The following document contains abstracts for the posters that will be presented at the SAGE Student Research Conference on 9 May 2015.

Posters are numbered. Students with odd-numbered posters will be present at the poster from 9:30am until 10:30am. Students with even-numbered posters will be present at the poster from 10:30am until 11:30am. Students are encouraged to stay at their poster for a longer time.

The information that follows (e.g., poster numbers) may be subject to change as the program is finalized. Presenters should be sure to check at registration for your poster number and location.

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Anthropology

Poster No. 1: "Communitas and Spiritual Consciousness in the Electronic Dance Music Counterculture" by Catherine Coleman.
Mentor: Jennifer Perry, Assistant Professor of Anthropology (Anthropology)

Abstract:
The purpose of this ethnographic study is to illustrate the collective ethos and subjective experiences of participants in the contemporary electronic dance music subculture. Often categorized by the umbrella term "EDM", electronic dance music includes a broad array of diverse electronic subgenres sharing percussive and
rhythmic similarities, produced specifically for dance. Explored through the lens of cultural anthropology, this research is primarily concerned with the unique phenomenological content of rave, nightclub, and music festival experiences. I hypothesize that these events fulfill a necessary ritual role in fostering cohesive communitas, spiritual awareness, and healing altered states of “flow” and “trance” consciousness. This project utilizes both qualitative and quantitative empirical research methods through broadly dispersed online surveys, semi-structured interviews, and participant-observation of the Los Angeles electronic dance music culture. The researcher hopes to validate the hypothesis as well as provide meaningful research to raise awareness and deconstruct misconceptions surrounding this subcultural phenomenon.

Poster No. 2: "Comparing the mental health and well-being of atheists and theists within the United States” by Kimberly Esgate.
Mentor: Jennifer Perry, Assistant Professor of Anthropology (Anthropology)

Abstract
This research project examines the relationship between the mental health and well-being of atheists and theists in the United States through anthropological and psychological perspectives. I hypothesize that you will see a similar level of mental well-being on both ends of the religious spectrum (either very religious or atheist) and the lowest level of mental well-being in the middle due to ambivalent beliefs and a lack of certainty. I also hypothesize that the anthropological phenomena of communitas plays a large role in the mental stability of individuals, and is a key factor that contributes to the personal happiness and life satisfaction of human beings. I gathered data through quantitative methods by distributing online surveys that questioned individual's personal faith and over all mental well-being. I also implemented qualitative research methods by sitting in on and observing the behaviors of individuals that participated in a weekly community church group, and a bi-monthly atheist meet up group. Observing these behaviors through an etic approach I was able to determine that religion or the lack of religion isn't what is bringing people mental stability, but instead the opportunity engage in a sense of community, friendship, bonding and love is the core component aiding in the mental health and well-being of human beings across the country.

Poster No. 3: "WoW, what am I thinking? A Phenomenological Exploration of Player Beliefs and Goals in World of Warcraft" by Richard Schott.
Mentor: Jennifer Perry, Assistant Professor of Anthropology (Anthropology)

Abstract
This anthropological study focuses on how belief and authentic experience characterize user perceptions and beliefs in World of Warcraft (WoW). Qualitative methods were employed through semi-structured interviews to explore beliefs and feelings of WoW players in early 2015. Results were analyzed phenomenologically in order to construct a totality of experience and immersion within WoW. Virtual worlds and massively multiplayer online games (MMOGs) are presented as places where meaningful opportunities for self-expression and introspection occur. Explicating WoW in terms of idealized conceptions of self, belief in their abilities, and personal reflection help further understand how players develop their identities and self-belief. A goal of this presentation is to explicate MMOGs by humanizing play: gameplay is characterized as an ongoing reflexive practice because players have confidence and feelings attached to their experiences. Future work will need to make further connections between human motivation, agency, and lived experiences in MMOGs. Applying such knowledge helps to understand why millions of players invest themselves in titles such as WoW.

Poster No. 4: "Conserving Ethno-botanical Medicine and Ethnic Identity with Community Gardens in the Ventura County Latino Community” by Lisa Kaye.
Mentor: Jennifer Perry, Assistant Professor of Anthropology (Anthropology)

Abstract
Ventura County has one of the fastest growing populations in California. In the Ventura County cities of Oxnard, Fillmore, Santa Paula and Pt Hueneme, Latinos are now the majority population. In this Anthropological study I explore whether the negative outcomes of assimilation and acculturation would lessen if Latino ethnicity were incorporated into Ventura County culture through community gardens. Assimilation
and acculturation effect more than diet and health. Medicinal beliefs and practices are also affected by assimilating into a new culture. Immigrants arrive in the United States in better health than their American counterparts (Antecol and Bedard 2006). Research indicates that Latinos immigrants’ health upon arrival in the United States is good, but worsens the longer they reside in the United States (Akresh 2007). New immigrants are arriving with better eating habits and in better health than first and second generations. Research was conducted in Israel whereby a ‘melting pot’ of diverse minority groups were studied concerning their ethnic ancestral medicinal practices (Lev 2006). This research concluded that the reliance on traditional ancestral medicine lessens and disappears by the third generation (Lev 2006). I replicate the Israeli study to determine if the outcome changes as the minority culture becomes the majority population. In Ventura County I look at community gardens as a potential way to ensure that traditional knowledge of food and medicine is maintained. I propose that it would also be beneficial to the health of Ventura County’s Latino and non-Latino communities to integrate ethnic medicine and ethnic identity, with community gardens.

