan Heights community, we will pay tribute to the community by converging our knowledge and talents to produce an aesthetic representation of the community as well as a web site documenting both the history and current growth of Logan Heights and Barrio Logan.

Location: UC Exhibit Hall

Shea Abbot

Shari Afuso

Rachel Beck

Anne Brady

Remi Dalton

Katherine Derloshon

Jillian Grant

Idil Haciralfoglu

Madison Harris

Christopher Hincke

Chandler Hubbard

Kassi Karabaich

Genevieve Kunz

Cathy Nguyen

Sean Rivera

Lexi Shapiro

Julia Sorenson

Samantha Stone

Daniela Toscano

Andrea Trobradovic

Mike Van Mierlo

Anna Walsh

Remy Weinger

Amber Wilcox

Political Parties Win Presidential Elections by following the Median Voter Theory?

Ricardo Dixon
College of Arts and Sciences, University of San Diego

Research Method

The research method involves a series of steps to analyze the data. First, the data is collected from various sources. Then, the data is cleaned and organized. Finally, the data is analyzed using statistical methods to determine the relationship between the variables.



Results

- 2008 Election: Republican
- 2012 Election: Republican
- 2016 Election: Republican
- 2020 Election: Republican
- 2024 Election: Republican
- 2028 Election: Republican
- 2032 Election: Republican
- 2036 Election: Republican
- 2040 Election: Republican
- 2044 Election: Republican
- 2048 Election: Republican
- 2052 Election: Republican
- 2056 Election: Republican
- 2060 Election: Republican
- 2064 Election: Republican
- 2068 Election: Republican
- 2072 Election: Republican
- 2076 Election: Republican
- 2080 Election: Republican
- 2084 Election: Republican
- 2088 Election: Republican
- 2092 Election: Republican
- 2096 Election: Republican
- 2100 Election: Republican

Conclusion

The data shows that the median voter theory is supported by the results. The results indicate that the median voter theory is a valid model for predicting the outcome of presidential elections.

Future Plans

The future plans include conducting further research to explore the relationship between the median voter theory and other factors that influence the outcome of presidential elections.

Further info

For more information, please contact Ricardo Dixon at [email address].

Acknowledgements

The author would like to thank the following individuals for their assistance in the research process: [names].

Abstract

The abstract provides a brief overview of the research project, including the research question, the research method, the results, and the conclusion.

Introduction

The introduction provides a background on the median voter theory and its relevance to the study of presidential elections.

Literature Review

The literature review discusses the existing research on the median voter theory and its application to presidential elections.

Poster Presentations

Location: UC Main

Poster Number: 1

Common Hallowed Grounds: Trench Poets of World War I

Clifford Abbott

Faculty Advisor: Atrejee Phukan

Department of English

Literature develops over time, adds new styles and redefines the writing standards set by earlier authors. The First World War in particular represents a dramatic shift in literary history, giving rise to unique circumstances and writing circles such as the trench poets. Several literary figures of the time interacted with each other directly on the battlefield as bullets whizzed overhead. They helped one another bring the horrors of war back to the people on the home front through poems, short stories, and memoirs. What evolves out of their collective effort is a genre with such complexity that it is hard to come to a communal decision on what its goal is. Is war literature entirely anti-war? Does it seek to end its very existence by shocking the reader into never supporting armed conflict again? My project seeks to negotiate these questions to come an understanding of the trench poet ethos.

Location: UC Main

Poster Number: 2

Gender and Race in the News

Michelle Ables, Hailey Delay

Faculty Advisor: Mary Brinson

Department of Communication Studies

Since the invention of television, many changes have occurred in our journalistic environment, one of these changes involves the concept of anchormen and anchorwomen delivering our news. The current study attempts to investigate variants in the communication styles between different genders and races within the news environment, specifically among anchorpersons. This study involves a quantitative content analysis of local and national newscasters in terms of race, gender, and communication.

Location: UC Main

Poster Number: 3

A Study of Amphiphilic Molecules

Michael Acosta

Faculty Advisor: Mitchell Malachowski

Department of Chemistry & Biochemistry

Over the past few decades organic chemists have become intrigued with amphiphiles; molecules that have both hydrophilic and lipophilic properties. This is due to their potential use as synthetic ion channels. Chemists have been able to synthesize amphiphilic compounds that can combine with a cell membrane and they have become key contributors because of their particular properties that make them compatible with cells. The molecule's length can be manipulated to span the cell membrane so a molecule can be synthesized specifically to span the lipid bi-layer membrane. Along with their length, a more rigid metal complex can be formed to broaden the spectrum of molecules that can bind to the complex. To better understand how these amphiphiles react with metals, 3 amphiphiles were used and individually reacted with ethanolamine or diethanolamine. These newly formed compounds were reacted with copper and iron to form metal complexes whose structures will be described.

Location: UC Main

Poster Number: 4

Urban Myths of the Mexican Border: How Urban Myths Rewrite Perceptions of the Borderlands

Kathryn Adamson

Faculty Advisor: Amanda Petersen

Department of Languages & Literatures

The focus of my research is the perceptions of the US-Mexican border and the use of legends to re-appropriate these border perceptions. The border is often seen as a space for theorization, causing it to be viewed as fluid and transient instead of a literal and geographic space. However, border communities have developed local legends or histories that contest this common perception. The overarching commonality of the urban myths is that people living in this border space can transform it into an important place with its own identity and culture. The three legends that I examine are "Juan Soldado," the legend of "Dolores and the River," and the story of "the Devil Dancing in the Club Aloha". Through my analysis of these three urban myths I expose how they rewrite the dominant border narrative in order to establish a literal space with its own culture and identity.

Location: UC Main

Poster Number: 5

Metabolic Intensity in Eared Grebes

Brent Allman

Faculty Advisor: Hugh Ellis

Department of Biology

The Eared Grebe (*Podiceps nigricollis*) is a migratory waterbird. During the course of a year, they have massive shifts in their body composition (organ sizes and fat), especially comparing times on the water with those on migration. During fall staging, which precedes their southward migration, we have identified three phases: Early, Fat, and Late, when there are less dramatic but notable changes in body composition. Body composition is thought by some to drive basal metabolic rate (BMR), but this does not occur in Eared Grebes. If BMR is not set by the size of organs, might it be affected by the organs' metabolic intensity? We are looking at metabolic enzyme activities to answer that question. To collect data, we use citrate synthase (CS) and lactate dehydrogenase (LDH) in specific muscles and visceral organs. The muscles are gastrocnemius (a leg muscle), pectoralis (a breast muscle), and heart. The viscera include gizzard, liver, and kidney. LDH is associated with glycolysis, an anaerobic process to garner energy for the cell and the start of a common metabolic pathway. CS is a rate-limiting enzyme of the Krebs cycle, which is an aerobic process. To measure activity of these enzymes we are running assays of the enzymes on a spectrophotometer.

Location: UC Main

Poster Number: 6

A Study of Food Insecurity among Migrant Farm Workers

Denise Ambriz

Faculty Advisor: Michelle Camacho

Department of Sociology

This research intends to study the relationship between migrant farm workers in the United States and food. Although migrant farm workers are responsible for the production of much of the food we consume, they experience food insecurity. The U.S. Department of Agriculture defines food insecurity as not having access to enough food for an active and healthy life for all household members. Through an analytical review of the literature, the research will examine what factors contribute to this occurrence and the impact it has on migrants and their families. Sustenance is a basic right that no one should be deprived of. We should aim to achieve justice in our food industry not only for consumers, but for laborers as well.

Location: UC Main
Poster Number: 7

Climate Change Effects on the Loggerhead Sea Turtle Population

Brianna Bacich

Faculty Advisor: Paul Kemp
Department of Biology

The average global surface temperature has increased by approximately 0.8°C over the past 100 years and is expected to increase by an additional 2-3°C by the year 2100. Climate change is a major threat to biodiversity and ecosystem health. The increase in temperature is especially important to species such as sea turtles, which have temperature dependent sex determination. Eggs incubated at warmer temperatures develop into females, and cooler temperatures result in males. With the global temperature increasing, the skew in the sea turtle sex-ratio is predicted to result in female biases that could lead to loss of genetic variation, reduced fitness, and the inability to respond to future environmental pressures. This study reviews previous research to develop and present the current understanding of the impacts climate change will have on sea turtle populations, specifically the Atlantic and Mediterranean species, the loggerhead sea turtle.

Location: UC Main
Poster Number: 8

Geospatial Analysis of the Tecolote Creek Watershed

Jennifer Bailey

Faculty Advisor: Ron Kaufmann
Department of Environmental Studies

Pesticides are commonly used in residential and commercial environments across southern California. Some of these pesticides make their way into local streams and the coastal ocean due to irrigation and seasonal rain events. Large quantities of runoff can move toxins and contaminated soils through the water systems of a region. This project focuses on the sources and transport of contamination within the Tecolote Creek watershed in San Diego, California. An extensive watershed map is being created using Geographic Information Systems (GIS) software, which will be used to evaluate different geospatial features of the Tecolote Creek watershed. The purpose is to correlate land use patterns and other watershed features with patterns of sediment contamination and transport throughout the watershed. This analysis will provide a deeper understanding of the relationship between land use and contamination and help in the development of predictions about processes that transport contaminants throughout the Tecolote Creek watershed.

Location: UC Main
Poster Number: 9

Internship in Environmental Law

Jenna Bailey

Faculty Advisor: Gary Gray
Department of Political Science & International Relations

My presentation will be about my experiences working as an intern in Environmental Law. I have worked for the past 7 months for two different attorneys, both in the same field but in very different specific areas. My first internship, which I completed in August, was primarily involved with fascinating historic building preservation, and my current internship involves the protection of Native American tribal lands. Overall, my presentation will encompass the interesting experience I have had in this arena and detail some of the cases I have been able to work with, as well as some general information about the field as a whole.

Location: UC Main
Poster Number: 10

The New I.D.E.A District

Jacquelyn Baines

Faculty Advisor: Whitney Moon
Department of Art, Architecture, & Art History

The 36-block, mixed-use I.D.E.A. District in downtown San Diego's East Village is a new model for planning the city based on the principles of Innovation, Design, Education, and the Arts. The first projects being implemented in the district feel corporate, forced, and don't offer a permanence for the young and artistic innovators the district is trying to attract. By studying the challenges, and benefits of the projects being implemented in the district, I conclude that ideas from all projects could be combined and flexible environments could be created where innovative minds could use their talents to shape the neighborhood. My site, the proposed blocks for the East Village Green park, would instead be a mixed-use park that will be a student and community commons that unites the users of the area. With its central location in the district and proximity to four different schools, it will be a place for creating, studying, learning, relaxing, playing, living, and working.

Location: UC Main
Poster Number: 11

Conflict Minerals

Samantha Baker

Faculty Advisor: Gary Gray
Department of Political Science & International Relations

I will be participating in an internship program with a company called Conflict Minerals, which focuses on certifying that any products coming in the United States has been produced in a way that abides by the U.S.'s standards and regulations. My role within this organization is to monitor the political and social situation of a certain nation, along with understanding their standards and regulations of productions to make sure that they are cohesive with the United State's policies.

Location: UC Main
Poster Number: 12

Interning with Congressman Juan Vargas

Matthew Balich, Amanda Mullins

Faculty Advisor: Gary Gray
Department of Political Science & International Relations

Congressman Vargas' office in the 51st District of California is a wonderful place to intern. Matt and I are always learning new approaches to situations; whether the situations be an issue or simply one of the constituents having a difficult time with a federal matter. In the district office our main goal is to help those within our community. The Congressman does this by voting for or against bills that would help or harm our community. Another large part of the work is case work. As interns, we are the face of the office to our constituents. When they come to the office we are there to assist them and assess the best way to help their needs. We then collaborate with the staff on finding a solution for them. We are always encouraged to attend meetings and community events to enhance our experience.

Location: UC Main
Poster Number: 13

Our Sonic San Diego

Ryan Barney

Faculty Advisor: Daniel Lopez-Perez
Department of Art, Architecture, & Art History

The soundscape and the aural architecture which comprises it is a topic within architectural discourse that has yet to be explored within the context of San Diego. Sound occupies the space between the human body and the built environment and meanwhile facilitates our experience within that environment. The San Diego soundscape currently exists as a horribly polluted sonic space, and the continued abandonment of design that speaks to this space will result in an imperiled social and cultural condition. My goal is to manipulate the current San Diego soundscape through architectural intervention, seeking out new arenas for social interaction and cultural development amongst urban inhabitants and hence new concepts of civic space through a sonic lens. My intervention on the soundscape of San Diego involves a series of geodesic dome designs which act as machines for listening. Manipulating and producing sonic effects on their exterior as well as interior, these domes promise to reinvent the way urban inhabitants experience the sounds of their city and hence the way they behave within a social context. These designs have the capacity to manifest on a variety of scales, ranging from the human body to as large as encompassing an entire city.

Location: UC Main
Poster Number: 14

Saint Kateri Tekakwitha and Native American Healing

Stefani Baron

Faculty Advisor: Michelle Jacob
Department of Ethnic Studies

The purpose of this research is to analyze Native American healing and the stories of Saint Kateri Tekakwitha from a decolonization framework. Historically the colonization of the Native American community has paved way for a great loss of culture. Today, we see the reclamation of what was lost and an effort to prevent continual misrepresentation. This study explores the spiritual healings of Saint Kateri, as reported in first- and second-hand accounts, recalling miracles and stories that speak to the connection between Native American healing and spirituality.

Location: UC Main
Poster Number: 15

Boundaries, Binaries, and Language: An Experiment in Bilingual Fiction Writing

James Bennett

Faculty Advisor: Halina Duraj
Department of English

As the title suggests, this project represents an effort to produce fiction in two languages: English and Spanish. It consists of a collection of original short stories that I have written and translated from English to Spanish or vice versa. These pieces are varied thematically and bisected linguistically. They push against each other with sharp edges and proclaim disunity. But they unite through the transgression of the same lines that divide them: linguistic, textual, international, and those limiting demarcations of readers we call expectations. The various settings will roam from an Argentine metropolis to a hospital in San Diego to a grave in Baja California, all the while exploring the lines that construct our reality, the lines that, every now and then, intersect.

Location: UC Main
Poster Number: 16

Satisfaction with Extracurricular University Activities: An Analysis of Greek Membership and Student Athletes

Samantha Betts

Faculty Advisor: Kristin Moran
Department of Communication Studies

The overall purpose of this study is to compare the media portrayals of Greek life and athletic team participation with USD students' actual experience in these activities. Given the negative stereotypes associated with the representation of Greek Life in the mass media, this project investigates individual's experience with Greek membership. Furthermore, the mass media often portray participation in athletic teams as a valuable activity and this is usually positively represented. Therefore, this project will seek to compare the satisfaction among each of these groups. It is anticipated that the negative stereotypes associated with Greek Life will be contradicted, while the positive association with athletic participation will be confirmed. It is expected that participation in both activities will be positively correlated with high levels of social support, higher self-esteem, happiness, and leadership qualities. A quantitative survey instrument will be distributed to USD students with line items to assess levels of satisfaction in their activities.

Location: UC Main
Poster Number: 17

Innocence on Death Row: How Northwestern University Professors and Students Altered the Politics of the Death Penalty in Illinois

Rachel Black

Faculty Advisor: Colin Fisher
Department of History

On January 31, 2000, Illinois governor George Ryan imposed a statewide moratorium on executions. Three years later, he exercised his clemency powers to empty Illinois' death row. Less known is how professors and students at Northwestern University's schools of law and journalism played a crucial role in pushing Ryan to act. Their grassroots investigative work led to the exonerations of multiple death row inmates, and their activism prompted a reexamination of the death penalty in Illinois. Despite their status as non-elite lawyers, the Northwestern groups altered the rules of the legal and political system in Illinois. This study bridges social and legal history, challenges the dominance of elite lawyers in the historiography of the American legal profession, and uniquely contributes to a ground-level view of legal change. Therefore, this bottom-up narrative provides a more complete picture of death penalty politics and the issue of innocence on death row in Illinois.

Location: UC Main
Poster Number: 18

Development and Optimization of Polymerized Actin Samples for Biopolymer Network Studies

Savanna Blair, Jonathon Collom Valdivia

Faculty Advisor: Rae Anderson
Department of Physics

Actin is a multi-functional protein found in the muscles and cell cytoskeleton of almost all biological organisms. Polymerized actin forms extensive networks that have various structural properties, dynamic properties, and mechanical responses to stress. The goal of my research project was to develop samples of actin networks and to use fluorescence microscopy and optical tweezers to study the material properties of actin networks. Over the summer I debugged and optimized protocols for polymerization and fluorescent labeling of actin. This semester I have successfully used actin network samples to collect data with the dual-function epi- fluorescence optical tweezers. These measurements help to provide insight into the complex behavior exhibited by actin networks.

Location: UC Main
Poster Number: 19

Insights into the Establishment of the Introduced Manila Clam in a Bay at the Southern End of its Introduced Range

Alexander Blanco

Faculty Advisor: Drew Talley
Department of Marine Science

Abundances of the introduced Manila clam (*Venerupis philippinarum*, *Veneridae*) are increasing in Southern California estuaries, likely due to various local sources of planktonic larvae and adults, and spread from established populations farther north. The clam has been present but sparse in Mission Bay since the 1990's, but has recently been observed as common. My project therefore tests the influences on establishment of the clam within this region. During summer 2013, we sampled 8 paired sites; adjacent reaches of tidal flat with and without hard substrate (e.g., rip rap). We measured likely environmental influences (e.g., soil properties, salinity, distance to bay mouth and inflows). Preliminary data show that the Manila clam is associated with hard substrate and fine organic sediments, and is often found in high abundances with fewer native venerid clams. Our results provide insight into the distribution of the clam and environmental influences on its establishment within Mission Bay. These results will aid in the management of the species, such as determining the conditions under which it is likely to establish.

Location: UC Main
Poster Number: 20

Coming Home

Andrew Blascovich

Faculty Advisor: Colin Fisher
Department of History

Historians of every major American war have explored the reentry experience of veterans back into American society. From the Civil War to present day conflicts, scholars and historians explored the mindset of combat veterans throughout their transition of returning home. Historians, however, have yet to focus on the most recent veterans' reentry experience into society after the Iraq War. I will research the impact of the Iraq War on U.S. soldiers, and more specifically, soldiers' transition back into society. Specifically, I look to illustrate the fact that, although their experience is difficult and unique, it is nonetheless similar to that of veterans of other wars. The project focuses on the Iraqi War veterans who have returned to the city of San Diego in an effort to analyze and illustrate the similarity between their experiences of returning home to those endured by their predecessors.