Poster No. 5: "They Sent Sandstone Across the Sea? A Preliminary Petrographic Study of Stone Bowls and Mortars" by Charles Fazzone.
Mentor: Colleen Delaney, Associate Professor of Anthropology; Jennifer Perry, Associate Professor of Anthropology (Anthropology)

Abstract:
Early ethnographic data on the Chumash documented by Spanish explorers indicates extensive trade networks among indigenous peoples of Southern California. This project is a pilot study to compare the historical record with the archaeological record by utilizing petrographic analysis of groundstone artifacts and known samples. Using this analysis makes it possible to potentially source the material used to produce the sample artifacts and trace their place of origin, providing raw data on where the material came from and establishing groundwork for trade network theory within the context of the Chumash in Southern California and the Northern Channel Islands. This study has implications for interpretations of archaeological materials specifically from the southern California Bight region, as well as broader studies focused on regional trade and exchange.

Poster No. 6: "The Cultural Identification of Woman in the Tattoo Community" by Stephanie Benedetti, Dr. Jennifer Perry.
Mentor: Jennifer Perry, Assistant Professor of Anthropology (Anthropology)

Abstract:
This anthropological study of cultural identity within the sub-culture of tattooing focuses within the United States, specifically within the city of Ventura where tattoo artist and tattooed people are common. I focused on female identity, particularly the under representation and hyper-sexualization of female community members; as well as the emergence of female artist. I hypothesize that despite the growing popularity within the last 50 plus years of tattoos in society there is still continued disparity towards females who are tattooed or artists of the trade. With the combination of ethnography and history I will bring to light how the popularity of the profession and art form within the context of male dominated fields led to the derogatory manner in which women are treated within the art and trade. Currently the data is in the process of being collected and compiled.

Poster No. 7: "Paranormal Beliefs: A Study of Ghosts From an Anthropological Perspective" by Ashley Bullard.
Mentor: Jennifer Perry, Assistant Professor of Anthropology (Anthropology)

Abstract:
This study explores the relationship between people’s beliefs in ghosts and the role supernatural phenomenon plays in American culture viewed through an anthropological lens. My hypotheses for this research are first, that people believe in ghosts due to a need for escapism from our seemingly normal realities into a more mysterious and exciting reality. And second, as a form of faith and reassurance that there is something more for us beyond death. This project implemented both qualitative and quantitative research methods through the use of online surveys and semi-structured interviews. Participants were asked to identify specific factors as to what
affects their beliefs in ghosts and supernatural phenomenon, as well as how they feel about ghosts in general. What I found in the quantitative data from my online survey was that almost half the participants (44.6%) believe that ghosts are some sort of residual energy, and that over half the participants (54%) have had a personal experience with ghosts. Because this is the first study of its kind that I am aware of, and deals with a relatively small sample size, it is more of a precursor towards further research and future projects rather than concrete answers to the above questions. Possibilities of future and further research have been suggested such as analyzing the above hypotheses in correlation to other cultures, not just American culture, in addition to comparing specific religions in correlation to the beliefs in ghosts.

Poster No. 8: "The physical expression of cranial modifications using a cross-cultural approach within the Andean region from the Middle Horizon to Late Intermediate Period: Examining sociopolitical boundaries and identity" by Marcela Barron.

Mentor: Jennifer Perry, Assistant Professor of Anthropology (Anthropology)

Abstract:
Common practices of body modification such as tattoos, piercings, and scarification etc. have served different purposes for individuals and groups through time and space. One such practice is cranial modification. The act of modifying a person’s skull had to be performed shortly after birth when the skull was still highly malleable and was accomplished using bands, boards, cords, cradleboards, and other tools to attain a desired shape (Blom 2005; Torres-Rouff 2002, Torres-Rouff 2009; Tisler 2014). This bioarchaeological study will address the effects that different morphological shapes have on different cranial bones as well as the implements used to produce these unique shapes cross-culturally and the different Andean cultures that practiced this from the Middle Horizon (500-1000 AD) to Late Intermediate period (1000-1400 AD). The purpose of this anthropological study is to understand the sociopolitical boundaries as well as individual and group identities associated with artificial cranial modification or the practice of head binding among the Tiwanaku, Atacamenos, and Chiribaya.

Poster No. 9: "Social Media’s Influence on Student Engagement in Residence Halls at CSU Channel Islands" by Jelitsa Fonseca.