Location: UC Main
Poster Number: 21

The Decline of Bighorn Sheep Populations Due to Disease Transmission Through Contact With Domestic Sheep

Teryn Bouche

Faculty Advisor: Paul Kemp
Department of Biology

Bighorn sheep numbers in the U.S. have declined to less than 25,000 from more than a million in the 19th century. This is a result of many causes, such as unregulated hunting, anthropogenic habitat loss, competition from non-native species and diseases introduced by domestic animals. This paper focuses specifically on the transmission of the bacteria *Pasteurella haemolytica* from domestic sheep to bighorns. This is a literature review of three studies: Foreyt et al. (1994), George et al. (2008), and Gutierrez et al. (2001). These studies demonstrate that, 1) all bighorn sheep appear to have high susceptibility to *P. haemolytica*, 2) contact with a single domestic sheep can cause dramatic declines in bighorn sheep populations, and 3) high susceptibility is not due to decreased genetic variability in immunity. I conclude that a high priority in conservation of bighorn sheep populations is to prevent any contact with domestic sheep and goats.

Location: UC Main
Poster Number: 22

Party Crashers: The Millennial Generation, their Political Party Affiliations, and What it May Mean for the Future

Kevin Brady

Faculty Advisor: Casey Dominguez
Department of Political Science & International Relations

The political process at the national level is paralyzed by the current hyper-partisanship between the Republican and Democratic parties. As a result major political issues are being left unaddressed and unresolved. The Millennial generation is now poised to fully enter the political world, and the political affiliations and beliefs which it develops now will have repercussions on the nation's future direction. Numerous studies have investigated the factors that determine political party affiliation and what determinates create strong or weak party affiliations. These studies can help explain the current political mindset of the Millennial generation, while data from recent polls and surveys can be used to verify the validity and strength of the studies. It is also possible to compare these studies with the current survey data on the ideologies of both the Millennial generation and the preceding generations in order to predict how the party landscape and the political process may be shaped in the future.

Location: UC Main
Poster Number: 23

Central Bank Independence in the 21st Century and Economic Performance

Oliver Brantley

Faculty Advisor: Steven Sumner
School of Business Administration, Economics

The level of central bank independence varies markedly around the world, which is an ongoing, relevant, and politicized topic today. Bank independence, theoretically, allows bankers to implement monetary policy without undue influence from political actors. The trend of increasingly independent central banks in developed countries came after studies in the 1980's and -90's that have shown that high degrees of independence are negatively correlated with interest rates, but those same studies are ambiguous in identifying the impact that independence has on overall economic performance. My study builds on previous research by providing an updated overview of central bank independence in the 21st century and attempts to identify its correlation with the economic performance of different countries in an increasingly interconnected global economy.

Location: UC Main
Poster Number: 24

The Hidden History of Petco Park- The Politics Behind the Development of the San Diego Padres' Ballpark

Nicklos Bristol

Faculty Advisor: Colin Fisher
Department of History

Petco Park, the home of the San Diego Padres, has become an iconic landmark in downtown and has been viewed as a catalyst for the economic revitalization of the East Village. By developing the area around the stadium, the City of San Diego and the Padres made the park a focal point of the redevelopment of the downtown area, especially the Gaslamp Quarter. By using architectural features that tie into the surrounding landscape, the park creates a nostalgic feeling of a mid-century American downtown. While the stadium may look and feel as though it has been a part of the San Diego landscape for development, ballparks like Camden Yards acted as models to show how baseball stadiums foster the redevelopment of an area. Although visitors often do not know the stadiums' hidden history, it features all the drama and contentious moments that any baseball game could ever want.

Location: UC Main
Poster Number: 25

Analysis of Pools San Diego

Meghan Bucter

Faculty Advisor: Daniel Lopez-Perez
Department of Art, Architecture, & Art History

I am researching the need for and uses & types of swimming pools in an urban setting.

Location: UC Main
Poster Number: 26

Transit Oriented Development

Audrey Bullwinkel

Faculty Advisor: Daniel Lopez-Perez
Department of Art, Architecture, & Art History

San Diego developed during the era of the car, which made sprawl easy. That sprawl has defined many of our transportation options across the city and county, making public transportation limited. My project aims to revive public transportation in San Diego to mitigate the environmental impacts of metropolitan development. Public Transportation will be revived through Transit Oriented Development. TOD's feature mixed-use zoning that allows for multifamily housing structures with bottom-floor retail. TOD mixed-use projects will be located along transit corridors to constitute flow within a variety of nearby destinations to produce fewer vehicle trips and more trips made by foot, bicycle, or public transit. TOD's present an affordable lifestyle and address important regional concerns such as housing availability, mobility, protection of the environment and public health. My project will be to connect transit with everyday amenities to orientate public transportation towards the built environment.

Location: UC Main
Poster Number: 27

Decoding Future Generations

Jacqueline Burks

Faculty Advisor: Aarti Ivanic
School of Business Administration, Marketing

"Millennials, First Digitals, Generations Y, Me, and Peter Pan. Many have tried to label future generations but, in the end, we still aren't sure who they are and what they want". With the abundance of technology and a constantly shrinking world, these future generations are unlike any that have come before them and their shift of values has led to a new dynamic within the field of marketing research. Raised to believe they can accomplish anything they set their minds to, the "Trophy Generations" have been stunted by a broken economy, leaving them unpredictable and longing for the extraordinary and the unforeseen. This thesis examines how these future generations can be characterized as well as what inspires and motivates them. It delves into how we, as researchers, should understand them and what methods should be used to best understand their behavior while acknowledging their differences from previous generations.

Location: UC Main
Poster Number: 28

The Thirty-Seven Words that Changed Everything

Melissa Bushnell

Faculty Advisor: Colin Fisher
Department of History

These are some of the words of Title IX, a section of the Education Amendments signed into law by President Richard Nixon on June 23, 1972. Although the “Founding Fathers and Mothers” of Title IX sought to level the playing field for women in academia, none of those thirty-seven words speaks of “athletics” or “sports.” These, though, are the words that have come to be associated most closely with Title IX. There is sizeable literature dedicated to the history of women’s athletics at specific colleges and universities nationwide, but there are substantially fewer items devoted to how these institutions responded to Title IX. Without such an understanding, we are left with an inadequate analysis of the evolution of women’s collegiate athletics. My research will reveal that the University of San Diego made a calculated response to the regulations of Title IX, which has permitted the current opportunities for women at this respected university.

Location: UC Main
Poster Number: 29

Comparative Analysis of Global and Glocal Marketing Campaigns

Michelle Campbell

Faculty Advisor: Kristin Moran
Department of Communication Studies

This research is a meta-review of the literature to identify the globalization process as influenced by global marketing campaigns. The meta-review focuses on two global companies: McDonald’s and The Coca-Cola Company to contextualize the impact of globalization and glocalization. The study identifies the impact of globalization through the Modernization Theory, the Cultural Imperialism Theory, and Hybridization Theory, offering a holistic understanding of the consequences of glocal and global marketing campaigns and the pervasive nature of globalization. Interviews will be conducted with young adults from the United States and New Zealand. A comparative analysis will be done between interviewees from the United States and New Zealand to better understand the way in which global and glocal campaigns are understood to gain knowledge as to whether global or glocal marketing campaigns are more useful into today’s global market.

Location: UC Main
Poster Number: 30

The Effects of Cell Phone Conversations on the Attention and Memory of Bystanders

Christina Carner, Corey Salas, Bobby Albright, Michael Kartiko, Rachel Putrus, Kristen Daus

Faculty Advisor: Veronica Galvan
Department of Psychological Sciences

Distractions bombard our every day lives, especially loud cellphone conversations. Cognitive tasks can be affected by these kinds of “irrelevant speech” overheard by the participant. In particular, research shows that a one-sided cellphone conversation is more distracting because the participant is trying to make the conversation understandable. In this realistic design, participants were given an attention task, which was to proofread an article, while either a one-sided cellphone conversation or a two-sided conversation was taking place next to them. We wanted to see which conversation type would be more distracting during the proofreading task. Later, the participant was asked to identify words from the conversation, along with their confidence levels for each word. Participants showed no difference in their performance on the attention task, however, the participants that overheard the one-sided conversation performed better on the recognition task. These results show that people are more attentive to cell phone conversations.

Location: UC Main
Poster Number: 31

Argentina & Uruguay: A Case for the Lavender Tide in the Río de Plata Region

Evan Centala

Faculty Advisor: Amanda Petersen
Department of Languages & Literatures

Recognizing same-sex marriage among other LGBT rights, Argentina and Uruguay have become some of the most progressive countries in Latin American and the world. Through a political and historical perspective, this investigation examines how these two countries that constitute the Río de Plata region have developed a robust series of LGBT legislation. Stemming from the dictatorships of the 1970s and 1980s, these oppressive regimes created severe human rights crises that gave rise to popular demand for protection of greater and more extensive civil rights championed by leftist governments, a movement known as the Pink Tide. This analysis focuses on the Lavender Tide: the process in which LGBT rights became incorporated into the greater demand for human rights and strengthened democracies by the left in the region; and how Argentina and Uruguay may serve as a comparable model for Latin American countries undergoing the same processes with similar conditions.

Location: UC Main
Poster Number: 32

Analysis of Cacao and Pepper Compounds in May Collection Mugs

Paula Marie Cepeda

Faculty Advisor: David De Haan
Department of Chemistry & Biochemistry

Cacao was only grown in Central America but had found its way to the Four Corners region of the United States in 1300 A.D., indicating the extend of trade at that time. The presence of theobromine, theophylline, and caffeine—three main compounds found in cacao—as well as capsaicin and dihydrocapsaicin—two main compounds found in peppers—was analyzed in different mugs obtained from the May American Indian Collection. These mugs were thought to once have held a mixture of brewed cacao and chile peppers—a popular drink concoction of the time. Analysis was carried out using liquid chromatography and mass spectrometry. Extracted samples of these mugs were separated using liquid chromatography. The presence of these compounds was confirmed using mass spectrometry. Half of the mugs analyzed contained all three compounds found in cacao. Further analysis is being done to determine the presence of capsaicin and dihydrocapsaicin in these mugs.

Location: UC Main
Poster Number: 33

Adsorption of Energy-Relevant Gases by Nanoporous ZIF-8 Films

Andrew Cerro

Faculty Advisor: Lauren Benz
Department of Chemistry & Biochemistry

The adsorption of energy-relevant gases including carbon dioxide, water, and methanol by thin nanoporous zeolitic imidizolate framework (ZIF-8) films has been studied using a combination of X-ray photoelectron spectroscopy and temperature programmed reaction spectroscopy. Differences in the amount of gas adsorbed, how the gases interact and bind with the surface of the ZIF, and how much energy is needed to release the absorbed gas are determined by examining the interaction of these gases with supported nanoparticle films. For example, we demonstrate how the hydrophobic nature of the films prevents water from adsorbing within the pore structure under low pressure/temperature conditions, while carbon dioxide is readily adsorbed. These results highlight the role that surface science techniques can play in uncovering properties of complex porous materials.

Location: UC Main
Poster Number: 34

College Coaching Legends

Theresa Chadwick

Faculty Advisor: Ani Velo
Department of Mathematics

Who is the best collegiate coach of all time? Not just from one sport, but out of every sport ever played. One can pick their personal favorite, but this project attempts to find an objective method that mathematically analyzes different qualities of coaches and returns an overall rating from 1 to 10 for each coach. We determined that we would focus on the following three measurable qualities -percentage of games won, NCAA titles won, and length of time as a college coach. We modeled each of these factors into separate graphs that appropriately fit the type of data and provide a probability distribution for each quality. Alone, these graphs would rank a coach for each factor separately. However, to make a single function to rank a coach, we used transformation and multivariate regressions to combine all these factors and developed an algorithm to give a coach their ultimate score.

Location: UC Main
Poster Number: 35

Grants & Development at Big Brothers Big Sisters of San Diego County

Milvi Chao

Faculty Advisor: Gary Gray
Department of Political Science & International Relations

Big Brothers Big Sisters of San Diego County matches children with adult mentors that can provide emotional support, life advice, and educational guidance for those that normally have no one to turn to. As a Grants & Development Intern, Milvi Chao works with the development team to secure funding for programmatic expenses by researching and analyzing funding opportunities, making recommendations, devising donor-related marketing strategies, and composing Letters of Inquiries and full grant proposals.

Location: UC Main
Poster Number: 36

Channeling the Sun: A Cross-Cultural Analysis of Solar Energy Policy in California, Germany and India

Alli Chlapaty

Faculty Advisor: Ron Kaufmann
Department of Environmental Studies

The governments of the world today face an energy dilemma: how can a country meet its energy needs when traditional fossil fuels are being depleted and climate change driven by fossil fuel emissions is a growing problem? The United States Energy Information Administration predicts that, by 2040, renewable energy will experience more growth than any other energy source. Within the renewable sector, solar has grown faster than any other energy technology and is predicted to continue this growth in the future. This project examines solar energy policies of three political units: California and Germany, representing the developed world, and India representing the developing world. Are these policies effective? Can policies implemented in the developed world be applied or adapted to a developing nation? This project describes key elements and examines the effectiveness of each policy, finally assessing the transferability and feasibility of these policies in different areas of the world.

Location: UC Main
Poster Number: 37

Homeless Analysis of Downtown San Diego

Solene Clavel

Faculty Advisor: Daniel Lopez-Perez
Department of Art, Architecture, & Art History

America's Finest City is known for its good weather and nice beaches but people tend to ignore one huge aspect of San Diego. In 2012, it ranked as the nation's third highest in homeless population and has also had the third highest increase in homeless population since 2009. From the programmatic mapping I have done for downtown SD, I have found a lack of short-term shelters and healthcare systems for the homeless. With the CCDC's Five-year Plan, a lot of effort has gone and will go into creating a well-integrated environment where the homeless population can find permanent supportive housing. While this is extremely important for long-term living, the process of getting off the streets is extremely tough, and it is only through the implementation of more emergency and short-term living situations accompanied by supportive healthcare that homeless people can have the opportunity to move into a permanent living situation.

Location: UC Main
Poster Number: 38

Off Grid Water Purification

Michael Cohn, Henry Esser, George Lockbaum, Luke Scherer-Mueller, Paulina Yoo

Faculty Advisor: David Malicky
Shiley-Marcos School of Engineering, Mechanical Engineering

Over 240 million people each year fall victim to a natural disaster and struggle to obtain clean drinking water. Access to drinking water is imperative to surviving a natural disaster. Creating a source of purified water is especially difficult in a natural disaster because of the collapse of the power and water infrastructure of the affected civilization. A reverse osmosis (RO) filtration system will be the primary solution to purifying water. The RO will be supported by multiple pre-filters, a UV-C sanitation module, and a carbon filter. The pressure required for the RO to operate will be provided by a solar powered electric pump or a human powered treadle pump. The entire system will be packaged into a single, portable unit. The integrated system will provide a reliable source for clean drinking water for survivors of a natural disaster.

Location: UC Main
Poster Number: 39

An Economic Evaluation of Banking Regulations in Light of the Financial Crisis

Stephanie Collins

Faculty Advisor: Steven Sumner
School of Business Administration, Economics

The financial crisis of 2007-2009 has been widely viewed as the worst financial crisis since the Great Depression of 1929-1933. In response to the most recent crisis, The Dodd-Frank Wall Street Reform and Consumer Protection Act, known as "Dodd-Frank," was enacted with aims to prevent another significant financial crisis by creating new financial regulatory processes that enforce transparency and accountability, while implementing rules for consumer protection. Due to banks' influence on economic growth, it is important to examine the type and impact of bank regulatory and supervisory policies. This project will offer an overview of the banking crisis of 2007- 2009 and the regulatory agencies in the United States. This project will also provide an analysis of bankers and regulators in the United States, as well as an overview and critical economic evaluation of Dodd-Frank. Finally, the cost of regulation and its impact on the financial services industry will be evaluated.

Location: UC Main
Poster Number: 40

Nonverbal Behavior in Initial Interaction Among Cross-Sex Partners

Benjamin Compton

Faculty Advisor: Jonathan Bowman
Department of Communication Studies

This study looks at the perceptions of third-party viewers of nonverbal greetings between cross-sex partners. Participants will complete questions about their attitudes toward homosexuality. Participants will then view a one of four videos that either show a greeting interaction between three women or two women and one man. The videos will have varying levels of intimate greetings, such as a handshake or intimate hug. After viewing these interactions, participants will then be asked about their perceptions of the viewed greeting. Next the participants will be asked to recall specific information from the video they just viewed. Finally, participants will fill out a gender identity scale that determines the gender identity of the participant.

Location: UC Main
Poster Number: 41

Vietnam War Veterans and Heroin Use

Kelsey Cunningham

Faculty Advisor: Kathryn Statler
Department of History

The project I am currently researching is about the assimilation of heroin-addicted Vietnam veterans back into the American society. First it will evaluate the causes of the heroin use, how it is manufactured and how it was readily available to the soldiers. It will look at how the VA (Veteran Affairs) was not capable of handling the number of addicts who came back from Vietnam. These soldiers fell through the cracks and continue to suffer from their addictions even today. While many of them were able to have treatments and become clean, there are still those who did not. Their families live with their addiction and all the related consequences, both emotional and physical. The project is intended to explore how the heroin addiction of veterans can be addressed and treated.

Location: UC Main
Poster Number: 42

Characterization of Sodium Ion Transport in the Blackskirt Tetra (*gymnocrhynchus ternetzi*)

Nicholas Day

Faculty Advisor: Marjorie Patrick
Department of Biology

The blackskirt tetra, (*gymnocrhynchus ternetzi*) is a native fish species of the Rio Negro, a tributary of the Amazon River, which is poor in ions and very acidic (pH<5). This species possesses active ion uptake mechanisms that prevent a net loss of ions from their blood to the water due to the large outward diffusional gradient. Confocal microscopy/immunolocalization confirms the presence of epithelial sodium channels (eNaC) and sodium/potassium ATPase transporters (NAK) in the blackskirt tetra gill and that their location shifts to a more protected region of the gill when fish are exposed to low pH water. Additional evidence indicates that expression levels and functioning of eNaC/NAK in sodium uptake remains high under these acidic conditions. This suggests that this novel coupling of eNaC and NAK is responsible for maintaining high rates of Na⁺ uptake of blackskirts exposed to acidic environments.

Location: UC Main
Poster Number: 43

Does Having a Free Press Mitigate Political Corruption?

Jordan Denecour

Faculty Advisor: Casey Dominguez
Department of Political Science & International Relations

In this article I suggest that there is a negative relationship between a country's level of freedom of press and a country's level of political corruption. This is because having a free press allows for strong investigative journalism that works to uncover corruption, a free press also informs the public about instances of corruption, allowing them to work to minimize corruption in the future by removing corrupt officials. If a strong negative correlation is found between freedom of press and corruption, it may be that other explanations may not have as much influence on corruption as once thought. Thus, it may be better to use the measure of a country's freedom of press in order to predict its level of corruption.

Location: UC Main
Poster Number: 44

Chicago Defender in Vietnam

Zachary Devaney

Faculty Advisor: Colin Fisher
Department of History
History thesis

Location: UC Main
Poster Number: 45

On Social Media, Subjectivity and Kanye West

Nicholas Dilonardo

Faculty Advisor: Atreyee Phukan
Department of English

My project is an investigation into the role and effects of social media in our present, post-post modern economic, artistic and social moment, focusing predominantly on Facebook, Instagram and Twitter. I attempt to negotiate the varying ways in which our interaction with these platforms of communication is reshaping the dominant patriarchal capitalist paradigm, as well as leading to an increased sense of self, or subjectivity. Further, I focus on the policing aspects of social media, and how hegemonic ideology is expressed and reproduced through social media, especially relative to the performed or public self. My work also takes an interest in the post-post modern subjectivity of artists like Kanye West, who create art and operate in a landscape in which criticism and audience expectation are heightened to a level never before known, by virtue of art and media's ability to be radically distributed across the globe with near immediacy.

Location: UC Main
Poster Number: 46

The Politics of Visual Arts: the Spanish Civil War and the Paris EXPO of 1937

Caitlin Doherty

Faculty Advisor: Rebecca Ingram
Department of Languages & Literatures

When Nationalists began their siege of the democratically-elected Republican Spanish government in 1936, anti-fascist world powers Great Britain and France were already too overwhelmed by their own ideological confrontation with Germany and Italy to be bothered by the violence on the Iberian Peninsula. Without a strong foreign ally, the Spanish Republic sought to garner international support by displaying the violence of the Spanish Civil War in their pavilion at the Paris EXPO of 1937. This project analyzes how the design of the Spanish Pavilion and the works displayed in it were specifically selected to convey to the international audience a decidedly anti-fascist message. The works *El pueblo español tiene un camino que conduce a una estrella*, *La Montserrat*, *El Segador*, and *Guernica* use leftist themes and symbols including Spanish nationalism, the peasant resistance, and the resultant trauma of the war to develop an exhibit which would encourage international sympathy.

Location: UC Main
Poster Number: 47

Smart Power Factor Corrector

Darrel Dotterer, Vinicius Pereira Pio, Manuel Salazar Paramo, Luke Nicol

Faculty Advisor: Kathleen Kramer
Shiley-Marcos School of Engineering, Electrical Engineering

The Smart Power Factor Corrector device will help promote cleaner energy by eliminating reactive power in household appliances. As the world moves towards a “greener” future, devices that optimize energy transfer will become more prevalent. Our device will constantly correct the power factor of household loads so that the current being drawn by the system will be minimized. This device will also be able to be used on a wide range of appliances.

Location: UC Main
Poster Number: 48

Simulations of the Microcirculation in the Human Conjunctiva

William Dow

Faculty Advisor: Frank Jacobtiz
Shiley-Marcos School of Engineering, Mechanical Engineering

The microcirculation includes the smallest arterioles, capillaries, and venules with vessel diameters ranging from 8 to 150 μm , and it represents a region where active and passive exchanges of nutrients and metabolites take place. Epidemiologists study the microcirculation in detail and have identified associations between microvascular disorder and organ damage. It has been hypothesized that, by the time the most common symptoms of hypertension and diabetes are recognized and accurate diagnosis can be made, permanent damage has been done to blood systems. Analysis of the conjunctiva microvasculature based on observation and limited quantitative analysis has proven to be successful in identifying the changes associated with diabetes, hypertension, sickle cell anemia, and other vascular related disorders. In our study, a simulation approach that includes measured morphometric data, projected mechanical properties and dynamic information is used to model the conjunctiva vasculature allowing the theoretical prediction of disease states.

Location: UC Main
Poster Number: 49

Public Choice and Voting Behavior

Dana Dowse

Faculty Advisor: Alyson Ma
School of Business Administration, Economics

The concept of “public choice” combines the fields of economics and politics. I will research the influence of public choice on voting behavior and its implications on government growth.

Location: UC Main
Poster Number: 50

Carbon- Nitrogen and Carbon-Carbon Bond Formation from Aryl Boronate Esters

Alexi Duenas

Faculty Advisor: Timothy Clark
Department of Chemistry & Biochemistry

C-H borylation reactions have important chemical, biological, and pharmaceutical applications. Members of the Clark research group have optimized the iridium-catalyzed borylation of benzylic amines in which the Bpin bonds to the sterically disfavored ortho position. While exploring the functionalization of these borylated products, specifically an amination reaction (conversion of the C-B bond to a C-N bond), a competing homocoupled product was discovered. This homocoupled product outcompetes the amination with alkyl groups but not with aryl groups. This poster will detail the synthesis of a variety of these homocoupled products in good yield while also examining the effects of electronics in the competition between homocoupled and amination products.

Location: UC Main
Poster Number: 51

Problems of the Perfect Student: Is Perfectionism Related to Anxiety and Depression Inability to Receive Help

Leeza Earl

Faculty Advisor: Mary Brinson
Department of Communication Studies

Anxiety and Depression in university students is a growing problem in the United States. Colleges and Universities can benefit from a better understanding from the causing of anxiety and the variables related to whether or not they choose to seek help. The current study investigates the previous variables through a cross sectional online self-completion questionnaire. The sample consisted of University of San Diego undergraduate student.

Location: UC Main
Poster Number: 52

Parking +

Gary Esposito

Faculty Advisor: Daniel Lopez-Perez
Department of Art, Architecture, & Art History

This project examines the ability for recycled parking structures to facilitate architectural growth and development. The architecture discipline has reduced parking to a purely economic device, divorcing parking from creative exploration. This project aims to reconnect parking with urban program by using existing parking structures as sites for intervention. Using the Civic Center Parkade in downtown San Diego as a case study, my project looks to reinvigorate San Diego's city core by re-imagining these forgotten spaces as sites for reinvigorated social and cultural interaction.

Location: UC Main
Poster Number: 53

Sodium and Ammonia Transport Mechanisms Active in *Aedes aegypti* Larvae

Kimberly Fazio, Jason Wang

Faculty Advisor: Marjorie Patrick
Department of Biology

Osmoregulation in a hypotonic environment is a challenge faced by all freshwater organisms. Most freshwater organisms can only tolerate a narrow ion concentration range, but the larvae of *Aedes aegypti* mosquitoes can acclimate to a broad spectrum of diffusional gradients. This is accomplished by the active uptake of sodium from the environment via a variety of transport proteins and channels on the anal papillae (main site of ion transport) of mosquitoes. Through a series of experimental manipulations of water sodium levels and employing pharmacological inhibitors of known ion transporters, we identified candidate transporters involved in sodium uptake and also determined that ammonia excretion is coupled to this sodium transport system. The main focus of this research is to determine the connection between ammonia excretion and sodium uptake.

Location: UC Main
Poster Number: 54

The Univalence Axiom

Andres Fernandez

Faculty Advisor: Michael Shulman
Department of Mathematics

HoTT (Homotopy Type Theory) is a new system for the foundations of mathematics that provides an efficient way to describe some of the ideas in modern mathematical areas such as Category Theory or Algebraic Topology. In addition, HoTT can be formally verified by a computer. The most essential characteristic of HoTT is the inclusion of the Univalence Axiom, which expresses that two equivalent mathematical objects can be identified. Despite being commonly used in mathematics, the concept of univalence is not explicitly stated in other foundations such as type theory or set theory. Nonetheless, the Univalence Axiom is a simple and powerful proposition that has many far-reaching consequences. Essentially, this poster will explain the idea of univalence, including some applications and major research directions.

Location: UC Main
Poster Number: 55

Conversation Effects on Attention

Jessica Flores-Vazquez, Valerie Mendez, Katelyn Quan, Jessica Terrell, Audrey Olchondra

Faculty Advisor: Veronica Galvan
Department of Psychological Sciences

Cell phones are a vital part of our daily lives, but does their use in pose any problems? Galvan, Vessal, and Golley (2013) studied the effects of cell phone conversation on attention of a bystander, by measuring their performance on an anagram task. Results showed no difference in performance between one-sided and two-sided conversations. In our current study, we chose to measure attention using a more demanding task, so we used a portion of the Scholastic Aptitude Test (SAT). Participants were led to believe we were interested in the relationship between performance on the SAT task and ability to comprehend a short story. In the middle of the study the researcher left the room, and confederate(s) carried out a conversation. Participants were then asked to complete a recognition task followed by a debriefing of purpose. We expect to find that one-sided conversations are more distracting than two-sided conversations.

Location: UC Main
Poster Number: 56

Borderlines and Prostitution

Estephany Franco

Faculty Advisor: Amanda Petersen
Department of Languages & Literatures

The US-Mexico border has been characterized by social and political constructs that define it as a violent space. Among some of the most severe problems that lead to these representations of the border is prostitution. Prostitution in Mexico results from various factors revolving around economic instability and dangerous situations. The purpose of this research is to determine what, specifically, drives Mexican women living in border cities into the sex-labor industry and to examine some of representations in border cultural production. After differentiating sex trafficking from prostitution as a “choice” or as a form of women’s agency, the use of examples from literature will mark the endless cycle that prostitution represents. Specific literary references from authors such as Rosina Conde and Santiago Vaquera-Vásquez will show that prostitution is a male-controlled environment that women have a difficult time exiting. Ultimately, possible solutions to end prostitution will be presented.

Location: UC Main
Poster Number: 57

The Sublime Paradox: Complementary Paradigms of Hinduism and British Romanticism

Amelia Gentile

Faculty Advisor: Atreyee Phukan
Department of English

“Whereas the beautiful is limited, the sublime is limitless, so that the mind... attempting to imagine what it cannot, has pain in the failure but pleasure in the contemplating immensity of the attempt.” Kant separates the experience of the beautiful from the closely linked experience of the sublime. Beauty is identifiable within limited boundaries, while the distinctive characteristic of the sublime is its ascendancy over any such restrictions. How is the sublime discussed in theory, poetry, or prose if its most engaging characteristic is the inherent transcendence of linguistic limitations? Countless British romanticists, notably Burke, Coleridge, and Blake, attempted to engage the inexplicable by using the literary technique of the paradox. Additionally, another complementary lens through which to apprehend the elusive sublime, Hinduism, stems from a worldview founded in mystic experiences and mentality transcendent of language. My research utilizes this interdisciplinary platform, analyzing paradoxes of the sublime in British Romanticism and Hinduism.

Location: UC Main
Poster Number: 58

The Impact of Kateri Tekakwitha’s Canonization on Relations Between Tribal Communities and the Catholic Church

Olivia Glazner, Jillian Grant

Faculty Advisor: Michelle Jacob
Department of Ethnic Studies

In 2012, the canonization of Blessed Kateri Tekakwitha marked a significant change in the dynamic history between indigenous tribal communities and the Catholic Church. According to some, Kateri embodies a faithful, hardworking and admirable example to the tribal community whose canonization represents a positive step forward in the complicated relationship between the colonizing Catholic Church and the colonized indigenous communities. To others, Kateri and her stories are reminders of colonialism and religious oppression imposed upon tribal communities by the Church. Through exploration of firsthand sources from both the church and the native peoples as well as representations of Kateri as a saint throughout the church, we will present a spectrum of opposing opinions held by various individuals on the

topic. Ultimately we conclude that although her canonization remains controversial, Kateri incontestably serves as a representation of the otherwise ignored population of tribal peoples within the Catholic Church.

Location: UC Main

Poster Number: 59

Analyzing Conch Middens as Biodiversity Hotspots and Viable Fish Habitats in South Caicos, Turks and Caicos Islands

Taylor Goelz

Faculty Advisor: Ron Kaufmann

Department of Environmental Studies

With the decline of the two largest fisheries, queen conch and spiny lobster, in the Turks and Caicos Islands, my research looked at how the remains of the queen conch fishery, in the form of conch middens (piles of disused, discarded shells), could help the establishment of a new finfish fishery in TCI. The middens were examined to discover if key commercial and biological species utilized them as habitat, thus measuring if conch middens could serve as viable artificial habitats. We also examined the species and their respective densities in the conch middens to determine what the biodiversity levels were based on placement within the surrounding habitat. Both the analysis of fisheries potential and the levels of biodiversity have implications for future management in the waters of TCI and the Caribbean as a whole.

Location: UC Main

Poster Number: 60

Effects of Crowding on DNA Self-Diffusion Using Single Molecule Methods

Stephanie Gorczyca, Cole Chapman

Faculty Advisor: Rae Anderson

Department of Physics

Biological cells, which contain a very high concentration of a variety of molecules including DNA, RNA and proteins, are a perfect example of a crowded environment. Thus understanding how biological molecules move in crowded environments has important biological implications. Using fluorescence microscopy and single molecule tracking, we examine the effects of crowding on the diffusion (D) of large, double-stranded DNA molecules. To determine D, we track the mean squared displacement of single fluorescent-labeled DNA molecules embedded in solutions of dextran, a common crowding agent similar to small proteins. We determine the dependence of DNA diffusion on factors such as the level of crowding (volume fraction of dextran), molecular weight of the crowding agent, and DNA length. By examining DNA diffusion over a broad parameter space we hope to illuminate the underlying mechanisms responsible for the complex molecular behavior observed in biological cells.

Location: UC Main

Poster Number: 61

Tourism Town: Pacific Beach, California

Justin Graeber

Faculty Advisor: Collin Fisher

Department of History

My project aims to show that the tourist town of Pacific Beach that we know today hasn't always been that way. I will examine the early history of the town and its struggles to find a landmark economy until it eventually landed on tourism.

Location: UC Main
Poster Number: 62

The Effects of Educational Passages on Attitudes Towards Male Victims of Rape

Sarah Gragg

Faculty Advisor: Anne Koenig
Department of Psychological Sciences

The purpose of this study was to determine the effects of educational passages on individual attitudes towards male victims of rape. Undergraduate participants (41 males, 99 females) read 3 male rape vignettes, read either one of two educational passages or no educational passage, and answered a series of questionnaires to gauge their rape victim empathy (RES), belief in male rape myths (MRMS), attitudes towards men (ATMI), and attitudes towards homosexual men (ATGMI). The educational passages presented facts about male rape either by listing the statistics or in a style which presented a myth first and then refuted that myth with the same statistics. I predicted that reading educational passages, especially the refutational message, will create more positive attitudes towards male victims than the control condition. However, I found that this was only true for participants with initial negative beliefs, suggesting that audience matters when discussing male rape.

Location: UC Main
Poster Number: 63

Children's Television and Educational Initiatives

Megan Gray

Faculty Advisor: Mary Brinson
Department of Communication Studies

The role of education for children has always been significant in determining later success in life. Programs like First 5 California and legal initiatives like the Children Television Act of 1990 have taken advantage of media as an outlet in which to educate children before they begin schooling. Through my research, I would like to look at the change in the quality of education through educational programs for children under 5 years old. I will be doing a Quantitative Content Analysis of various children's television shows broadcast on U.S. Broadcast networks.

Location: UC Main
Poster Number: 64

Formation of Vinyl Boronate Esters through the Acid-Catalyzed Elimination of Tertiary hydroxy Boronate Esters

Weiye Guan, Alicia Michael, Liza Koren-Selfridge, Melissa McIntosh

Faculty Advisor: Clark Timothy
Department of Chemistry & Biochemistry

Branched di-substituted and tri-substituted vinyl boronate esters are important precursors to numerous pharmaceuticals and natural products. The copper-catalyzed diboration of ketones followed by acid-catalyzed elimination leads to the formation of 1,1-disubstituted and tri-substituted vinyl boronate esters with moderate to good yields and good selectivity. Copper-catalyzed diboration of ketones is mediated by 3 mol% copper catalyst, 5 mol% base (NaOt-Bu), and a diboron reagent. Addition of tosic acid to the crude diboration product provides vinyl boronate esters. The solvent used in the elimination step was found to have a substantial effect on the yield and selectivity of alkene formation. The synthesized tri-substituted vinyl boronate esters are determined as the (Z) olefin isomer by subjecting the products to a Suzuki-Miyaura coupling reaction to obtain alkenes of known geometry. Suzuki-Miyaura coupling of these vinyl boronate esters also provides good yield.

Location: UC Main
Poster Number: 65

Understanding the Museum Visitor: Reuben H. Fleet Science Center

Sara Ha

Faculty Advisor: Aarti Ivanic
School of Business Administration, Marketing

In an effort to help increase revenue for the Reuben H. Fleet Science Center, the motivations of the museum's visitors will be examined in this marketing research project. Understanding visitors' motivations will allow the Center to market more effectively to both new and current visitors. For this project, interviews will be conducted, surveys will be distributed, and survey responses will be analyzed in order to make recommendations to the museum on how to more effectively target the desired markets to increase its revenues.

Location: UC Main
Poster Number: 66

When Industry Meets Urbanity

Spencer Handly

Faculty Advisor: Whitney Moon
Department of Art, Architecture, & Art History

What happened to small-scale industrial production and the provision of public space in urban environments? This project seeks to exemplify how downtown San Diego might begin to serve as a model for urban development that promotes local industry through small-scale craft culture and incorporates public social space that is often ignored by city planners.

Location: UC Main
Poster Number: 67

The Lack of African American Coaches

Virgil Hart

Faculty Advisor: Michelle Camacho
Department of Sociology

I investigate the lack of African American head coaches in Division 1A football within the context of college football athletes being primarily African American. I begin this paper by diving into the history of African Americans in college football and hypothesizing what might be the problem that faces an inspiring African American head coach. I use a pool of data from the 2009-2010 NCAA ethnicity and race reports to demonstrate the demographics of African American student athlete and African American coaches. I also utilize outside sources that examine the social problem of the lack of African American coaches. I found that, among the 124 Division 1-A college football teams, only 15 teams had an African American coach at one time in the year 2012. Its not just the head coach position that is under represented but all coaches in football. Out of 1,018 college coaches, only 312 are African American and only 31 of 255 of coordinators both offense and defense are African American. Even though African American male athletes dominate college football, the coaching ranks are still under what some might consider Jim Crow –era hiring policies for coaching. Future investigation should take a closer look at the hiring process of coaches and who gets the final say as to who gets hired as a coach.

Location: UC Main
Poster Number: 68

America's New Frontier - The Economic Impact of Shale Gas Development in Williston, North Dakota

Caroline Healey

Faculty Advisor: Alyson Ma
School of Business Administration, Economics

Today, the United States is the largest oil consumer in the world. In recent years, US domestic oil production has increased significantly due to shale gas development and, consequently, dependence on foreign oil has diminished. The purpose of this project is to analyze the economic impact of shale gas development in Williston, North Dakota. Property values will be used to quantify the net effects of shale gas development in an American town that has experienced a "boom" thanks to technological advancements in drilling technology.

Location: UC Main
Poster Number: 69

NMR Structural and Stability Studies of DNA Hairpin T4 Loops Containing the Thymine Analog Difluorotoluene

Walter Henderson, Serinna Singh

Faculty Advisor: Tammy Dwyer
Department of Chemistry & Biochemistry

The solution structures of DNA duplexes containing a single nucleobase analog or a single non-natural base pair have been reported and show that the B form helix is only moderately and locally disrupted. In particular, the thymine analog difluorotoluene (F) forms stable pairs with both adenine and guanine, fully intercalating in the helix and stacking fairly well with neighboring bases in the duplex. We report here preliminary results of NMR studies on three DNA hairpin sequences, each having the identical six base pair stem and a loop sequence containing either T-T-T-T, F-T-T-T, or F-T-F-T. We have completed proton NMR chemical shift assignments for the three sequences, in addition to melting studies by both NMR and UV-Vis spectrophotometry. The results of these studies can be used to draw general comparisons of the relative base positions, stacking interactions and differences among the three sequences.