Mentor: Jennifer Perry, Assistant Professor of Anthropology (Anthropology)

Abstract:
This study explore the culture of residence halls through the lens of social media. Social media usage has been on the rise and with this increase comes the emergence of problems and difficulties. This study looks deeper into the effect that social media has had on those living within residence halls; more specifically the residence halls at California State University Channel Islands. The question here is to what extent does social media have on student's wanting and willingness to get involved with activities, programs, events and organizations within the housing community. The population for this research is approximately 10% of the housing community at CI; this includes those from all of the four housing communities - Santa Cruz Village, Anacapa Village, University Glen Town Center, and Pickwick Park. What is covered will not necessarily focus on how much social media is used, but rather use that as a stepping stone to better understand how it is being used by not only students but the staff within housing as well. Being that the assumption is that social media has various negative effects, the discussion portion of this research will turn any negatives around as I propose a series of solutions to the any problems foreseen by the data.

Poster No. 10: "Peer Mentoring Marketing Ethnography in Higher Education" by Ariel Sales-Martinez, Jennifer Perry.

Mentor: Jennifer Perry, Assistant Professor of Anthropology (Anthropology)

Abstract:
Project ISLAS (Institutionalizing Student Leaders Access and Success) has been a title five grant funded program at California State University Channel Islands for four years. Project ISLAS serves as a formal mechanism for mentoring support on campus. Factors that set it apart from past and current mentoring practices includes providing University 150, 250, and 349 courses, available to all CSUCI incoming freshmen, sophomores, and transfer students. These courses come with a peer mentor embedded into the course.
order for students to become aware of this opportunity Project ISLAS has implemented new exposure techniques since its start such as emailing and hosting an informational booth at CI orientations. Yet, students continue to be unaware of the program and its benefits. Since its beginning, there has been very limited research that addresses Project ISLAS marketing strategies on how to better access students and help them become aware of the program. I realize that students are the most important people to bring exposure to this peer mentorship opportunity because they are primarily the foundation of ISLAS as they play a key part in enrolling in the courses provided. Through exposure to more students, we will in turn reach a greater audience that will become informed of the Project ISLAS experience that all CI students have access to. With this information in mind, and me being affiliated with Project ISLAS for 3 years and working as a peer mentor for the program for 2, I question: Why aren’t more students enrolling in the courses? How do students decide which courses they are going to take? From exposure and my own personal experiences with other students on campus, why haven’t they been exposed to Project ISLAS university courses? These questions are addressed through methods of marketing ethnography.

Applied Physics

Poster No. 11: "Smart Well Pumping Controller" by Leo Quintanar, Malina Lee, Kyle Clarke, Brian Rasnow. Mentor: Brian Rasnow, Lecturer of Applied Physics (Applied Physics)

Abstract
California is simply drying up and data from NASA research satellites have made it clear that this has been happening since 2002. As many Californians know our state has at least one year of water remaining and the weather forecast suggest we are not going to have the much needed heavy rains to replenish the water needed. Thanks to basic marketing all well pumping systems are rather primitive when it comes to pumping the desired well. The basic nature of these well pumps are simply to be placed in the most ideal locations where the well fills fast enough to where the well pump can remove large amounts of gallons without running the well dry. An Arduino connected to a pressure sensor and a raspberry pi which runs the pump can create data logs of how fast the well refreshes itself, the efficiency of the pump and how fast the pump can pump water out. Then it can run these data logs in Matlab to figure out at what point the well will not only pump efficiency but how long the pump can pump before it pumps dry; ensuring that the water pumped out is well managed and slows down water consumption. It is our belief that we can create a well pump controller that can make a very efficient pump in for least ideal location or as we refer to as the new ideal pump location of a well. By using Matlab on the pump controller we can make it super-efficient so it will not hurt the pump nor waste electricity. This type of well pump technology will be the building block of the future well pump technology in a post global warming era and even perhaps find its use in colonization of other planets.

Poster No. 12: "Smart Well Pumping Controller" by Leo Quintanar, Malina Lee, Kyle Clarke, Brian Rasnow. Mentor: Brian Rasnow, Lecturer of Applied Physics (Applied Physics)

Abstract
California is simply drying up and data from NASA research satellites have made it clear that this has been happening since 2002. As many Californians know our state has at least one year of water remaining and the weather forecast suggest we are not going to have the much needed heavy rains to replenish the water needed. Thanks to basic marketing all well pumping systems are rather primitive when it comes to pumping the desired well. The basic nature of these well pumps are simply to be placed in the most ideal locations where the well fills fast enough to where the well pump can remove large amounts of gallons without running the well dry. An Arduino connected to a pressure sensor and a raspberry pi which runs the pump can create data logs of how fast the well refreshes itself, the efficiency of the pump and how fast the pump can pump water out. Then it can run these data logs in Matlab to figure out at what point the well will not only pump efficiency but how long the pump can pump before it pumps dry; ensuring that the water pumped out is well managed and slows down water consumption. It is our belief that we can create a well pump controller that can make a very efficient pump in for least ideal location or as we refer to as the new ideal pump location of a well. By using Matlab on the pump controller we can make it super-efficient so it will not hurt the pump nor waste electricity.
This type of well pump technology will be the building block of the future well pump technology in a post
global warming era and even perhaps find its use in colonization of other planets.