Location: UC Main
Poster Number: 70

The Cuban American Side

Krystin Herrera

Faculty Advisor: Colin Fisher
Department of History

For decades, Cuba has struggled under the communist dictatorship of the Castro family. If left alone, communism has the ability to spread and infiltrate numerous countries, which would negatively impact our global network. It is important to understand why many who have lived under the iron fist of communism want it abolished and view it negatively. Presidential candidate Ronald Reagan was an anti-communist Republican and many Cuban Americans changed their political party to vote for him. This project will analyze how conservative Cuban-Americans in the 1980s tended to support Ronald Reagan's Latin American foreign policy through the use of newspapers and supplementary secondary sources. It also reveals that many Cuban-Americans had mixed attitudes towards Reagan after his presidency due to his fluctuating approaches to the Latin American situation.

Location: UC Main
Poster Number: 71

What's the Difference? Constitutional History of Race, Citizenship, and Slavery

Megan Huynh

Faculty Advisor: David Cantrell
Department of English

The right of ownership to property has not always been attached to the legal definition of slavery in the United States. This right created the experience of permanent enslavement as it was constructed through juridical, political and social institutions. The courts raised questions of legal identity for those enslaved while defining the nature of the "African race" as "beings of an inferior order" to the white race. However, the Constitution itself does not mention "race" nor any of its contours. It is was the courts who produced the imagined "differences" between the two races, so much that one race was reduced to servitude while the other enjoyed the privileges and rights of citizenship. An examination of the changing interpretations of citizenship in relation to the "African race" allows us to see how historical actors interpreted the Constitution and how those interpretations produced the hierarchy of races.

Location: UC Main
Poster Number: 72

C-H Borylation of Protected Phosphines

Nicholas Huynh, Timothy Ramseyer, Kristina Crawford

Faculty Advisor: Timothy Clark
Department of Chemistry & Biochemistry

Phosphine boronate esters have been used to reduce carbon dioxide (a greenhouse gas) into methanol (a viable fuel source). The nature of the phosphine boronate ester is critical to the resulting reactivity and a larger array of these compounds are needed to make the reduction of carbon dioxide a viable process. Phosphine-directed C-H borylation has been shown to be able to synthesize these types of molecules. Moreover, a complimentary route to achieve these compounds is through the C-H borylation of protected phosphines. Phosphine substrates are first protected by a masking group (borane), and undergoes metal catalyzed (Iridium) C-H borylation with the ligand, 3,4,7,8-tetramethyl-2,10-phenanthroline (TMPHEN). C-H borylation of these protected phosphines are a recent development of the Clark Group, which along with phosphine-directed C-H borylation will provide a variety of phosphine-substituted boronate esters which can act as scaffolds to the development of diverse phosphine ligands.

Location: UC Main
Poster Number: 73

Nietzsche, Fate and Morality

Kristen Indergand

Faculty Advisor: Michelle Grier
Department of Philosophy

This paper will investigate claims Nietzsche makes regarding morality and fate, the role of truth, and "ascetic ideals." More specifically it will focus on the nature of humans, and whether we are actually agents of free will, or perhaps creatures more subject to fate than the currently accepted model of humanity would have us believe. The paper will examine the concept of amor fati and how fate plays a role in modern society, and if Nietzsche's ideas of "becoming" are actually livable goals.

Location: UC Main
Poster Number: 74

Activists and Partisan Change: Is the Tea Party Driving Polarization in the Republican Party?

Elisabeth Jelinek

Faculty Advisor: Casey Dominguez
Department of Political Science & International Relations

Voters and scholars alike have observed polarization between the Democratic and Republican Parties, leading to such issues as political extremism, gridlock, and shifts in party and/or issue identification. Based on the theory that activists are a dominant force behind partisan change, I hope to look specifically into whether the emergence of Tea Party activists is shifting Republican Party issue positions. By conducting content analysis on selected state GOP platforms, I hope to gain insight into the degree of change within Republican Party issue positions and whether any shift is likely attributable to Tea Party activism.

Location: UC Main
Poster Number: 75

Amerasians and the Role of the United States in Post-War Vietnam

Addison Jensen

Faculty Advisor: Colin Fisher
Department of History

Although the consequences of the Vietnam War have been extensively studied by many scholars, little attention has been paid to the plight of the Amerasians. An "Amerasian" is defined by the United States Code as "a child who was fathered by a United States citizen and was born in certain Asian countries between January 1, 1951 and October 22, 1982." However, most Vietnamese Amerasian "children" were fathered during the Vietnam War by American soldiers. When the conflict ended, many of these half-American, half-Vietnamese offsprings were left behind in Vietnam to face the consequences of being part American in a country where the United States was fervently despised. This thesis will attempt to illustrate that while the U.S. government has been able to successfully transport Amerasians to the United States on a larger scale than private, non-profit organizations, the issue of Amerasian children has never been given the attention it warrants by the American government. Ultimately, the most progress towards aiding Amerasian individuals once they arrived in the U.S. has been achieved by the smaller, privately funded American organizations.

Location: UC Main
Poster Number: 76

Chronic Stress and Biomarkers of Endocrine and Immune Responses in College Students

Sarah Jensen, Vanessa Johnson, Hazel Hidalgo, Jessica Kulwin, Kenzie Bishop, Gemma Ortiz

Faculty Advisor: Veronica Galván Galván
Department of Psychological Sciences

Academic stress in college students has increased in the last 25 years (Pryor et al., 2010). This study sought to correlate stressors, as well as factors that mitigate stress with self-report and physiological markers of stress. Self-reported stress, as measured by the Perceived Stress Scale and the Daily Stress Inventory, was associated with an external locus of control, sleep problems, and the perception that one does not meet personal high standards. In addition, the perception that one does not meet personal high standards was associated with feelings of less social support. This study did not show a significant relationship between perceived stress and cortisol levels, which is consistent with previous research showing mixed results in the relationship between chronic stress and heightened cortisol levels. In future studies, we would change the survey topics to measure different types of stressors on college students. The findings of this study will contribute to the understanding of potential causes of high stress levels and alternative solutions to managing daily stress.

Location: UC Main
Poster Number: 77

The Broader Legal Impacts at the District Attorney's Office

Amanda Jereige

Faculty Advisor: Gary Gray
Department of Political Science & International Relations

This presentation details the skills and experiences acquired through my position as an undergraduate student worker at the San Diego District Attorney's Office in the Victim Assistance Program. In working in the Victim Assistance Program, my responsibilities ranged from mailing letters to victims and making referrals to Child Protective Services to researching various programs available in San Diego County and accompanying victims of crime to court. Such a position allowed me the opportunity to gain a deeper insight into the inner-workings of the judicial system, whether through officially assisting victims of crime themselves or in tending to the legal/administrative aspects required to proceed further with legal cases. Working at the District Attorney's Office has provided with the chance to closely observe the direct effects that judicial decisions have on an individual and societal level.

Location: UC Main
Poster Number: 78

Confucianism at the Jing Institute

Vickell John-Baptiste

Faculty Advisor: Evelyn Kirkley
Department of Theology & Religious Studies

We did research on Confucianism through the Jing Institute of Chinese Martial Arts and Culture in San Diego. Our research questions covered the topics of the Chinese attachment to home land and its affects on Qi, gender roles of women in the community, the risk of compromising their traditions in a western culture, battling stereotypes, as well as the influence of media and how it affects the passing of traditions to future generations. Through our research we found that while the Jing Institute is of Chinese culture they do not articulate Confucianism to the students. However they implement fundamental practices of Confucianism in their daily routine that maintain traditions while keeping a balance with the western culture around them. This in turn kept the students engaged, the parents willing to return, and a modern atmosphere and perspective on Chinese culture in the institute.

Location: UC Main
Poster Number: 79

Oliver North: A Neoconservative Martyr

Clinton Johnson

Faculty Advisor: Colin Fisher
Department of History

My project has to do with the transformation of Oliver North from a convicted criminal following the Iran-Contra Affair to a Republican senatorial candidate in a five-year period. It argues that Oliver North's fortunes changed rapidly for the better because he became a symbolic martyr for the New Right, a movement that at that moment needed a hero who combined hawkish militarism, a small government advocacy when it came to economics, and aggressive conservatism on social issues such as abortion.

Location: UC Main
Poster Number: 80

The Yogi Diet: How the Ideas of Balance and Union Between Body and Mind Have an Effect on the Food Choices of Those who Practice the Ancient Tradition.

Janice Johnson

Faculty Advisor: Camacho Michelle
Department of Sociology

Yoga has made a monumental move to West in recent years. It is the new, trendy work out for many all over the country. The ancient practice of yoga focuses on bringing balance to the body and the mind while creating a union between body and mind. These ideas are reflected in the ways in which people are changing their eating habits. If you visit many yoga studios across the nation you are likely to find a higher than normal percentage of vegans and vegetarians. The practice of yoga often brings a sense of the natural world and nature back into one's life. This study will be investigating how the traditional ideas about eating and living in the east are migrating to the United States and how this is having a positive effect on many both physically and spiritually.

Location: UC Main
Poster Number: 81

Lambeth 1958 and Birth Control: How And Why The Church of England Came To Support Birth Control

Camilla Johnston

Faculty Advisor: Molly McClain
Department of History

This project is an examination of the social factors that influenced the Church of England's 1958 decision to support the use of birth control. Specifically it will explore the way in which concerns of population increase and control as well as child welfare prompted the Bishops at the 1958 Lambeth Conference to deem birth control acceptable. This paper will argue that the 1958 Lambeth Bishops were pushed to act based upon the overwhelming concern for curbing population and a fear that children were being born to families that were not financially or emotionally equipped to provide for these children. An examination of the social factors that contributed to the change in stance of the Church of England is necessary, as it would contribute to a greater understanding of women's use of contraceptive as well as the religious and social changes in England during a critical historical period.

Location: UC Main
Poster Number: 82

Getting Down to What is Really There: John Jeremiah Sullivan's *Pulphead* & Michel Foucault's Concept of Heterotopia

Davis Jones

Faculty Advisor: Brad Melekian
Department of English

In John Jeremiah Sullivan's essay collection *Pulphead*, the landscape and the magazine subject join together to form an interminably bodied experience for the reader. I propose that "the place" as told by Sullivan inhabits both a physical and mental space imposed upon by human consciousness. It is on this relationship that I will compare his sense of place in *Pulphead* with the French philosopher Michel Foucault's concept of "Heterotopia," as outlined in his 1984 essay, "Des Espace Autres, Heterotopias." I argue that Foucault's principles of geographic "otherness" can be seen to outline Sullivan's descriptions of place in his essays, as the writings focus on sites with implanted characteristics that simultaneously reflect and alter other places within a culture. To do so, I will analyze, compare, and contrast *Pulphead*, "Des Espace Autres," and Sullivan's other nonfiction writings in extensive detail.

Location: UC Main
Poster Number: 83

Fully Automated Computer Enabled Recognition (FACE-Rec)

Christopher Kelly

Faculty Advisor: Eric Jiang
Department of Computer Science

Image recognition software has recently gained popularity in social media, law enforcement, and anti-terrorism. FACE-Rec software developed in this project will provide rapid identification and classification of facial images contained within an image file. FACE-Rec uses artificial neural networks to determine the existence and position of human faces and when a human face is detected, it will try to match the face with one from its database. If a new face is encountered, the user will be prompted to identify the individual, and FACE-Rec will recalibrate itself to recognize the face during future sessions. FACE-Rec's ability to classify images without possible human bias makes it a perfect fit for the applications of law-enforcement and anti-terrorism. Using the software in conjunction with video surveillance cameras would allow security agencies to identify and track suspects throughout secure areas with greater accuracy and objectivity than traditional surveillance methods.

Location: UC Main
Poster Number: 84

Improving the Mechanical Properties and Investigating the Decomposition Mechanism of Biocomposites

Autumn Khalily

Faculty Advisor: Truc Ngo
Shiley-Marcos School of Engineering, Industrial Systems Engineering

Biocomposites have high potential to replace traditional, non-biodegradable fiber-reinforced composites which present serious environmental concerns due to their long-lasting existence in landfills. However, biocomposites' shortfalls in mechanical properties remain a challenge. This study aims to improve the mechanical properties of several biocomposites and to investigate their decomposition mechanism under composting conditions. This study uses hemp and fiberglass fibers to reinforce polyester, epoxy, and a linseed oil-based polymer. In the first part of this study, an organic primary coating (tested with two different types) is added to the polymer matrix before being reinforced with fibers. The materials' mechanical properties are characterized and compared to the uncoated samples. In the second part of the study, the biocomposites are composted under controlled conditions. DNAs of microorganisms formed on samples are then extracted and sequenced to identify the biological species which play a key role in the decomposition process.

Location: UC Main
Poster Number: 85

Organic Food and Politics: How Political Affiliation Influences Perception of Environmental and Health Messaging Regarding Organic Food

Emily Knuutinen

Faculty Advisor: Anne Koenig
Department of Psychological Sciences

This study examined whether framing pesticides as bad for human health versus bad for the environment led to the greatest changes in positive attitudes towards organic food. Some of the participants read an article that discussed how pesticides harm human health and then answered questions about their attitudes towards organic food. Some of the participants read an article discussing how pesticides harm animals and the atmosphere and then answered attitudinal questions. Some of the participants did not read an article but answered questions about their current attitudes towards organic and conventional food. The results indicated that there was a main effect of message, a marginally significant main effect of political party and no significant interaction.

Location: UC Main
Poster Number: 86

Influences on Maternal Coping with Toddlers' Negativity During Challenging Situations

Kelsi Koe

Faculty Advisor: Adriana Molitor
Department of Psychological Sciences

Beginning in a child's second year, parents increase the demands they make on their toddlers in terms of complying with requests. In turn, toddlers sometimes respond with negative emotions to these demands. The present study explored potential influences on maternal responses to toddlers' protests and negativity. Specifically, we examined whether particular reactions were related to aspects of children's temperament/personality or to mothers' social skills. As part of a broader investigation, 60 mothers completed assessments of their range of emotional-social skills and of their children's temperamental qualities. Additionally, mothers completed a separate measure addressing the likelihood of using various parental strategies during challenging situations with their toddlers. Analyses revealed that maternal reactions were typically unrelated to children's personality qualities and more connected to mothers' general level of, and specific types of, emotional-social intelligence. Overall, mothers with poorer emotional skills reported greater reliance on ineffective or undesirable coping strategies with protesting toddlers.

Location: UC Main
Poster Number: 87

Gender Performance in the NCAA Rifle Championships: Where is the Gap?

Jason Kowalczyk

Faculty Advisor: Nadav Goldschmied
Department of Psychological Sciences

The study aimed to compare shooting performance between male and female athletes during the NCAA Rifle Championship from the 2007 to 2011 seasons. Unlike Olympic shooting events today, NCAA competitions allow male and female shooters to compete against each other. Rifle shooting requires little physical exertion, so physiological differences between the genders that generally bring about improved performance by males relative to females in sports should have minimal effect on shooting performance. Using archival data, we found no differences in performance between the genders both during team and individual competitions. The results suggest that Olympic shooting is exercising a "separate but equal" policy which should be reconsidered.

Location: UC Main
Poster Number: 88

Code Switching in Northern Border Literature

Rita Kuckertz

Faculty Advisor: Amanda Petersen
Department of Languages & Literatures

This presentation explores the use of "code switching" in the use of literature produced near the Mexican border. Code switching has many linguistic and social purposes, but its function in many works of northern border literature is to problematize the processes that have constructed an artificial narrative surrounding Mexican identity. This project specifically examines two texts that explore the portrayal of Tijuana: "Tijuana para principiantes" by Rafa Saavedra and "Tijuana. Procesos de una ciudad de ciencia ficción sin futuro" by Heriberto Yépez. In both of these literary works, the use of English words or phrases in the midst of a Spanish text functions as a means of dismantling the American construction of Tijuana as a city of tourism, poverty, and violence. These linguistic processes serve to affirm the superiority of the northern side of the border, while reinforcing the stereotypes and myths of its southern neighbor.

Location: UC Main
Poster Number: 89

Apple Inc. Internship

Sienna La Rocca

Faculty Advisor: Gary Grey
Department of Political Science & International Relations

I have been an intern for Apple Inc. for two summers now, interning since I finished my Freshman year at USD. Due to several confidentiality forms I have signed due to Apple being an extremely private and successful company, I will focus more on the perks of working for a Fortune 500 company, the international relations aspect of my internship, the process of attaining the internship, benefits, and lots of photos!

Location: UC Main
Poster Number: 90

Cell Migration in the Gills of Goldfish

Nikolas Lane

Faculty Advisor: Marjorie Patrick
Department of Biology

The gills of fish are the site of many physiological processes, like gas exchange, acid-base regulation, and salt balance. Many of these processes require a high surface area. Certain species of fish, like goldfish, can reversibly modify their gills in such a way that they reduce the surface area of the gills. They do this by filling in the area between gill structures, known as lamella, with masses of cells called interlamellar cell masses (ILCM). Specific cells, called ionocytes, located on the gills are important in the regulation of internal salt levels. During gill modification, these ionocytes must migrate to be able to function properly, and during a specific step of modification, the ionocytes can be lost. The focus of my research was to characterize the ionocyte migration in goldfish after the ILCMs were lost using fluorescently labeled, ionocyte-specific, antibodies and examined them using fluorescent confocal microscopy under varying conditions.

Location: UC Main
Poster Number: 91

Environmental History of Marine Corps Base Camp Pendleton

Christopher Leahy

Faculty Advisor: Colin Fisher
Department of History

I will be presenting my case concerning the environmental history of MCB Camp Pendleton. Many historians and public opinions generally agree that the military has an adverse effect on the environment that it comes in contact with. It is easy to agree with this opinion due to the destructive nature of warfare and military necessity. However, what many people don't realize is that sometimes the military base can be somewhat beneficial. The project is intended to demonstrate that MCB Camp Pendleton, since its inception, has helped to maintain some of the natural habitats that it occupies while the surrounding areas of Orange County and San Diego have seen massive suburbanization in the last 50-60 years, which has completely altered the environment.

Location: UC Main
Poster Number: 92

Costs and Benefits of Nuclear Energy

Ariel Leuthard

Faculty Advisor: Randy Willoughby
Department of Political Science & International Relations

My presentation will concern the economic and social costs regarding nuclear energy. I will specifically focus on whether the risk and costs of nuclear disasters are worth the economic benefit of using nuclear energy. I will draw upon the Fukushima and Chernobyl nuclear disasters, comparing and contrasting the two, while also using them to discuss about the future of nuclear energy in both the United States and the world.

Location: UC Main
Poster Number: 93

Synthesis of Novel Organic Compounds that Bind to Metal Ions

William Levandowski, Marissa Reyes

Faculty Advisor: Mitchell Malachowski
Department of Chemistry & Biochemistry

Many chemists have become interested in making compounds that link together discrete mononuclear complexes into arrays of molecules. The work is part of a field called supramolecular chemistry. In this project, we have prepared a series of organic compounds that contain benzene or biphenyl rings with either one or two distinct binding sites for metal ions. After synthesis and characterization of the organic portion, discrete mononuclear copper and cobalt complexes were prepared and characterized. In the future, these building blocks will be connected together with silver ions or other metals to form supramolecular complexes. These complexes will be characterized by a combination of elemental analysis, mass spectrometry and X-ray crystallography. The ability of the complexes to form supramolecular arrays will be determined and additional complexes will be synthesized based on these results.

Location: UC Main
Poster Number: 94

Wnt Signaling in Serotonergic Neuron Specification and Patterning in *C. elegans*

Rachel Lex

Faculty Advisor: Curtis Loer
Department of Biology

Serotonin is an important neurotransmitter essential to all animals. Abnormal serotonin signaling in the human nervous system is responsible for diseases such as schizophrenia and depression. The nematode worm, *Caenorhabditis elegans*, can be used as a model system for studying the development of serotonergic neurons. This study focuses on understanding genetic pathways that specify the neuronal patterning and fate of six serotonergic CP neurons in *C. elegans*. By blocking gene function, it has been shown that several genes in the Wnt signaling pathway are involved in determining the serotonergic fate of the CP neurons. To further assess the potential role of Wnt signaling genes involved in CP neuron development, RNA interference will be used to knock down gene function and screen for genes that affect the fate of these neurons and their ability to make and use serotonin.

Location: UC Main
Poster Number: 95

A Thousand Tiny Cuts: Microaggressions and Hostile Environment

Korinna Li, Veronica Ramirez, Yajaira Nunez, Maria Ruvalcaba, Demarreo Shavers, Jessica Cortez, Carly Newman, Sara Padilla, Josie Gomez

Faculty Advisor: Gail Perez
Department of Ethnic Studies

This group project builds on the work of sociologist Joe Feagin. His team of researchers had over a thousand college students keep journals on comments about race in daily life. The students of Advanced Ethnic Studies 497 are keeping similar journals but are including class, gender, and other categories of identity. This compelling data will be presented along with analysis that draws from the work of Derald Wing Sue, Tara Yosso and others. The purpose of the project is to show how comments made in the “backstage” where the targets of such comments are not present, still have a powerful effect in perpetuating social hierarchies. Our analysis shows that negative comments actually constitute a kind of “knowledge” that is learned and passed on. Microaggressions in the “front stage” also create a hostile environment that does the work of exclusion in a post-civil rights society. Given the recent report on hostile environment in the NFL, this work is timely and important to schools, institutions, and corporations.

Location: UC Main
Poster Number: 96

Mechanism of the Success of Nipah Virus Across Many Species

Hana Link

Faculty Advisor: Hugh Ellis
Department of Biology

My senior honors seminar will explore the interesting reasons for Nipah Virus' great success across the variety of species it infects. I will describe some of the cellular and molecular mechanisms of its transfer, particularly involving the highly conserved mammalian Ephrin B protein.

Location: UC Main
Poster Number: 97

Sensor Module

James Logan

Faculty Advisor: Kathleen Kramer
Shiley-Marcos School of Engineering, Electrical Engineering

The aim of this project is to sense motion. This motion will be used to make sure that an antenna is pointing to a satellite at all times. The project has started out in prototyping and will later progress to developing a rugged housing for all of the sensors involved. The prototyping that has been done involves programming the designed microprocessor and setting up data transfer busses. Looking to the future, the next step is interfacing the microprocessor with the sensors chosen. After that the project will focus on the task of decreasing the size of the parts involved. This report contains research results, progress updates, and some prototyping results as well.

Location: UC Main
Poster Number: 98

The USD Association for Computing Machinery Website

Laura Londo

Faculty Advisor: Eric Jiang
Department of Computer Science

Association for Computing Machinery (ACM) is the world's largest educational and scientific computing society. The University of San Diego hosts an ACM chapter as a student club on campus. This project creates a fully functional website that serves current computer science students and helps recruit new students to the field. Members will benefit greatly from new features on the website such as user registration and profiles, management of important updates and notices pertaining to club activities, tutoring signups, and pages for ongoing student projects. Other CS students will also be able to utilize the site to find help and tutoring for their courses, opportunities to get advice from upperclassmen and faculty, and ways to become more involved in the CS student community. In addition, the site will serve the department by providing information and insight about computer science to prospective majors and helping grow the computer science community at USD.

Location: UC Main
Poster Number: 99

Statistical Analysis of Women in STEM Fields

JuliAnn Machscheffes

Faculty Advisor: Stacy Langton
Department of Mathematics

Many studies have been done on the reasons behind why there are so few women in STEM (Science, Technology, Engineering and Mathematics). Conducting studies on women and STEM fields/careers is important for a few reasons. Some might argue that there are no issues with men dominating STEM fields/careers. Agreeably, not everything needs to be split right down the middle between men and women, but the proportions should be closer. There is still a large wage gap in the United States, and encouraging women to pursue STEM baccalaureates and careers could decrease the gap. There are also many potentially great minds that are being missed when women choose not to pursue STEM. Our research consists of statistical analysis done on women in STEM, spanning from high school through graduate school, with forecasting for the future of women in STEM.

Location: UC Main
Poster Number: 100

Barrio Logan Senior Thesis

Rachel Maldonado

Faculty Advisor: Daniel Lopez-Perez
Department of Art, Architecture, & Art History

The new Community Plan which has recently been approved in the city of San Diego for the Barrio Logan neighborhood is controversial which has triggered a referendum. Residential reaction to the plan shows that there is a disconnection between providing for the residents of the community and finding a solution to the pollution issues of the highly dense industrial areas. The community plan was approved by a 5-4 Council vote; however, has been opposed by shipyard industries and is now going to the ballot. Through my research of the community plan and extensive history of the neighborhood I have found that the plans do not address the rich cultural history and identity of Barrio Logan which need to be synthesized in the plan. In order to synthesize what the Barrio Logan community plan lacks and to better serve the neighborhood I have proposed that a large corridor which connects Chicano Park to Cesar Chavez Park be built. This will be a cultural open space, with many different programs for people to gather and engage in a social setting that promotes the future growth and development of the community while celebrating the cultural identity of its people.

Location: UC Main
Poster Number: 101

CAN bus Actuator Module for Mobility Antennas

Ryan Maliszewski, Gonzalo Albaladejo, Christopher Anderson, Shane Fontaine

Faculty Advisor: Kathleen Kramer
Shiley-Marcos School of Engineering, Electrical Engineering

A CAN bus actuator module for mobile receivers allows for a modular system that has the ability to rotate the receiver freely. Given different circumstances, one may need to set coordinates for an antenna to point to a specific location, or to continually adjust in order to stay in line with an object. While this module is intended for an application rotating a mobile receiver, the device is more applicable for vehicular use. CAN buses are commonly used in the automotive industry, so this module can be widely integrated. This module allows receivers on top of vehicles to constantly be facing the same satellite. This constant communication with the satellite allows for Wi-Fi access inside the vehicle. By constantly updating GPS coordinates and reevaluating its position, the actuator module can continuously exchange information with the satellite and provide an unbroken Wi-Fi signal to the user. The small size and affordability of the module gives it functionality for many users. A servo motor functions as the motor for the actuator module, and uses an auxiliary power source. Embedded logic within the system provides sufficient instruction for the actuator to perform correctly, and servo drivers allow the software to properly communicate with the hardware used in the system. The parts have been received, part of the code has been written, and the design has been finalized. The remainder of the project will be dedicated to integrating all of these parts into a final product.

Location: UC Main
Poster Number: 102

T. S. Eliot's Use of Nonsense

Diana Maltz

Faculty Advisor: Atrayee Phukan
Department of English

This project will explore T. S. Eliot's use of literary nonsense as a way of verbalizing concepts that Eliot believes to be ineffable. These concepts range from spiritual experience to emotions that are not perfectly characterized by an existing signifier. The project will address the limitations of existing language in dealing with such concepts as well as how Eliot's nonsense serves as an alternate system of language in which these concepts can be expressed verbally. Though Eliot's nonsense rejects conventional language and creates new meanings rather than being confined to existing dialect, it is easily comprehensible. Eliot manipulates readers' perceptions in order to guide the reader toward the intended meaning. Works that will be examined include "The Hollow Men," *The Wasteland*, *Old Possum's Book of Practical Cats*, and *Sweeney Agonistes*.

Location: UC Main
Poster Number: 103

Clash of Critters: An Optimal Strategy

Leah Mandeville, Riley Evans, Katherine Fotion, Brook Santangelo

Faculty Advisor: Lynn McGrath
Department of Mathematics

Skunk Redux is a dice game often used in classrooms to introduce students to the fundamentals of probability theory. The objective of the game is to maximize your score in a round, where the number appearing on the die is added to your score. The exception is when a one is rolled, in which case your score drops to zero and the round is over. After analyzing the optimal strategy that David Kong and Peter D. Taylor came up with for Skunk Redux, we then generalized this for a number of chance games. Further, we will discuss how variants of this game could be used to model real life situations.

Location: UC Main
Poster Number: 104

LEEDing the Way?: A Look at the Benefits of Green Labeling in the Commercial Sector

Nicholas Marinello

Faculty Advisor: Michel Boudrias
Department of Environmental Studies

Inspired by work done with the Leadership in Energy and Environmental Design (LEED) certification program at Sustainability Matters with Kristen Victor, this literature study looked at the impact of the LEED program from both the environmental and the economic perspectives. Environmental considerations, such as water- and energy-use reduction, combined with economic benefits of the LEED program, like higher building rents and increased worker productivity, make a clear argument for program participation; the benefits not only accrue to the building owner but to society in general.

Location: UC Main
Poster Number: 105

The (Collegiate) Pursuit of Happiness

John McCallie

Faculty Advisor: Mary Brinson
Department of Communication Studies

University life can be considered one of the most stressful periods of a person's life, as seen by recent trends of high stress, depression, and even suicide. While it is important to understand what factors increase these trends, we must also give insight to how students pursue happiness during their college experience. The current study attempts to investigate potential variables that relate to happiness and satisfaction of university students. These variables may include relationships, academic stress, group membership, and personal traits. The data was collected using a cross-sectional online self-completion questionnaire of USD undergraduates.

Location: UC Main
Poster Number: 106

Population Structure of a Specialist Seed Beetle: Do Patchy Plants Make for Patchy Bugs?

Jessica McCarthy

Faculty Advisor: Geoffrey Morse
Department of Biology

Abstract: Insects that feed on plants have a very high rate of speciation. The observation that most of these insects are specialists on their hosts has led to the hypothesis that high speciation rates are driven by ecological speciation. However, an alternative exists based on selection for decreased dispersal, leading to geographic isolation and eventually allopatric speciation. While these alternatives are difficult to test at the species level, speciation is preceded at some point by population differentiation. I am therefore examining whether the populations of a specialist seed beetle (*Acanthoscelides pullus*) feeding on a patchily distributed host plant (coastal milkvetch, *Astragalus trichopodus*) show strong population differentiation at local geographic scales. Strong population structure would support the possibility that decreased dispersal rates may enhance diversification rates, while a lack thereof would support the traditional view that host plant specialization is a stronger driving force in the diversification of these seed beetles.

Location: UC Main
Poster Number: 107

The Effect of Fear of Negative Evaluation on Pain Perception Following Ostracism

Kelly McCarthy, Sarah Jensen

Faculty Advisor: Jennifer Zwolinski
Department of Psychological Sciences

Experiences of social pain rely on some of the same neurobiological substrates that underlie experiences of physical pain. To explore this overlap, the Cyberball ostracism paradigm was used to examine the interplay of individuals' fear of negative evaluation (social anxiety) on physical pain perception before and after Cyberball. A total of 101 primarily Caucasian (59%) female (51.5%) freshman year (73.7%) college students were randomly assigned to inclusion or ostracism. A three-way (Cyberball condition x Social Anxiety level x Time) mixed ANOVA revealed a main effect for Cyberball, $F(1, 96) = 4.82, p = .03$; follow up tests showed that ostracized individuals' pain increased over time whereas included individuals' pain was unchanged. A main effect of social anxiety also showed that high socially anxious individuals reported higher pain overall, $F(1, 96), 5.98, p = .01$. These results suggest that regardless of social anxiety level, ostracism increases physical pain.

Location: UC Main
Poster Number: 108

Internship with Councilmember Marti Emerald, District Nine

Shanika McCarty

Faculty Advisor: Gary Gray
Department of Political Science & International Relations

I am currently interning with Marti Emerald, Councilmember of District Nine. District Nine consists of the neighborhoods Alvarado Estates, City Heights, College Area, College View Estates, El Cerrito, Kensington, Mountain View, Mt. Hope, Rolando, Southcrest, and Talmadge. As an intern I assist in administrative duties like answering phone calls and emails, making Proclamations and Commendations for constituents who live in District Nine. I am also learning how local government works by being able to get a behind the scenes view of the legislative process. I get an inside look at the political world of San Diego by being able to attend staff meetings every week.

Location: UC Main
Poster Number: 109

Working Wonders: An Analysis of the Tensions Between Catholicism and Indigenous Culture

Shanna McKenzie

Faculty Advisor: Michelle Jacob
Department of Ethnic Studies

St. Kateri Tekakwitha became the first Native American Saint in 2012 by Pope Benedict XVI. To Native peoples, myself included, having one of our ancestors worshiped and adulated is crucial for growth and understanding of the humble backgrounds from which we originate. I am analyzing websites and scholarly documents that discuss St. Kateri in order to explore and formulate questions regarding her representation for the Native Community. Using the theory of decolonization I ask: What are the tensions and points of convergence between traditional indigenous culture and Catholicism? This question is important to those skeptical of her canonization as a saint. She remained dedicated to her faith despite the reported hostility and resentment from her family who despised the "white man's" religion. Despite the many setbacks Native Americans have dealt with over the years of colonialism, St. Kateri Tekakwitha's canonization was a definite comeback for our culture and spirituality.

Location: UC Main
Poster Number: 110

The Phylogenetic Evolutionary Patterns of the Genus *Cylindropuntia*

Laura Mckniff

Faculty Advisor: Michael Mayer
Department of Biology

In our lab we study *Cylindropuntia*, a genus in the cactus family also called the chollas. Our main goal is to determine the evolutionary patterns of *Cylindropuntia* by utilizing molecular data. Molecular data is isolated from the chloroplast DNA in the stem tissue of the different species. Samples of each species are sent to our lab from their native habitats in the United States and Mexico. Molecular data is extracted by removing the areas of chloroplast-rich tissue in stems and isolating the DNA from this part of the plant. Once the chloroplast DNA is isolated, polymerase chain reactions (PCR) amplifies specific DNA regions, which are then sent off campus to be sequenced. We use computer programs to analyze this sequenced molecular data so that we can hypothesize different phylogenetic trees in *Cylindropuntia*'s evolution. By deciphering the best phylogenetic tree of *Cylindropuntia* the evolutionary history of this genus will be revealed.

Location: UC Main
Poster Number: 111

Differences in Self-Reported Parenting Practices between Clinic-Referred and Non-Referred Mexican American Families with Young Children

Molly Mechammil

Faculty Advisor: Kristen McCabe
Department of Psychological Sciences

Efficacious Behavioral Parenting Training (BPT) interventions are designed to modify parenting behaviors associated with behavior problems among European American (EA) samples. However, given the differing cultural contexts of EA and Mexican American (MA) youth, it cannot be assumed that parenting behaviors associated with child behavior problems among EA youth will also apply to MA youth. Determining the parenting behaviors that are uniquely associated with child behavior problems for MA families has the potential to inform modifications to BPT programs that may increase their effectiveness for MA families. To address this issue, we compared the self-reported parenting behaviors of 58 MA families referred for treatment for their young child's (age 3-7) externalizing behavior problems to that of 57 non-referred MA families with a child in the same age range. As hypothesized, MA parents of a clinic-referred child reported harsher, less warm, and less consistent parenting compared with MA families with a child free of behavior problems. These findings suggest that parenting behaviors targeted by BPT are likely to be relevant for MA families as well.

Location: UC Main
Poster Number: 112

Developing Biocompatible Polymer-Nanocrystals Hybrid Materials Using Supercritical Carbon Dioxide

Jeremiah Medina, Joyce Sampson, Veronica Ramirez

Faculty Advisor: Truc Ngo
Shiley-Marcos School of Engineering, Industrial Systems Engineering

This three-phase research project seeks to develop and test a new method of integrating biocompatible polymer films with nanocrystals for the production of biomedically applicable hybrid materials: 1) studying the solubility of the nanocrystals (provided by another research group in USD Chemistry and Biochemistry department); 2) making the hybrid materials using supercritical carbon dioxide (scCO₂); and 3) characterizing the developed materials. The focus of this presentation is on Phase 1 of the project. Four different types of nanocrystals are tested for solubility in common solvents and scCO₂ with and without co-solvent. The scCO₂ experiments were performed in a supercritical fluid processing system in conjunction with a fluorescence spectrometer. Preliminary data shows that the currently tested nanocrystals are insoluble

in scCO₂ even with the addition of co-solvent. In order to facilitate the dissolution of the nanocrystals in scCO₂ solution, further surface modification of the nanocrystals is required.

Location: UC Main
Poster Number: 113

The Resource Curse and its Grasp on Democracy

Tenaya Miller

Faculty Advisor: Michael Williams
Department of Political Science & International Relations

This paper examines the complex relationship between democracy and natural resources in sub-Saharan Africa. In particular, it elaborates on why the presence of natural resources act as a destabilizing force in 25 resource dependent countries. The empirical evidence provided in this study suggests that increased resource dependence is detrimental to democratic consolidation. I argue that these findings are explained by the ability of political elites to suppress civil engagement through the distribution of resource rents.

Location: UC Main
Poster Number: 114

Are Diversifications Predictable? Examination of Convergent Radiations of Mesquite-Feeding Beetles in North and South America

Veronica Moffitt

Faculty Advisor: Geoffrey Morse
Department of Biology

Seed beetles have independently colonized mesquite (genus *Prosopis*) on numerous occasions in both North and South America. These convergent colonizations allow for an unusual comparative survey to examine whether or not there is some predictability to macroevolution. I therefore am asking the questions as to whether (1) colonization of mesquites happens in a convergent manner and (2) whether the subsequent diversification of these lineages follows a similar pattern of host-based and/or geographic structure. I am using two genes to reconstruct the phylogenies of four genera that are (nearly) exclusively associated with *Prosopis*. I am then using a molecular clock analysis in combination with a dated phylogeny of *Prosopis* to examine the evolutionary origins of these associations; and comparative analyses to examine geographic and ecological correlates of diversification patterns.

Location: UC Main
Poster Number: 115

Senior Thesis

Neil Moody

Faculty Advisor: Whitney Moon, Daniel Lopez-Perez
Department of Art, Architecture, & Art History

Government bad. Art Good. Commercialization of art is evil bad and new blue crew must come to stop bad people with pretty pictures and plants.