Mentor: Clint Harper, Lecturer of Applied Physics (Applied Physics)

Abstract:
The Helium Neon (He-Ne) laser was invented in the 1960s by the scientist Ali Javan. One of the most
common gas lasers using a mixture of two gases, helium (He) and Neon (Ne) typically called He-Ne laser.
These gases are retained in a tube, which serves as a gain medium. At the opposite ends of the tube you will
find a high reflector (HR) and output coupler (OC) respectively. The HR is a reflective optical mirror, designed
to reflect 100% of the optical radiation back into the gain medium for reamplification. While, the OC mirror
reflects up to 95% of the radiation back into the gain medium and allows the remaining percentage to emerge
as the laser beam. He-Ne lasers have been used in many applications such as fluid dynamics research and
coronary artery disease, diabetes and hypertension. It also has purpose in chemical research such as laser
induced photochemistry and nonlinear spectroscopy. This system is one of the first lasers to emit a continuous
(CW) laser beam. We have approximately 20 He-Ne lasers in our optics laboratory, however due to
unrepairable mirrors, mirror holders and mounts our lasers are unable to lase. These pieces are the second most
expensive parts of lasers, but we have found an inexpensive way of replacing the mirror mounts and holders,
leaving us with OC and HR mirror costs. Our laboratory has decided to repair a He-Ne laser for future
Electro-optic students with the purpose of leaving them with a lab manual to teach students how to adjust
mirrors for the perfect lase. This is achieved by a transparent polymer case with screw drivers connected to
both the HR and OC.

Poster No. 14: "He-Ne laser Demo Construction" by Leo Quintanar, Azucena Yzquierdo.
Mentor: Clint Harper, Lecturer of Applied Physics (Applied Physics)

Abstract:
The Helium Neon (He-Ne) laser was invented in the 1960s by the scientist Ali Javan. One of the most
common gas lasers using a mixture of two gases, helium (He) and Neon (Ne) typically called He-Ne laser.
These gases are retained in a tube, which serves as a gain medium. At the opposite ends of the tube you will
find a high reflector (HR) and output coupler (OC) respectively (Fig. 1). The HR is a reflective optical mirror,
designed to reflect 100 percent of the optical radiation back into the gain medium for re-amplification. While,
the OC mirror reflects up to 85% of the radiation back into the gain medium and allows the remaining
percentage to emerge as the laser beam. He-Ne lasers have been used in many applications such as fluid
dynamics research and coronary artery disease, diabetes and hypertension. It also has purpose in chemical
research such as laser induced photochemistry and nonlinear spectroscopy. This system is one of the first lasers
to emit a continuous (CW) laser beam. A unique feature of the emitting laser beam is it can be started by an
electric discharge, rather than the intense discharge of particles from a flash lamp. We have approximately 20
He-Ne lasers in our optics laboratory, however due to unrepairable mirrors, mirror holders and mounts our
lasers are unable to lase. These pieces are the second most expensive parts of lasers, but we have found an
inexpensive way of replacing the mirror mounts and holders, leaving us with OC and HR mirror costs. Our
laboratory has decided to repair a He-Ne laser for future Electro-optic students with the purpose of leaving
them with a lab manual to teach students how to adjust mirrors for the perfect lase.

Poster No. 15: "Static Polymer Bridge" by Leo Quintanar.
Mentor: Clint Harper, Lecturer of Applied Physics (Applied Physics)

Abstract:
Within laser optic research it is commonly known that if you have a duo of linear polarizers a unique effect can
occur by have the first linear polarizer perpendicular to the second polarizer all light out going through the
system of polarizers will be blocked. But by introducing a third polarizer in the middle of the duo and rotating
it so the polarizer is between zero and ninety light will come through the system, the maximum light output
would be when the middle polarizer is at 45 degrees. Within optics there materials that can act similarly as a
linear polarizer such as acrylic polymer material, by putting it as the middle polarizer in the duo of polarizers and stress said material it will act like a polarizer and let some light through. Many engineers need to determine how much stress an object is under, but many materials used are non-transparent and requires polarized x-rays instead of lasers. Hysteresis is if I were to load the beam with one weight measure the polarization and then add another weight and measure then take off that other weight the polarization of the beam would not be the same as it was with just the one weight. Hysteresis, in engineering is very important because engineering can determine how a material will react under stress and if there is damage they can determine how the damage changes under stress. It is my belief that I can demonstrate this type of behavior on a polymer bridge with 16 laser diodes and photodiodes connected to a raspberry pi board not only making an inexpensive demo of a major technique used in industry.