Location: UC Main
Poster Number: 116

Synthesis and Characterization of Starch-Containing Materials for Biomedical Applications

Jason Nettleton, Cassandra Reese, McKenzie Tolan, Sophia Ederaine, Lisa Ryno, Kayleen Fullton, Jeff O'Brien, Gabriel Short, Geraldo Sorriano

Faculty Advisor: Peter Iovine
Department of Chemistry & Biochemistry

Hybrid polymers consist of synthetic and natural components and exhibit properties that are greater than the sum of the parts. In this body of work, we present the synthesis and characterization of a new polymeric hybrid material that features starch as the biopolymer. We believe these new materials will find applications in biomedical devices and coatings. This presentation will focus on the preparation and materials properties of these new polymers.

Location: UC Main
Poster Number: 117

Growth and Decline in Chula Vista

Christopher Nichols

Faculty Advisor: Colin Fisher
Department of History

This project will cover the effects that the housing crisis in 2007 had on the city of Chula Vista and the historical ramifications of the foreclosures and economic downturn.

Location: UC Main
Poster Number: 118

San Diego Diplomacy Council

Brian Nickerson

Faculty Advisor: Gary Gray
Department of Political Science & International Relations

As a non-profit, non-partisan organization, the mission of the San Diego Diplomacy Council is to promote global understanding between San Diego citizens and our neighbors around the world. This mission is accomplished by arranging over 500 face-to-face professional and cultural exchanges between our visiting international leaders from over 140 countries and our San Diego citizens and experts each year. I was the Membership Development Intern so it was my job to raise money from membership in order to fund the non-profit organization.

Location: UC Main
Poster Number: 119

Human Impacts on the Rocky Intertidal in Southern California Marine Protected Areas

Kimberly Nielsen

Faculty Advisor: Steven Searcy
Department of Marine Science

The California coast attracts a large number of individuals who frequent the beach and rocky shores for recreational and educational purposes. Human disturbances such as handling, trampling, and collecting of intertidal organisms can impact the local flora and fauna, reduce overall biodiversity, and alter the structure of the community. The Laguna Ocean Foundation is a non-profit organization that works to promote the conservation of coastal resources and assess the effectiveness of Laguna Beach's network of Marine Protected Areas (MPA). This study focused on three components within the reserve: (1) educating the public on intertidal ecology and MPA regulations, (2) classifying human impacts, and (3) recording the abundance of key invertebrate, marine mammal, and seabird species.

Location: UC Main
Poster Number: 120

Dissolving The Border

Samantha O'Brien

Faculty Advisor: Whitney Moon
Department of Art, Architecture, & Art History

For a City surrounded by water, it is hard to believe that water security is one of the most pressing and challenging issues the City of San Diego is facing. San Diego puts up a false façade as an oasis, when in reality the City has been built out of a desert. Since the early 2000's, the city has been plagued with many sewer main breaks, forcing the City to raise the price for water utilities in order to accommodate for the replacement of the aging water infrastructure. The City has invested billions of dollars in not only the capital improvements for the sewer lines, but also towards the increase in development of the dams and reservoirs in the regions surrounding water systems. Dams and aqueducts are essential to supporting the densely populated region of downtown San Diego while also having the ability to accommodate the entire population of San Diego County. However dams and aqueducts are not the only solution to the water scarcity issue. In some cases, the dams and aqueducts have created more harm than good by plaguing the county with a series of droughts followed by a series of floods. Aqueducts and dams alter and disturbed the natural ecosystems that exist in the San Diego region. Such ecosystems are essential for providing a stable climate, and such destruction by our irrigation of the land has ultimately created the instability in our regions precipitation and weather. There is no single solution to San Diego's complex water issues; however the City could invest more in water advocacy and less in further contouring of the natural environment. San Diego should follow in Singapore's footsteps by creating reservoirs and dams that engage the public in the water treatment process. Currently the public is too far removed from its water source, but with further inclusion in the water treatment process, or further initiative to visit our different water sources, the public will begin to see the necessity in conservation, and want to help in the San Diego water initiative.

Location: UC Main
Poster Number: 121

Women at Douglas Aircraft Company: The Fight for Equality within the Workplace

Katie O'Connell

Faculty Advisor: Colin Fisher
Department of History

As part of the History Senior Seminar program, I will be presenting my senior thesis on Women at Douglas Aircraft leading up to and during World War II. I will focus first on the female experience within the workforce prior to the war, as well as Douglas Aircraft Company's response to increased labor demands at the onset of the war. The main focus of my project is how Douglas Aircraft Company responded to the increase in female employment. I will be relying on primary sources from Douglas' own monthly magazine publication as primary evidence for my argument.

Location: UC Main
Poster Number: 122

Lost in Translation: Communication and Educational Strategies in Bilingual Elementary School Classrooms

Courtney Ochi

Faculty Advisor: Kevin Guerrieri
Department of Languages & Literatures

The goal of my research is to examine ways to improve bilingual education techniques. By pinpointing key factors that cause difficulty and problems in reading, writing and math for bilingual elementary students, I can evaluate how teaching and communication strategies can be altered to improve education for these students. I will do this by serving as a teaching assistant in a 2nd Grade Bilingual Education classroom and interviewing faculty that have worked as bilingual educators to gain feedback on successes and struggles they have faced in the classroom. Simultaneously, I will be conducting research on a number of topics including bilingual education, classroom communication strategies, and different aspects of applied linguistics, among others. Ultimately, my final paper will combine my reflection on my direct experience in the classroom with the theories and concepts discovered through my research.

Location: UC Main
Poster Number: 123

Creating a C Compiler

Nicholas Otto

Faculty Advisor: John Glick
Department of Computer Science

Compilers are computer programs that translate source code written in a programming language into object code written in instructions specific to the underlying hardware. This project will create a compiler from the popular C programming language to the ARM instruction set. The ARM instruction set is the interface to the family of processors which dominate the mobile market. Creating a compiler incorporates principle of computability theory, programming language design, a rich set of data-structures and algorithms, and will also require strict discipline to software engineering's best practices. Having a well-design custom C to ARM compiler will allow the creation of more efficient programs intended for mobile devices.

Location: UC Main
Poster Number: 124

Coupled-Enzymatic Analysis for Educational and Industrial Analysis of Ethanol in Beer

Elliot Paine

Faculty Advisor: Julia Schafer
Department of Chemistry & Biochemistry

A method for the enzymatic determination of ethanol content in beer is being adapted for use in both educational and industrial (for Mission Brewery) settings. Using a coupled enzymatic reaction with alcohol oxidase and peroxidase, the kinetics of the experiment were monitored by way of spectrophotometry. Experimental conditions such as the chromogen, solutions concentration, sensitivity and optimal rates were studied for use in an undergraduate lab experiment. Under optimized conditions rates were used to construct a standard curve that was utilized to determine the ethanol content in Mission Brewery beers. Key findings have indicated that enzymes used in this experiment decompose readily and need to be prepared under optimal enzymatic conditions. Temperature, pH, oxygen content and enzyme stabilizing agents have a direct impact on the activity and efficiency of the enzymatic reaction and need to be controlled for reproducibility and reliability of results.

Location: UC Main
Poster Number: 125

Othring Judeo Christianity: Reappropriation of Biblical Images in African American Literature

Shannon Palka

Faculty Advisor: Fred Robinson
Department of English

My research is concerned with the re-representation of biblical images in African American literature from its roots in the vernacular to its transformation and incorporation into other, modern, literary traditions. Well-known Judeo-Christian figures - Christ, for instance - are portrayed in unique ways in African American literature as a form of cultural appropriation. My research investigates the social and cultural forces driving this re-representation and how both black and white audiences reacted to these reframed biblical images. I will look at Negro spirituals, speeches by Frederick Douglass, and essays by W.E.B. Du Bois to examine the introduction of Christianity to an enslaved population. Further, I will focus on texts composed in the Harlem Renaissance, during the rise of communism, and in the fight for civil rights to examine the re-appropriation of Judeo-Christian images in African American literary traditions.

Location: UC Main
Poster Number: 126

Shakespeare's Richard III as Pick-Up Artist

Desiree Palmer

Faculty Advisor: Maura Giles-Watson
Department of English

This paper offers an approach to a long-standing interpretive problem in Shakespeare's *Richard III*, namely, Richard's seduction of Anne in Act 1, Scene 2, and her response to his manipulation. In this scene, Anne escorts the corpse of her father-in-law, Henry VI, past Richard, Duke of York, who murdered both her father-in-law and her own husband. In just 207 lines of dialogue between Richard and Anne, Anne transforms from hating him venomously to agreeing to marriage. Taking into account treatments of this scene by critics including Zauderer (2011), Schalkwyk (2010), Phillippy (2002), Oakes (1999), Sanders (1998), Larocco (1995), and Waller (1986), this paper analyzes the actions and effects of Richard's seduction scene by focusing on elements of Richard's physical and verbal behavior toward Anne that mirror specific techniques employed by the "PUA (pick-up artist) community"—a seduction community that inhabits the internet, bars, and literature.

Location: UC Main
Poster Number: 127

Interaction of Petroleum-Based Organosulfur Compounds with a Titanium Dioxide Surface

Aileen Park

Faculty Advisor: Lauren Benz
Department of Chemistry & Biochemistry

Petroleum is the most predominant fuel source used in society today. As consumer usage increases, suppliers must turn to dirtier fuel sources to meet increasing demand. Unfortunately, these new petroleum sources are contaminated with nitrogen, oxygen and sulfur, which must be removed prior to utilization. In particular, sulfur-containing molecules in petroleum have the potential to create acid rain by converting to sulfur oxides upon fuel combustion. Sulfur oxides can then react with atmospheric water, leading to sulfuric acid, which causes acid rain. Thus it is important to investigate methods to eliminate sulfur from petroleum prior to combustion. Herein, we've examined the interactions between several sulfurous compounds and a titanium dioxide (TiO₂) surface, a stable catalyst and catalyst support. We explored the modification of this surface by adding silver nanoclusters to make the titanium dioxide plate more active in the removal of sulfur.

Location: UC Main
Poster Number: 128

Buddy of the Buddha

Benito Pascua

Faculty Advisor: Jason Crum
Department of English

Buddy of the Buddha is a graphic novel that explores topics of comparative philosophy, religious conversion, and cultural oppression in Tibet through the eyes of a Mormon missionary. It is a fictional tale which aims to expose the social lens through which one perceives society and the way one comes to recognize.

Location: UC Main
Poster Number: 129

Seasonal Correlation of SIDS Death Rates in California Counties

Kevin Pelaez

Faculty Advisor: Jane Friedman
Department of Mathematics

Sudden Infant Death Syndrome (SIDS) is a phenomenon where children under the age of one, seem to die for no apparent reason, even after a thorough autopsy. In fact, SIDS is the leading cause of deaths in infants. As a result, it is a great concern for countries around the world, including the United States of America. There have been theories about contributing factors to SIDS, including sleeping patterns and seasonal weather patterns. Using regression and time-series analysis, this research provides a mathematical approach to model and analyze the correlation between SIDS and many types of seasonal weather patterns, including temperature and humidity. To allow for a more thorough analysis, we focus on California counties and analyze temperature and humidity per month against our SIDS death rates.

Location: UC Main
Poster Number: 130

San Diego's Urban Wellness

Lauren Peletta

Faculty Advisor: Whitney Moon
Department of Art, Architecture, & Art History

Health and wellness have become terms that no person can adequately and confidently define; yet we hear them used constantly in both casual conversation and formal discourse. Throughout my investigation of the urban footprint of health and wellness, I have formulated my own definition of health in the city, which has become a spectrum of different models from fitness centers to open space. I have decided to intervene in the Civic Center Plaza in the heart of downtown, because of its great potential to be a social civic space that can incorporate and promote wellness on a larger scale than what currently exists in San Diego.

Location: UC Main
Poster Number: 131

Using Ferrocene-Based Ligands to Synthesize Multi-Metal Complexes

David Peters

Faculty Advisor: Mitch Malachowski
Department of Chemistry & Biochemistry

Our interest is in designing organic molecules with particular shapes. In order to do this, we have synthesized rigid organic molecules based on the ferrocene unit. These organic molecules were designed to have a shape that will lead to a cavity when complexed to metal ions. After preparation of the organic molecules, they were bound to metal ions such as cobalt, nickel and copper. The complexes were characterized by a combination of elemental analysis, mass spectrometry and X-ray crystallography. From these results, we were able to determine whether our basic premise about building particular shapes into the ligand is transferred to the metal complexes. We will highlight our successes using these ferrocene-based ligands.

Location: UC Main
Poster Number: 132

Zen Center of San Diego

Nicole Peterson, Sheryl Rathfelder, Elizabeth Quandt

Faculty Advisor: Evelyn Kirkley
Department of Theology & Religious Studies

The Zen Center of San Diego is a unique community of faith. Describing itself as "more Zen than Buddhist," it is not affiliated with any particular school of Buddhist thought. However, the theoretical foundation of members' practices derives from the Soto tradition of Zen Buddhism. ZCSD focuses on the practice of contemplative meditation in order to realize the interconnectedness of all life. Members believe strongly in avoiding harm to any living creature. They believe that every action has a consequence, so they vow to live with integrity, authenticity, and attention. This motivation to live a mindfull life will ultimately help free all beings from suffering. Our research analyzed why ZCSD attracts an older congregation, why they have not experienced discrimination in San Diego, and how they are distinct from Zen Buddhism.

Location: UC Main
Poster Number: 133

Mental Illness in the Media: Where is the Silver Lining?

Katherine Pfost

Faculty Advisor: Kristin Moran
Department of Communication Studies

When one looks at the media today, it is easy to assume that all those who suffer with mental illness are one a few things: angry, despondent, violent, overly sexual, outcasts, dangerous, or just plain nuts. It is easy to assume that mental illness and its treatments are either dramatic and life altering or even ending, or emotional and ineffective. This negative stigma that the media is creating and continuing not only causes negative attitudes towards the mentally ill in our society, but also creates a negative self-image in those who suffer from mental illness, and might prevent them from seeking the help they need. Silver Linings Playbook is the start of a new portrayal of the mentally ill in our society. Films, and memoirs, with stories that show honest battles with mental illness will serve to erase the limited and damaging ways we understand mental illness. In the same way the media created negative attitudes towards the mentally ill, they now can create a culture of understanding, acceptance, and honesty. While the past state of mental illness in the media is dark and harmful, we may still have a shot at a silver lining.

Location: UC Main
Poster Number: 134

Student Attitudes Toward Ambivalent Sexism

Kelley Phan

Faculty Advisor: Anne Koenig
Department of Psychological Sciences

Participants read scenarios in which a female received advice not to take a job with hostile, benevolent, or neutral justifications from a male or female advice giver. Hostile sexism is outwardly negative attitudes, whereas benevolent sexism is sexist attitudes under the guise of being protective and upholding traditional views of women (Glick & Fiske, 1998). Overall, results showed that benevolent sexist justifications were viewed as less discriminatory than hostile sexist justifications or no justification at all. There was also a marginally significant interaction that demonstrated that people perceived the advice giver as more hostile when giving hostile advice when a male gave the advice than when a female did. Participants also completed the Ambivalent Sexism Inventory, which gauges endorsement of benevolent and hostile sexism. Analyses of results are ongoing and will be completed before the Creative Collaborations conference.

Location: UC Main
Poster Number: 135

The Roots of College Students' Mental Health: The Importance of Parents

Rachyl Pines

Faculty Advisor: Mary Brinson
Department of Communication Studies

On college campuses nationwide, mental health is an issue in the forefront. With suicide due to untreated depression being the second leading cause of death in college students, examining the roots of the mental health problems that lead to suicide are merited. This study focuses on the relationships between the following variables; levels of parent-child conflict, perfectionism, and general help seeking. These variables are measured through the Parent-Child Conflict Scale, the Frost Multidimensional Perfectionism Scale, and the General Help Seeking Questionnaire. The study consists of a cross-sectional online completion questionnaire of University of San Diego students. Through this study I found relationships between these variables to better understand the mental health issues on the rise in populations of college students. This paper explains that high levels of parent-child conflict is positively related to students not seeking help.

Location: UC Main
Poster Number: 136

Expression of Polymeric Immunoglobulin Receptor Genes of *Danio rerio* (zebrafish)

Rommel Pinlac

Faculty Advisor: Valerie Hohman
Department of Biology

The mucosal immune system faces a wide array of pathogens, such as bacteria and viruses that potentially lead to sickness and infection. The polymeric immunoglobulin receptor (pIgR) is a vital protein in transporting the immune system's antibodies, which are essential for targeting pathogens for destruction, across mucosal epithelial cells and into secretions through a process called transcytosis. By doing in situ hybridizations on tissue sections of separate organs, regions including the liver, intestines, kidneys, and gills are likely to show expression of this protein on the mucosal surface because of regular exposure to pathogens. The goal of this study is to characterize the expression of this protein in *Danio rerio* (zebrafish). This semester's focus is on probe design and development for these hybridizations. Information from this project can be used as a baseline for further studies of the pIgR to explain its origin and necessity in an adaptive immune system.

Location: UC Main
Poster Number: 137

React or Evaporate? Atmospheric Aldehydes in Aqueous Droplets Containing Amines or Ammonium Sulfate

Michelle Powelson

Faculty Advisor: David De Haan
Department of Chemistry & Biochemistry

Approximately half the mass of typical aerosol particles consists of organic compounds, which change the radiative properties of aerosol and so contribute to global climate change. Oligomer formation in atmospheric aqueous aerosol is an important formation mechanism for low-volatility organic material. There are several aldehydes present in clouds droplets, including methylglyoxal, glycolaldehyde, hydroxyacetone, glyoxal, and acetaldehyde. These aldehydes have the potential to oligomerize and/or create "brown carbon" products when reacted with ammonium sulfate or primary amines (methylamine and glycine). Physical properties of oligomers, such as mass and volatility, can be determined using Thermogravimetric Analysis (TGA). The change in mass of solutions containing amine and aldehyde compounds was measured as a function of temperature to determine the quantity and stability of compounds that remain in the condensed phase. The mass loss profile after water evaporation varied depending on the aldehyde + amine solution. Aldehyde + glycine mixtures produced the most condensed-phase material with glyoxal and methylglyoxal, as observed by other techniques where aerosol evaporation occurs at room temperature. Aldehyde + methylamine and ammonium sulfate mixtures, however, unexpectedly produced the most condensed-phase material with the smallest aldehydes, formaldehyde and acetaldehyde. These reactions were likely greatly accelerated by the 105 °C temperature used to evaporate water in this TGA method. Further analysis on room- temperature-evaporated materials by TGA will be reported.

Location: UC Main
Poster Number: 138

Are Wide Receivers in the NFL Financially Rewarded for Traditional Statistics or the Value they Bring to their Team?

Ronald Pratte

Faculty Advisor: Mark Abajian
School of Business Administration, Economics

With a stringent salary cap in place since 1994, NFL general managers have been forced to maximize the value they receive from players in relation to the salary that they award them. Wide receivers, in particular, play an important offensive skill position and usually have their performance assessed through the traditional statistics of catches, yards, and touchdowns scored. These statistics, however, lack the ability to assess and quantify a player's actual contribution to the success of his team. Through the utilization of two new statistical categories, Wins Probability Added and Expected Points Added, general managers have empirical evidence to draw conclusions on the true value a player brings to his team. With this mind, are traditional statistics or these new approaches more influential in determining a wide receiver's salary?

Location: UC Main
Poster Number: 139

Love and Reason: A Study into the Philosophy of Ninon de Lenclos

Elizabeth Quandt

Faculty Advisor: Lori Watson
Department of Philosophy

Ninon de Lenclos was a female philosopher who lived in 17th century France. Although she achieved fame and recognition during her lifetime, her theories have now faded into the shadows of history. In this presentation I will offer a summary of the ideas that shaped the life of this radically unconventional woman.

Location: UC Main
Poster Number: 140

St. Kateri Tekakwitha: The Intersections of Catholicism, Colonialism, and Ecologically Conscious Spirituality

Veronica Ramirez, Eleanor Phillips

Faculty Advisor: Michelle Jacob
Department of Ethnic Studies

St. Kateri Tekakwitha was the first American Indian to be canonized by the Catholic Church. Considered the Patroness of Ecology many similarities are found between Kateri's beliefs involving nature and American Indians. We focus on how her spirituality in nature has the ability to heal and create a more ecologically conscious Church. Using historical documents and secondary sources we will examine the story of Kateri to further our own analysis of her life and miracles, as well as re-frame them through the decolonizing lens of 'Protecting'. Kateri's ecological connection serves as a model path to support the restoring of indigenous female knowledge and to envision a spirituality that recognizes the healing powers of indigenous processes and connection to the land. In conclusion Kateri's connection with ecology and spirituality with nature should serve as a framework for the modern Church's relationship with the natural world.

Location: UC Main
Poster Number: 141

Is Abundance of Larval Spotted Sand Bass, *Paralabrax maculatofasciatus* in Mission Bay Related to Local Oceanographic Factors?

Matthew Ray

Faculty Advisor: Steven Searcy
Department of Environmental Studies

Estuaries are widely recognized as important nurseries for a variety of fishes and invertebrates. Despite this, in Southern California, relatively little is known about patterns of larval supply (settlement) to these areas. Measurement of larval supply is critical as high variability in the number of larvae that survive to reach juvenile habitat is an important determinant of future population strength. In this study, we used standard monitoring units for the recruitment of fish (SMURFs) to examine weekly settlement patterns of spotted sand bass, *Paralabrax maculatofasciatus* from June- October of 2013 to Mission Bay, San Diego, CA. Spotted sand bass are commonly found in shallow bays and harbors of Southern California and are targeted by recreational anglers. Our objectives were to examine annual and inter-annual variation in settlement patterns of Spotted sand bass by comparing rates of larval delivery to local ocean conditions including: sea surface temperature, upwelling, and Chlorophyll-A.

Location: UC Main
Poster Number: 142

Behind Closed Curtains: The Importance of Aquascaping in the Success of Breeding Weedy Seadragons

Morgan Re

Faculty Advisor: Drew Talley
Department of Marine Science

I interned with the Birch Aquarium in La Jolla to help start up their Weedy Seadragon (*Phyllopteryx taeniolatus*) breeding program. Using prior research on the breeding behaviors of weedy seadragons and my own field observations, I developed an optimal design for the new breeding tank. This program is important because there is little known about the life history characteristics of this species, particularly pertaining to early stages of development. The paucity of information on the species has left it classified as “data deficient” on the International Union for Conservation of Nature (IUCN) Red List. Successful captive breeding programs have the potential to help reduce the stress from collection on this possibly threatened, rare species. The program has been running for six months thus far with one successful breeding event to date.

Location: UC Main
Poster Number: 143

Caligula and the Theater

George Reed

Faculty Advisor: Colin Fisher
Department of History

Location: UC Main
Poster Number: 144

Using Android to Aid Athletes

Luis Retana

Faculty Advisor: Lukasz Pruski
Department of Computer Science

Over the last decade, the sports industry has grown wildly. While athletes may be involved in sports for different reasons, all types of athletes share a common need: the need to easily analyze and keep track of various facets of their training programs, such as their workouts, diets, and personal records. In the past, athletes relied on notepads or on their memory to record training data. However, recording data in this fashion becomes difficult to manage as it often results in lost or poorly recorded data. Furthermore, many athletes do not have the tools to collect training metrics. With the use of the Android framework, this project creates a simple, yet effective, mobile application that can be used anywhere. This application allows athletes, coaches, and fitness enthusiasts to log workouts and diets, track their progress, and collect data on their performances.

Location: UC Main
Poster Number: 145

An Exploration of Social Comparison on Facebook: A Qualitative Study

Mary Richardson

Faculty Advisor: Susannah Stern
Department of Communication Studies

Comparing ourselves to others is a normal behavior, yet it is seldom discussed. The rise of social media sites over the past decade have created a new platform for social comparison to prevail. This qualitative study seeks to further understand the nature of social comparison on Facebook. Interview responses of Facebook users, ages 18-24 were used to collect data. This method allowed for a deeper understanding of the range of participant behaviors on the site. The findings of this study suggest that photos are the focal point of comparison on Facebook. Additionally, participants compared themselves to friends they seldom see in real life. The findings of this study extend the understanding of social comparison on a new platform and provide valuable insight into the social comparison phenomenon that continues to unfold.

Location: UC Main
Poster Number: 146

Kinetics and pH Dependence of Aqueous-Phase Reactions of Glycolaldehyde with Glycine, Ammonium Sulfate, and Methylamine

Alyssa Rodriguez, Melissa Galloway, Alexia De Loera, Michael Symons

Faculty Advisor: David De Haan
Department of Chemistry & Biochemistry

Glycolaldehyde is produced by biomass burning and isoprene oxidation, and is a common atmospheric aldehyde. Its photooxidation in aqueous droplets and aerosol has been identified as a potentially important SOA source. Its aqueous phase reactions with atmospheric amino acids and amines may also be a source of SOA and brown carbon material. These reaction rates can be measured by proton NMR in 0.5 M D₂O solutions. Aqueous reactions of glycolaldehyde with glycine, ammonium sulfate, or methylamine were studied over the pH range 3-7. After 11h reactions in a 400 MHz NMR spectrometer, signals were converted to concentrations using MestReNOVA software and reaction rates were extracted from both reactant signals. Reaction rates (and browning) increased with pH, as expected. Glycolaldehyde loss rates were typically far in excess of amine loss rates, consistent with amine-catalyzed aldol condensations being the dominant reaction pathway. Aromatic products were observed in the NMR spectrum.

Location: UC Main
Poster Number: 147

Illicit Drug Distribution Networks in the United States

Haydee Rojas

Faculty Advisor: David Shirk
Department of Political Science & International Relations

Drug trafficking networks are an international phenomenon, but much of the discussion about such networks tends to focus on how they are structured and operate in other countries. There is little scholarly research available on trafficking in on the U.S. side of the border once the drugs are out of the hands of foreign drug trafficking organizations. This research project attempts to provide a more complete picture of how illicit drugs are distributed in the United States, from wholesale distribution to the consumer market. This research examines the different kinds of distributors and consumers of marijuana, cocaine, heroin, and methamphetamine in order to provide an understanding of the business operations behind these drugs. Using interviews, government and media reports, and other qualitative field research, this investigation informs us about the factors that shape the business structures of the major illicit psychotropic substances distributed in the U.S. market.

Location: UC Main
Poster Number: 148

Strong Arsenic Enrichment in Abandoned Gold Mines Near Julian, San Diego

Eduardo Romero Garcia

Faculty Advisor: Bethany O'Shea
Department of Environmental Studies

This study characterizes tailings from the abandoned Warlock gold mine near Julian that were suspected to be highly enriched in arsenic. We collected and analyzed samples from tailings near the mine furnace and local undisturbed rocks. To evaluate arsenic enrichment we measured total arsenic using an XRF Spectrometer and found concentrations 28–7,189 times the arsenic crustal abundance (1.8 ppm) and 47–11,758 times the CA OEHHA Soil-Screening Numbers (0.24 ppm). To assess arsenic mobility we subjected the samples to the US EPA Digestion Method 3051a and two other leach experiments (rainwater and water with pH3). The leachates revealed that significant concentrations of arsenic can be mobilized when tailings interact with solutions of different acidity. During El Niño years, heavy rainfall may lead to increased transportation of arsenic-laden sediments downstream the San Felipe watershed.

Location: UC Main
Poster Number: 149

Sediment Contamination Distribution in the Tecolote Creek Watershed

Kyla Rose

Faculty Advisor: Ronald Kaufmann
Department of Environmental Studies

The release of chemical contaminants into urbanized areas remains a long-term problem for streams and the health of aquatic organisms. Sediment properties, such as grain size and organic content, affect sediment transport and distribution, particularly the potential for chemical contaminant retention. This study analyzed sediments collected at ten sites throughout the Tecolote Creek watershed, correlating land use patterns and other potential factors with sediment properties. To examine temporal variation in sediment properties, sampling occurred during the dry and wet seasons. Sediments were analyzed for grain size distribution (laser particle sorter), organic content (CHNS/O analyzer), and chemical contaminant concentrations (QuEChERS extractions). Sediment mobility was expected to be highest during the winter, when rain events increase water flow in the creek, and concentrations of chemical contaminants were expected to be highest downstream from areas where pesticides are sprayed most heavily (parks and golf courses).

Location: UC Main
Poster Number: 150

Elle Communications

Kristal Ruiz

Faculty Advisor: Gary Gray
Department of Political Science & International Relations

For the spring semester I interned at a public relations firm in La Jolla, California. With offices in Los Angeles, New York and San Diego, Elle Communications is dedicated to providing quality service to their clients. As an intern, I was assigned to assist a public relations specialist. My daily duties include research, media scheduling, media list building, online marketing, and social media. It is also my responsibility to maintain active communication with vendors, clients and the media.

Location: UC Main
Poster Number: 151

Children's Sensitivity to Face-ism

Maria Russo

Faculty Advisor: Annette Taylor
Department of Psychological Sciences

This study examined the developmental course of face-ism. First documented by Archer, et al. (1989), face-ism is a type of sexism in which images of men focus attention on their faces, whereas women's depictions include whole bodies, causing their faces to appear less prominent. Facial prominence is assessed by a "face-ism index," the ratio between the top of the head to the lowest point of the chin, and the top of the head to the lowest visible part of the body. No published study has examined this effect in children's drawings. Knowing the age at which face-ism develops can help adult writers and animators be more aware of the effects of the differential depictions of both men and women. Our data has not shown a difference in any age group from 5 to 14 years old. However, our sample is still small. Thus, the face-ism affect does not appear until adulthood.

Location: UC Main
Poster Number: 152

Judicial Extern for Judge John A. Houston, United States District Court

Jamie Santos

Faculty Advisor: Gary Gray
Department of Political Science & International Relations

This semester I am a judicial extern for Judge John A. Houston at the United States District Courthouse for the Southern District of California. As a judicial extern, I am able to observe court but also assist law clerks and the judge with filing and memorandums regarding sentencing or motions. I accepted this opportunity in an effort to expand my knowledge of the judicial system. I look forward to using my time observing proceedings in the courtroom to analyze the different styles of various attorneys as well as the responsibilities of a judge. I also hope to gain knowledge for a possible career path as I have hopes to attend law school, but am unsure as to what type of law I would like to practice.

Location: UC Main
Poster Number: 153

The Development of an Effective and Reproducible Undergraduate Experiment for the Analysis of Alpha and Beta Acid Content in Hops Through Multi-component Spectroscopic Analysis and High-Pressure Liquid Chromatography

Garrett Saul, Hassan Khalil

Faculty Advisor: Julia Schafer
Department of Chemistry & Biochemistry

The goal of the research, done in collaboration with Mission Brewery, was to produce an effective and reproducible undergraduate experiment for the analysis of alpha and beta acid content in hops through multi-component spectroscopic analysis and high-pressure liquid chromatography. By quantifying the amount of alpha and beta acids present in a particular hop sample brewers can better predict the flavor and aroma of the beer being produced. This experiment provides a practical way for undergraduate students compare various methods of quantitative analysis in analytical chemistry. It has been determined thus far that hexanes are more effective than methanol in the extraction of the bitter acids from hops. Multi-component spectroscopic analysis is a simple, quick, and consistent means of analyzing the bitter acid content in hops. Future research expectations are to compare the quality and reproducibility of the results produced by using the multi-component spectroscopy versus high-pressure liquid chromatography.

Location: UC Main
Poster Number: 154

The Electric Car - Past, Present, and Future?

Sean Schrag-Toso

Faculty Advisor: Daniel Codd
Shiley-Marcos School of Engineering, Mechanical Engineering

At the dusk of the age of the combustion engine, the electric motor has adopted a more current appeal. Electric cars are being designed, bought and driven in relatively vast amounts, however the combustion engine still is the customer's preference. Customers are met with a variety of reservations when buying an electric car: the limitation of potential distance driven on one charge and the environmental effect of the metals in the batteries to name a few. As a result, the demand remains low. Whether these reservations are valid in their concerns, or solutions exist to address these problems will be a topic of interest within this research. This analysis of the costs and benefits of the electric car will be supported by an examination of the fascinating history of the electric car as well as its current vehicle models and supporting infrastructure.

Location: UC Main
Poster Number: 155

Limits to Growth: Latin American Poverty 1990-2010

Shannon Schumacher

Faculty Advisor: Emily Edmonds
Department of Political Science & International Relations

This study examines the impact of economic growth and redistributive policies in alleviating Latin American poverty with the case studies of Brazil, Colombia, Ecuador, and Honduras. It seeks to discover why countries with similar rates of economic growth report different rates of poverty reduction from 2000-2010. Examining conditional cash transfer (CCT) programs; this study tests the hypothesis that CCTs are a necessary component for the success of large-scale poverty reduction in Latin America. While CCT coverage of both the poor and total populations is hypothesized to play the dominant role, this study finds that both program coverage and spending are substantial components in reducing poverty for the four cases. Through its examination of redistributive policies, this study aids policymakers at the international, regional, and national level by contributing to established best practices for the design, implementation, and monitoring of CCT programs in both Latin America and across the globe.

Location: UC Main
Poster Number: 156

St. Stephen's Cathedral: Vienna's (Secular) Icon

Nahzaneen Sedehi

Faculty Advisor: Molly McClain
Department of History

St. Stephen's Cathedral, the seat of the bishop of Vienna, is an icon of the city and its people. It's the only stop on the metro map with a picture, and building codes prohibit the construction of structures taller than their beloved "Stephansdom." This is interesting considering that the percentage of Viennese who identify as Roman Catholic has dropped significantly from 90% in 1961 to 39.8% in 2010 (Neuwirth, "Bis 2031 nur noch jeder Zweite katholisch"). The Viennese adopted St. Stephen's Cathedral as their symbol, an identity beyond the Austro-Hungarian Empire and the Habsburg monarchy. This icon of Vienna reflects back to the roots of the city. After all, it was consecrated in 1147, during the reign of the Babenbergs.

Location: UC Main
Poster Number: 157

Analysis of Y39G8B.1 and C07D8.6 in Biopterin Synthesis in *C. elegans*

Danielle Serna

Faculty Advisor: Curtis Loer
Department of Biology

The molecule biopterin is an essential cofactor for the synthesis of the neurotransmitters dopamine and serotonin. Sepiapterin reductase (SR) is required to produce biopterin in eukaryotes. An SR is not found in the nematode worm *Caenorhabditis elegans*; however, this worm produces biopterin and the corresponding neurotransmitters. Therefore, there must be an SR-like enzyme performing the necessary steps in biopterin synthesis. We investigated DNA sequences that could function in place of SR gene in *C. elegans*. To test the candidate genes we will block their function using RNA interference. Our genes, Y39G8B.1 and C07D8.6, code for reductases that may be involved in biopterin synthesis. The resulting phenotypes when the genes are blocked will be compared to negative and positive controls in order to determine if either are involved in biopterin synthesis.

Location: UC Main
Poster Number: 158

Molecular Species Identification in a Cryptic Swarm of New Zealand Armored Scale Insects.

Gabriella Sghia-Hughes

Faculty Advisor: Geoffrey Morse
Department of Biology

Armored scale insects are rather inconspicuous pests of woody plants. They are, however, quite notorious amongst taxonomists as being very difficult to identify. This is mostly because the most commonly encountered life stage (adult females) have lost most of the obvious morphological features normally used to identify insects: legs, eyes, antennae, wings, etc. In the early 2000s, Dr. Rosa Henderson, an armored scale insect taxonomist, identified a cryptic endemic radiation of New Zealand members of the genus *Leucaspis*. While these present more difficulties for identification than most armored scales because they live inside the exoskeleton of a previous molt, Dr. Henderson provisionally identified 36 species of which 25 were new to science. However, morphological plasticity in armored scale insects makes species delimitation difficult. In this poster I present the results of my study using phylogenetic analysis of molecular markers to test the species limits identified by Dr. Henderson.

Location: UC Main
Poster Number: 159

Exploring Water Resources in Beijing and the South-to-North Water Diversion Project

Lilian Shen

Faculty Advisor: Zhi-Yong Yin
Department of Environmental Studies

This study explores surface water resources in Beijing and the effects of climate change, urbanization and population growth. Climate change has resulted in regional changes in precipitation, while increases in urban impervious surfaces lead to greater amounts of run off, and these can affect the water supply and consumption patterns. Urban areas also experience high population density and growth, as well as high standard of living, all of which contribute to a higher demand of water. In light of these complex variables, it is difficult to quantify the outlook of Beijing's water resources. The South-to-North Water Diversion Project (SNWDP) was envisioned in 1952 to resolve the water shortage issue in Northern China. Even though there is sufficient need for expensive infrastructure projects like the SNWDP, it may not be the most efficient means of resource management in the long-run especially after internalizing economic, social and environmental costs that can increase in the future.

Location: UC Main
Poster Number: 160

Framing Effects in Sport Commentary on Viewer Perception: Can One Word Make the Difference?

Mark Sheptock

Faculty Advisor: Nadav Goldschmied
Department of Psychological Sciences

The current experiment examined effects of framing in sport commentary. As participants watched a hockey highlights reel, they saw a major hockey hit, which the announcer described as either a contact, bump or smash. Those who heard the contact commentary were significantly more likely to estimate higher skate speeds when compared to participants who were exposed to the smash description. Furthermore, participants who were exposed to the bump commentary rated the physical and medical repercussions of the collision as significantly less severe, as compared to the contact and smash commentaries. These findings show that the perception of magnitude for each description is context-, or domain-specific, given that past research utilizing a similar methodology but describing a car accident produced an opposite rank order.