**Biology**

Poster No. 16: "Regulation of the myoglobin gene from Delphinus capensis" by Nicole Villasenor, James McHale.
Mentor: Charles Sackerson, Lecturer of Biology (Biology)

Abstract
During the evolution of species, changes accumulate that serve to adapt an organism to a new environment in which it can thrive. We are interested in one aspect of the adaptive evolution of Cetaceans, whales, dolphins, and porpoises: the evolution of high levels of myoglobin expression in their swim muscles. The molecular mechanisms that control myoglobin expression have been explored in limited cases, most thoroughly for the human myoglobin gene. In particular, two regulatory elements have been identified in the 5’ proximal region of the gene that are critical for muscle-specific expression. We have cloned and sequenced the comparable region from the myoglobin genes of several Cetacean species, and find a high degree of conservation for these regulatory elements. However, that conservation is not perfect, and other regions of the Cetacean promoters have diverged from those of the human promoter. The goal of this project is to explore the regulatory elements responsible for expression of the myoglobin gene from Cetacean species. We started with the gene isolated from the common dolphin, Delphinus capensis. We then used recombinant DNA techniques to systematically mutate portions of the dolphin sequence, and assayed the activity of the remaining sequences after introducing the engineered gene into cultured mammalian cells. We find small but consistent differences indicating possible regulatory elements. We will present these data and a statistical analysis of the results.

Poster No. 17: "Laboratory Explorations in Drosophila Genetics" by James McHale, Christian Usher.
Mentor: Charles Sackerson, Lecturer of Biology (Biology)

Abstract
The fruit fly, Drosophila melanogaster, has been a valuable model organism for the study of genetics for over a hundred years. One advantage of Drosophila is the availability of thousands of mutants that show visible traits – phenotypes – that can be used to follow inheritance over generations. We have taken advantage of these mutant phenotypes to observe basic principles of Mendelian Genetics and Darwinian Evolution, in a laboratory setting. We have explored the effects of basic culture conditions on the survival of the fruit flies in the laboratory, used the fruit fly to observe the principles of Mendelian genetics. We have also worked on a strategy to observe evolution over the course of several generations, based on the reduced fitness of some mutant strains of fruit flies. Our progress with these evolutionary studies will be presented, along with an analysis of the results.

Poster No. 18: "The Effects of Altering Soil Microbiome" by Patricia Ferrer, Shiva Tadayon, Courtney Lucky.
Mentor: Erich Fleming, Assistant Professor of Biology (Biology)

Abstract
Assessing and maintaining soil health is a vital component of modern agricultural. Soils represent a variety of niche habits and support a large diversity of microbial life (e.g. bacteria and fungi). The soil microbiome is the
primary driver of nutrient cycling in soils, which, in turn, promotes plant productivity. The soil microbiome can also contain plant pathogens that can inhibit plant growth and limit crop production. How soil microorganisms directly or indirectly affect plant health determines if they are considered beneficial or harmful. Manipulating the soil microbiome to promote the growth of beneficial microbes possibly at the cost of soil-born pathogens is a potential mechanism for increasing soil health and plant production. The purpose of the current study was to determine the effect of increased numbers of beneficial soil bacterium on soil health. The soil micro-biome was altered by adding live cultures of Bacillus subtilis to the soil. Soil health was determined based on plant growth (i.e. germination time and leaf area). There were four treatment groups: 1) control (no additions), 2) addition of nutrient medium, 3) addition of Bacillus subtilis and 4) addition of nutrient medium and Bacillus subtilis. Commercially available soybean and beet seeds were planted and allowed to germinate and grow over the course of one month. Our hypothesis was that supplementation of soil with B. subtilis would shorten germination time and increases growth rates of soybean and beet plants compared to controls.

Poster No. 19: "Optimization of Sporosarcina ureae Growth for Calcium Carbonate Precipitation" by Lauren Panzera, Chet Moneypenny, Scott Souza.
Mentor: Erich Fleming, Assistant Professor of Biology (Biology)

Abstract:
As the concentration of carbon dioxide in the atmosphere increases and continues to affect the planet, new ways of generating environmentally sustainable products are being sought. Biocementation is the latest approach to reduce carbon dioxide emissions by utilizing the natural metabolic processes of bacteria to generate limestone. The mechanism involves the formation of calcium carbonate crystals, which bond sand grains together to form a durable, stone-like compound. One form of biocementation is induced through the degradation of urea by bacteria such a Sporosarcina ureae. We hypothesized that S. ureae possesses growth optima for pH and urea concentration in nutrient media. Additionally, conditions for optimal growth would correspond with optima for calcium carbonate precipitation. In our experiments, S. ureae were grown in different media including nutrient broth, tryptic soy broth and Luria-Bertani broth, and variable urea concentrations to determine favorable conditions for growth and calcium carbonate precipitation. Growth rates were determined based on changes in culture turbidity. Contradictory results were seen with variable urea concentrations, but overall urea was found to inhibit growth. Escherichia coli was used as a positive control for growth, and Bacillus cereus was studied for its potential to aid in the precipitation of calcium carbonate when cultured with Sporosarcina ureae. We concluded that optimal growth occurs in alkaline conditions at pH 10 and with no or low urea concentrations. Since optimal conditions for growth in S. ureae were not the same as optimal conditions for calcium carbonate precipitation, further experiments are being conducted to determine a protocol of oscillation between conditions to stimulate growth and those to stimulate precipitation. Columns packed with variable substrates are currently being loaded with cultures in a gravity fed system to study the effectiveness of fluctuating conditions. The final goal of the project is to manufacture a biocemented calcium carbonate brick.