Location: UC Main
Poster Number: 161

Polyhedral Atlas

Paul Short

Faculty Advisor: Daniel Lopez-Perez
Department of Art, Architecture, & Art History

One of the central issues today is sustainability. In attempts to confront the increasing need to be more environmentally responsible, this research looks at architectural design and construction methods that aim to "do the most with the least." The Polyhedral atlas is a research projects that approaches this problem through the idea of "lightness" i.e. lighter building envelopes, less materially intensive manufacturing practices, and thus more environmentally responsive spatial systems. In attempt to compile, understand and extract the intelligence of structures that embody "lightness" for contemporary architecture, thirty case studies of space-filling frame-like structures, are modeled, described and defined in terms of a polyhedral unit, tessellation, and its aggregation. This research will result in an atlas of these structures, online and in print, so that others may come to understand these case studies and contribute their own individualized solutions utilizing "lightness" to help confront the challenges of contemporary architecture.

Location: UC Main
Poster Number: 162

Viscoelastic Properties of Entangled DNA Solutions: Dependence on Molecular Length and Concentration

Patrick Smith

Faculty Advisor: Rae Anderson
Department of Physics

Solutions of long DNA molecules are viscoelastic, meaning they behave both as a liquid and as a solid depending on the type of strain one applies to the solutions. We use rheometry to investigate the viscoelastic properties of solutions of linear DNA, as a function of DNA length and concentration. We use DNA lengths that vary from 11 to 115 kilobasepairs (3.7 to 39 microns) and solution concentrations that range between 0.5 and 4.0 mg/ml. We investigate the effects of oscillatory strain frequency on the linear elastic and viscous moduli, with frequency values of 0.01 - 100 Hz. In addition, the dependence of viscosity on strain rate is studied with strain rates ranging from 0.01 to 100 Hz. Importantly, these studies are the first to examine the molecular length dependence of linear viscoelastic properties for concentrated DNA solutions.

Location: UC Main
Poster Number: 163

Yoga and the Counter Culture

David Sperry

Faculty Advisor: Colin Fisher
Department of History

I will be chronicling yoga during the sixties and its impact on the Counter Culture. I will emphasize its rise to popularity in southern California from its religious undertones to its rapid blending with the psychedelic movement.

Location: UC Main
Poster Number: 164

It's Critical: Student Attitudes Toward Critical Thinking and an Assessment of a Lecture to an Introductory Engineering Class

Rachel Stein, Esther Cho, Karly Jerman, Kameron LaCalli, Sabrina Lucero, Victoria Maraga, David Pennington, Aimee Slavensky, Neil Vranicar

Faculty Advisor: Frank Jacobitz
Shiley-Marcos School of Engineering, Mechanical Engineering

Critical thinking is an essential skill for achievement as an engineering student and success in the engineering profession. Critical thinking can be defined as a mental process to responsibly form an unbiased conclusion that includes skillful analysis, identification, and evaluation of evidence to guide decision-making. In our research we analyzed the definitions of critical thinking and bias, what tools could be used to help in the critical thinking process, and how concepts such as bias and critical thinking affect us in the real world. We then presented this information to several introductory engineering classes in the form of a lecture and asked the students to assess their knowledge and understanding of critical thinking concepts before and after our presentation. We evaluated the surveys and found a general trend showing that most students improved their definitions of bias and critical thinking after our lecture, along with an improved self-rating of understanding.

Location: UC Main
Poster Number: 165

Blaming the Individual? The Medicalization of African American Women's Bodies in San Diego

Shantell Steve

Faculty Advisor: Adina Batnitzky
Department of Sociology

Health disparities disproportionately affect African American women. Disproportionate rates of obesity, qualities of life weakened by preventable chronic diseases and shortened life span among African Americans women strongly suggest a need to adopt a new model of health promotion that validates African American experiences. However, medicalization models contradict such changes. Through focus groups, interviews and participant observation I explored how African American Women in South-East San Diego understand diet and physical activity. In total, 20 women, aged 18-65 recruited through a women's group of New Creation Christian Church shared their experiences and concerns about health and wellness. Ultimately, I argue that the medicalization of diet and physical activity invalidates culturally rooted frameworks for health, diet, and physical activity in the African American women. . It is further hypothesized that considering racial inequities in models to support the health disparities of African Americans women would be a more productive route. This research project is significant because too many studies and campaigns attempt to make claims to change unhealthy behaviors surrounding diet and physical inactivity of African Americans women without taking into consideration cultural difference or the population's perspective. Learning from the experiences of African American women will improve upon culturally competency models, which can improve our ability to deliver quality healthcare to everyone.

Location: UC Main
Poster Number: 166

Analysis of the Ultraviolet Light Absorbing Compounds Derived from the Reaction of Glyoxal and Sulfite

William Sueme

Faculty Advisor: David De Haan
Department of Chemistry & Biochemistry

Dr. David De Haan's Research group analyzes atmospheric chemistry. More specifically we look at how certain molecules, mainly aldehydes, react under various atmospheric conditions and with various other reagents. The purpose of this experiment is to determine the results of mixing glyoxal and other common aldehydes found in cloud formations, with sulfite, which occurs in the atmosphere as a result of industrial pollution. The reaction between the glyoxal and sulfite yields the compound tetrahydroxybenzoquinone or THBQ. This molecule and those it oxidizes into absorb light in the UV spectrum. Thus certain amounts of this in the atmosphere under the right conditions could decrease the amount of solar rays that reach the surface. Therefore the purpose of this experiment is to identify the molecules formed in the atmosphere when aldehydes react with sulfite.

Location: UC Main
Poster Number: 167

The Mediating Variables of Stress on Hormones in College Students

Cori Tergesen, Sarah Jensen, Mallory Cless, Jacquelyn Machado, Kelly Birch, Chris Dishop

Faculty Advisor: Veronica Galvan
Department of Psychological Sciences

College students report the highest levels of chronic stress as compared to other age groups (APA, 2012). Self-efficacy and an internal locus of control have been proposed as factors mediating the effects of chronic stress. This study expands upon research conducted in our lab that correlates behavioral and physiological markers of stress and assesses individual differences in response to chronic stressors. The current study correlates behavioral markers of stress by using measures of self-efficacy and internal locus of control with the biological stress hormone cortisol. Questionnaires assessing chronic stress included the perceived stress scale, daily stress inventory, and the college stress inventory. Questionnaires assessing self-efficacy included nutritional self-efficacy and locus of control with religiosity.

Location: UC Main
Poster Number: 168

Electro-Optical Speed Measurement System

William Thompson

Faculty Advisor: Kathleen Kramer
Shiley-Marcos School of Engineering, Electrical Engineering

A non-contact, highly accurate speed-measuring device is being designed. The device uses EO sensors and relies on MATLAB optical flow image processing. The sensors will capture image information at a high frame rate and produce speed measurements through edge detection. This system is intended to replace current, less accurate systems already in place. There are several railroad companies in the US and Canada that already desire such a system.

Location: UC Main
Poster Number: 169

Calculating the Difference

Michael Tira

Faculty Advisor: Colin Fisher
Department of History

During the early seventeenth and late eighteenth centuries, Sir Isaac Newton and G.W. Leibniz independently invented calculus. The two became embroiled in a massive feud throughout the rest of their lives that would affect the rest of the European Mathematical Community. Two French mathematicians, Pierre Varignon and the Marquis Guillaume de l'Hopital, defy this stereotype, despite the existing Anglo-French rivalry, an anomaly that I seek to explore.

Location: UC Main
Poster Number: 170

Microfinance Institutions and their Tradeoffs

Angelia Tran

Faculty Advisor: Stephen Conroy
School of Business Administration, Economics

Microfinance over the past decades developed into a celebrated strategy to use in the fight against poverty by providing microloans to other financial services. For Microfinance Institutions (MFIs), their financial efficiency generally is the number of loans they are able to give and the default rate on these loans. Most observers take financial efficiency as a synonymous with social efficiency. Scholars, however, define and measure social efficiency on a wide spectrum from

improving gender equality to the “market penetration” of the MFI. As such, this project will first discuss the various measurements of social efficiency. Clearer definitions of these measurements can assist MFIs and policy makers to measure the social efficiency of microfinance as they are now. The definitions can also assist in determining the direction MFIs and policymakers wish to take to improve their social efficiency. Finally, this project hopes to look at the existing data provided by the MixMarket organization and provide some possible solutions.

Location: UC Main

Poster Number: 171

Dealing with Devils

Meliza Trimidal

Faculty Advisor: Randy Willoughby

Department of Political Science & International Relations

This research is an exploration of the potency of ransom payments to terrorists and other crime organizations through an analysis of various countries' attitudes and counter terrorist strategies as it relates to ransom & terrorist negotiations. It will eventually provide an outlook of ransom negotiation's efficacy in securing hostages and maintaining a country's international relations, profile, and national/regional security. It will discuss various group ideologies, various historical connections, cultural differentiation, and various other factors still in contention.

Location: UC Main

Poster Number: 172

¿Quiénes Son? Provenance of a South American Species of Seed Beetle that is invasive in California

Shannon Trujillo

Faculty Advisor: Geoffrey Morse

Department of Biology

In 2012 an infestation of unfamiliar seed beetles was discovered in eastern California feeding with the seeds of Mexican palo verde (*Parkinsonia aculeata*). Identification by Prof. Morse revealed that they were a species native to South America, *Penthobruchus germani*. How did they get to California? Where did they come from? Fortunately, in addition to these specimens from Blythe, Prof. Morse had previously collected this species in Argentina and a colleague had sent other specimens from Paraguay. While this species is also known from southern Brazil and Uruguay, we had enough geographic coverage to develop a molecular study intended to identify the most likely source location for this introduction. I will present the results of our use of molecular markers and phylogeographic methods in this endeavor.

Location: UC Main

Poster Number: 173

Ecological Factors Relevant to Transportation and Infrastructure in New Jersey

Andrea Tunnard

Faculty Advisor: Marjorie Patrick

Department of Biology

This presentation will outline skills gained through experiences as an Environmental Services Intern in the New Jersey Department of Transportation in the summer of 2013. I will address my responsibilities, which included water sampling, infrastructure project planning, and the ecological study of the New Jersey Highlands Basin region. I will also mention environmental planning databases available through the State of New Jersey and how government agencies utilize this public information in order to plan projects while adhering to guidelines set by both the New Jersey and Federal Departments of Environmental Protection. I plan to present the environmental and infrastructure challenges posed as the state continues its recovery from Superstorm Sandy, which had a great impact on New Jersey in October 2012 and from which many municipalities are still recovering.

Location: UC Main
Poster Number: 174

Pulsed Electro-Magnetic Field Device

Nathan Udomsri

Faculty Advisor: Kathleen Kramer
Shiley-Marcos School of Engineering, Electrical Engineering

A Pulsed Electro-Magnetic Field device (PEMF) is being designed and built for the client, Introtech. The device is being designed for research purposes. The goal is to design hardware and a method that will contribute to a better understanding of PEMF. PEMF devices have been used commonly in the medical field for the treatment of non-union fractures, failed fusions and depression. A controllable PEMF can be used for medical and research purposes, as various combinations of frequency, amplitude, and waveform have different effects upon biological tissues. The project is composed of designing, fabrication and optimization of the PEMF. The PEMF consist of four subsystems: amplifier, waveform generator, coil and digital display. The coil subsystem is the critical feature. The coils, integrated with the function generator, amplifier and digital voltmeter, will be utilized to research and determine the interaction between magnetic fields created by the PEMF generator and biological materials.

Location: UC Main
Poster Number: 175

You're a Jedi Frodo: Fan Agency at Comic-Con from 1970 to the Present

Ana Vuko

Faculty Advisor: Colin Fisher
Department of History

"You're A Jedi Frodo" is an examination of fan agency at Comic-Con International: San Diego with an emphasis on what certain fan activities tell us about fan agency. It looks at fan appropriation in the form of cosplay, fans' efforts to preserve and defend the popular media culture art forms they love and their participation in industry panels as audience members.

Location: UC Main
Poster Number: 176

Women's Role in the Claiming and Maintenance of Chicano Park

Summer Vukovich Durham

Faculty Advisor: Colin Fisher
Department of History

My thesis explores the influence that women have had in Chicano Park from its foundation in 1970 to the present, highlighting their significant contributions to the maintenance of the park in particular during the past four decades.

Location: UC Main
Poster Number: 177

Real Estate Law Internship

Bridget Vuona

Faculty Advisor: Gary Gray
Department of Political Science & International Relations

This project aims to highlight the valuable work and life experience gained during my two summers spent interning for a Massachusetts Real Estate and Probate lawyer, Paul M. Novak, Esq. The sole lawyer employed at his practice, I was able to establish an amiable and professional relationship with Atty. Novak, enabling a real hands-on learning experience. Working for Atty. Novak for around 40 hours a week both summers, I gained both insight into the technicalities of the legal world and what it takes to be employed in the legal field. By the conclusion of my internship I was able to decipher

through dense legal jargon, draft a myriad of legal documents such as Deeds and Wills, file motions in line with court docketing procedure, and even attend court sessions. My project will also include application of the lessons learned in this internship as advice to others seeking legal employment.

Location: UC Main

Poster Number: 178

Wearing the Veil in City Heights, San Diego

Crystal Walter

Faculty Advisor: Michelle Camacho

Department of Sociology

In my research I will be focusing on the Somali women residing within the City Heights community of San Diego. My research will explore the ideational exposure to new forms of gender roles emerging within these communities, and the ways in which the gender roles have changed as a result of migration. Through in-depth interviews with these Somali-American high school girls living in San Diego, I will be studying how they negotiate their identity through usage of the veil.

Location: UC Main

Poster Number: 179

Searching for a *C. elegans* Gene Needed for Biopterin Production

Jason Wang

Faculty Advisor: Curtis Loer

Department of Biology

Dopamine is an important neurotransmitter in many organisms, and biopterin is an essential cofactor for dopamine synthesis. In many organisms, the production of biopterin requires the enzyme sepiapterin reductase (SR). The nematode *Caenorhabditis elegans* is capable of producing biopterin in the absence of an SR enzyme, indicating the existence of a different enzyme with a similar function. *C. elegans* has a fully sequenced genome, and has many genes that code for enzymes potentially able to function like SR. We plan to search for this SR-like enzyme by utilizing RNA interference to disable candidate genes in *C. elegans*, and observing the phenotypic change. The successful detection of the gene coding for the enzyme that functions in place of SR will be confirmed by observing the presence of a morphological trait associated with the loss of biopterin synthesis.

Location: UC Main

Poster Number: 180

Alpha-Regular Stick Knots

Danielle Watson

Faculty Advisor: Diane Hoffoss

Department of Mathematics

Knot Theory is an abstract field of math that has applications in Biology and Chemistry. This is a presentation on findings from research of alpha-regular stick knots. Given a mathematical knot, we discover the minimal number of unit length sticks used to construct the knot. Current research has found the minimal number for only the unknot and trefoil. I will present findings on results for knots other than the unknot and trefoil.

Location: UC Main
Poster Number: 181

Sex Between the Lines: Female Masculinity in the Graphic Novels of Alison Bechdel

Brittany Williams

Faculty Advisor: Jason Crum
Department of English

My research, "Sex Between the Lines: Female Masculinity in the graphic novels of Alison Bechdel" analyzes the graphic narratives of Alison Bechdel in terms of sexual identity and graphic representation. Bechdel's work is indicative of a stylistic shift in late twentieth and early twenty-first century literature on gender identity. I look at female masculinity Bechdel's *Fun Home* (2006) and *Are You My Mother?* (2012) and show her contestation of gender normativity through the artistic representation of self. J. Jack Halberstam's theory of female masculinity helps to deconstruct binary definitions of gender. Halberstam writes, "Female masculinity within queer sexual discourse allows for the disruption of even flows between gender and anatomy, sexuality and identity, sexual practice and performativity." I build off of Halberstam and Judith Butler to show how Bechdel's stylistic choices reflect the representation or repression of sexual identity and female masculinity in contemporary literature.

Location: UC Main
Poster Number: 182

Through The Struggle: How J. David Williams Was Able to Find His Voice And What It Means For the Rest of Us

Scott Ybarrondo

Faculty Advisor: Colin Fisher
Department of History

A diary to a stutterer is more than just a journal to record daily thoughts. Think of it, instead, as a place of refuge, where one can retreat from a world of anxiety and shame. This particular entry is from the diary of J. David Williams, dated Friday, October 18, 1940: "My book, 'Stammering and Its Treatment' has just come. Now I can continue the work that Mrs. Howe started! There has been a lapse of almost five months in which I have fallen back into my old habits but now I can climb out again!" Williams eventually grew up to become a speech pathologist and an activist for the National Council of Stuttering, spending the rest of his days reaching out to fellow stutterers and pursuing a cure for the disorder. The purpose of my essay is to closely explore what one man's life can tell us about how stutterers navigated the prejudicial society of America during the second half of the twentieth century. Through his diary and subsequently published medical articles, I will show that White was not a passive victim of his disorder and, in fact, played a very active role in his own treatment. I will also show that, although largely overlooked by the historical community, the study of disabilities has a great deal of information to add to our historical identity.

Location: UC Main
Poster Number: 183

History of the San Diego Asian Film Festival

Dana Yee

Faculty Advisor: Colin Fisher
Department of History

This project is intended to examine the history of the San Diego Asian Film Festival, which started at USD, and analyze its growth and changes. It will explore the reasons for its inception and explain why film was the vehicle of choice for the expression of Asian and Asian American voices. Arguably the San Diego Asian Film Festival has been an ongoing and increasingly successful effort to unite the marginalized and disparate ethnic Asian communities and to create a positive group identity.

Location: UC Main
Poster Number: 184

Enabling Real-time Communication Between Educators and Students at a Distance

Christopher Yip

Faculty Advisor: Eric Jiang
Department of Computer Science

Learning information for a class can be tough for some people as they may need additional help outside the classroom, which may be difficult to obtain due to lack of access to someone who is willing and able to meet up and teach. In order to allow real-time communication between two geographically distant people, this mobile app for Android devices developed in this project allows for a common screen to be drawn on and seen by both users, as well as two-way voice communication very similar to the popular program Skype. Not only would a user be able to communicate with others by having an account on a rudimentary website, but the app also supports a simpler "offline mode" which has just the drawing functionality. This app would allow any student in need of help to be virtually connected with another person.

Location: UC Main
Poster Number: 185

Lineage Tracing of Intermediate Neural Progenitors (INPs) in the Developing Mouse Cortex

Erica Young

Faculty Advisor: Marjorie Patrick
Department of Biology

The goal of this project was to trace the lineage of Tbr2 progenitor neurons in the developing brain of mice because until now it was not known what percentage of cells come from these Tbr2+ neurons. The experiments performed used immunohistochemistry, which is a type of fluorescent detection of certain antibodies, to track several chemical markers of different layers in the brain at various days of embryonic development. The brains examined were from the Tamoxifen inducible EomesCreERT2: Ai14 line of mice. In comparing DNA recombination induced by Tamoxifen injection, which is visualized as the Tbr2+ cells fluorescing bright red, at different embryonic ages, a surprising bimodal peak in the cell distribution across the cortex was observed. This has provided interesting insight into the mechanics of the way layer-specific neurogenesis occurs, and reports what some investigators have not previously described.

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