Poster No. 20: "Monitoring the Rocky Intertidal Zone of the Channel Islands: Past, Present, and Future" by Julia Dorosh, Ryan Newkirk, Paul Spaur, Alexis Wallengren, Alyssa Syverud.
Mentor: Geoff Dilly, Assistant Professor of Biology (Biology)

Abstract:
The rocky intertidal research team at California State University Channel Islands (CSUCI), in conjunction with the National Park Service (NPS) and the Santa Rosa Island Research Station, assess the past, present, and future of intertidal monitoring. Our work involves analyzing historic NPS data from 21 long-term intertidal sites on the Channel Islands starting in the 1980s, revising and updating current monitoring methodology, and adding two new sites on Santa Rosa to be continuously monitored by future CSUCI student research teams. Using statistical analysis (JMP v11), trends in target species distribution and abundance of historic NPS monitoring data, are discussed with relation to spatial and temporal shifts. Results show abundance of Silvetia compressa decrease across all sites throughout the years, correlations between decreasing species abundance percentages and El Niño events, as well as the relationship between Cuyler Harbor designated as marine protected area in 2003, and an increase in abundance in 5 target species in 2004. Finally, we present our progress with student built and modified Remotely Operated Vehicles (ROV) to assess species abundance and
diversity in the subtidal zone. This is an area traditionally dangerous and difficult to survey, and if successful, this method could be integrated concurrently with intertidal monitoring.

Mentor: Rachel Cartwright, Lecturer of Biology (Biology)

Abstract:
Migratory whales play a vital role in the structure and function of their environments, acting as a keystone species by delivering key nutrients that support productivity within their habitat. These marine mega-fauna have evolved a unique respiratory capacity to make extended breath-hold dives and this is critical to their ability to forage. While the development of the respiratory capacity has been widely studied in pinnipeds and odontocetes, for mysticetes only very limited studies have been conducted. To examine the development of the respiratory capacity in mysticetes, we studied levels of the primary oxygen storage molecule, myoglobin (Mb), in muscle tissue obtained from stranded baleen whales. Further, we compared levels between two different species; the humpback (Megaptera novaeangliae) and the minke whale (Balaenoptera acutorostrata). Our results indicate that oxygen carrying capacity increases between juvenile and adult whales (in humpback whales, levels increased by 70% and in minke whales, by 66%). We also found a significant difference in levels between the adults of two focal species (In humpback adults, the mean Mb concentration was 0.94 g/100g and in minke adults, the mean Mb concentration was 2.1 g/100g). We believe these differences reflect their differing life histories. Furthermore, these results provide an important contribution to the study of marine mammals and their roles in their environments.

Poster No. 22: "Developmental changes of muscle fibers in maturing mysticetes" by Jennifer Rodriguez, Shirley Lopez.
Mentor: Rachel Cartwright, Lecturer of Biology (Biology)

Abstract:
Physiological adaptations enhance the breath holding capacity of mysticetes, however in young mysticetes, the breath holding capacity is limited. In this study, we provide first details of aspects of the physiology of young mysticetes that may account for these constraints. Muscle tissue from stranded animals was analyzed to determine muscle fiber type. Different types of muscle fiber may facilitate extended breath holding, by allowing the use of alternate respiratory pathways. Specifically, our work focuses on determining how tissue type changes with age in mysticetes. Type I and type II fiber types have been detected in all age cohorts; current work is being done to quantify the proportions. The proportions of muscle fibers may highlight the lifestyles seen in species of whales as they rely on different mechanisms to avoid being predated. Based on these results attained thus far, physiological factors constrain breath holding in young mysticetes. As climate change impacts the marine environment, the development of the breath-holding capacity in young and maturing animals may become crucial as availability and distribution of their food supplies may change. Understanding the dynamics of the development of the breath holding capacity will allow us to better predict the challenges that young mysticetes face in the changing marine environment.

Poster No. 23: "The Energetics of Vessel Impact on Hawaii's Humpback Whales" by Jennifer Rodriguez, Sarah Messi, Rosa Moreno, Angela Garelick, Sarah Scrivano.
Mentor: Rachel Cartwright, Lecturer of Biology; Cindy Wyels, Professor of Mathematics (Biology)

Abstract:
Whales within the marine ecosystem feed in cooler regions and migrate to favored tropical regions to breed. About 60% of all Central Northern Pacific humpbacks (Megaptera novaeangliae) travel through the Hawaiian Islands each year where they seek out areas that are calm and protected. These calm areas also attract high levels of vessel traffic. There is currently a lack of information regarding vessel impact on humpback whale mother and calf pairs. We conducted focal follows of mother and calf pairs and calculated the calories they use in the presence and absence of vessels. Understanding the energetics of young whales is crucial, as their growth and development will prevent them from being predated by the transient orca on their migration back to the
feeding regions. The Hawaiian Islands are an ideal location for the early development of young calves as long as
the favored shallow waters remain protected.

Poster No. 24: "Determining the Persistence of Social Associations in Humpback Whales Using Fluke
Identification" by Emily Broughton, Nichole Ruiz.
Mentor: Rachel Cartwright, Lecturer of Biology; Cindy Wyels, Professor of Mathematics (Biology)

Abstract:
Humpback whales, a migratory mysticete that moves between high latitude feeding grounds and low latitude
breeding regions, provide a model species for the study of social systems. On the low-latitude breeding
grounds, short-lived but functional social associations are seen between male and female pairs. Research
suggests that whales may also form long-term associations. The objective of this study is to see whether these
associations persist between feeding and breeding regions by using fluke identification. Humpback whales can
be identified by distinct patterns on the undersides of their flukes. Over several years of fieldwork, California
State University Channel Islands students have collected approximately 250 fluke identification images in
Hawaii. We have organized these into a fluke catalog, identifying 90 different groups and tracking social
associations within these groups. Using our fluke catalog, along with similar catalogues compiled for Alaska
regions, we share results to date regarding the persistence of these associations within and between breeding
and feeding regions.

Poster No. 25: "Variation in Bee Morphology" by Ruben Alarcon, Kelly McAfee, Nicholas Salinas, Caitlin
Hattmaker, Sarah Scrivano.
Mentor: Ruben Alarcon, Assistant Professor of Biology (Biology)

Abstract:
Bees, the most important group of insect pollinators, coevolved with angiosperms. They feed upon the pollen
and nectar produced by plants, and in exchange, transfer pollen among flowers. The quality of pollination
services provided by bees is related to their size and morphological traits, such as tongue length and hair density.
Using an extensive plant-pollinator interaction database, we recorded the morphological traits of approximately
550 bee species that were collected while visiting flowers in Northern California. We then analyzed the
morphological traits in relation to the diversity of plants species that the bees visited. Further research will
explore the morphological “fit” between bee and flower traits.

Poster No. 26: "The Effects of Climate on Local Plant-Pollinator Interactions" by Ruben Alarcon, Claira
Castillo, Lori Guadarrama, Kevin Herbst, Holly Tavris, Reilly Walker, Bethany Wynne, Bradley Youngerman.
Mentor: Ruben Alarcon, Assistant Professor of Biology (Biology)

Abstract:
It is anticipated that global temperatures will increase 5o C above preindustrial levels by the year 2100 due to
human induced climate change. Temperature is an important abiotic factor that directly affects the
development and survival of insect pollinators. We investigated the relationship between local weather patterns
and plant-pollinator interactions to infer the effects of climate change on pollinator populations. We collected
insect pollinators that actively foraged on flowers along a trail in Camarillo Park, located on the CSUCI
campus. The identity of the plants species that the insects visited was recorded, along with daily weather data.
Our results suggest that pollinator activity was affected by solar radiation, average daily temperatures and
wind. We predict that as climate change will not only alter flower phenology, but also impact pollinator
populations in coastal sage scrub ecosystems.

Poster No. 27: "Targeting Growth and Invasiveness in Cancer Cells" by Shane Kennedy, Joshua Mytych,
Katlynn Carter, Stephanie Soriano.
Mentor: Nitika Parmar, Professor of Biology (Biology)

Abstract:
Invasiveness is a characteristic feature of malignancy in cancer and can greatly reduce the five-year survival rate of patients affected. This study aimed to determine the impact of five proposed anti-cancer agents (Berberine chloride, Azathioprine, Gossypol, Miltefosine, and Etoposide) on three female cancer cell lines: MES-SA (uterine), C33A (cervical), and SKBR (breast). Invasiveness was tested using the CultreCoat® 96 Well Medium BME Cell Invasion Assay. The cancer cell lines were grown to 80-90% confluency and then treated with the proposed anti-cancer agents at a 2 µM for 24 hours. Cells were harvested and subsequently seeded in the invasion chamber for 24 hours. Migration of the cells, reflecting invasiveness, was monitored via a fluorimetric assay and quantified. Untreated cells served as controls. Invasiveness was influenced by the type of reagent and cell line. Etoposide and berberine chloride greatly reduced in majority of the cell lines. A dose-dependent impact on invasiveness is currently being studied. Targeting invasiveness in these aggressive cell lines may lead to a potential lead.

Chemistry

Poster No. 28: "Evaluating Environmental Mercury Risk in Strongylocentrotus purpuratus" by Edina Meiners, Reily Pratt.
Mentor: Simone Aloisio, Professor and Chair of Chemistry (Chemistry)

Abstract
Mercury is an environmental toxin that contributes to neurodegenerative disease in humans and most significant levels in humans are attributed to the consumption of seafood. S. purpuratus has been known to live for 70 years, which could lead to significant and possibly dangerous bioaccumulation levels of Hg. This study hopes to determine the rate of mercury absorbance by S. purpuratus, using Macrocystis pyrifera as an indicator of spatial variation. Though there have been previous studies on CH3Hg in S. papuratus embryos and M. pyrfera, S. purpuratus' food source, an absorption rate of CH3Hg in S. purpuratus in the current and future ocean environment needs to be established to consider S. papuratus as a stable food source. This study utilizes thermal decomposition, catalytic conversion, gold amalgamation, and atomic absorption spectroscopy. Upon preliminary analysis of M. pyrfera in 13 samples the mercury levels show Hg levels at 0.00607 ± 0.00145 (µg/kg), comparable to a study performed in 2014 of M. pyrfera at 0.006 (µg/Kg). Samples for this study were also taken off the Southern California coast. There have been no studies found of Hg levels in adult S. purpuratus and there are no preliminary results to report on S. purpuratus at this time. This study will obtain these samples in the next month. A future study of this is needed to look at the rise of mercury over many years and compare this to different species of sea urchin absorbance rates.

Poster No. 29: "Determination of Mercury Concentration in Different Varieties of Rice consumed in the US" by An Le.
Mentor: Simone Aloisio, Professor and Chair of Chemistry (Chemistry)

Abstract
Mercury (Hg) is known to be a toxin to humans and the main pathway to exposure is through consumption of products that . There has been data showing the elevated presence of Hg in soil near mining areas in China. Furthermore, recent studies have shown that there is a higher accumulation of CH3Hg in the rice grains than there are in the other parts of the rice plants such as the leaves, roots, and stalk. In this study, several samples were taken from different types of commercial rice (including long-grain, short-grain, white, brown, organic and instant). The Hg concentration in each sample was determined via Thermal Decomposition and Amalgamation paired with Atomic Absorption Spectroscopy. The concentration of mercury is presented in µg/kg (ppb) and the mean is reported in the form of mean ± standard deviation followed by the range. For long-grain white rice, there was 5.8 ± 2.5 (2.2-10.6). For jasmine rice, there was 7.6 ± 3.5 (3.7 - 12.9). For brown long grain rice and organic brown long grain rice, it was 12.5 ± 1.3 (10.5 - 13.3) and for the latter 9.9 ± 4.1 (5.5 - 15.5). For white short grain rice, it was 7.0 ± 2.9 (2.7-12.4). For brown short grain rice and organic brown short grain rice, it was 10.5 ± 4.1 (5.5 - 15.5) and 9.2 ± 3.3 (4.3 - 11.5) for the latter. The mean mercury concentration is calculated for each category of rice and will be compared to the recommended daily limit and serving amount. The health association and environmental impact will be discussed.
Poster No. 30: "Instrument Development for the Manufacturing and Characterization of Thin Films" by Aisling Williams, Oscar Santillan, Eric Valenzuela.
Mentor: Brittnee Veldman, Lecturer of Chemistry (Chemistry)

Abstract:
The manufacture and characterization of thin films often requires specialized equipment that can be prohibitively expensive. In order to facilitate their more economical production, our area of focus is in the design and production of such equipment. Our goal is to design inexpensive analogs for commercial machines such as dip coaters, spin coaters and capacitance probes.

Poster No. 31: "The Development and Characterization of Treated Metal Oxide Nanoparticles for the Generation of Thin Films" by Oscar Santillan, Angel Torres, Misael Ramirez Serna, Travis Moller, Azucena Yzquierdo.
Mentor: Brittnee Veldman, Lecturer of Chemistry (Chemistry)

Abstract:
Semiconductors are an important part of electronic devices; tuning the electrical properties of these components is an important topic of research for technological advancement. Metal oxide nanoparticles are candidates for the optimization of the transistors in these devices because their size-dependent properties make them favorable over those of their bulk counterparts. However, manufacturing electronic components with these properties, but without forming the bulk structure, has met with difficulty. Encasing the metal oxide nanoparticles in various shells should increase their solubility allowing for their introduction into larger structures, which can then be used to form thin film semiconductors. Following treatment, these nanoparticles are predicted to allow the formation of bulk size components while retaining nanoparticle properties. Our research is concerned with finding the proper constituents and conditions to make these shells thin and uniform. With the introduction of optical probe molecules, the formation and uniformity of these films can then be analyzed.

Poster No. 32: "Open Source Software Tools for Structure Modeling" by Rosa Moreno, Eric Valenzuela.
Mentor: Brittnee Veldman, Lecturer of Chemistry (Chemistry)

Abstract:
The importance of modeling chemical molecules such as Barium Titanate will allow us to create accurate estimations of the placement of our molecule. To model such molecules we use various software tools including ChemBio 3D, Crystal Maker, and Python. Recently, Python was used as an open source alternative for Crystal Maker while using several powerful development, computational, and programming libraries such as ScyPi, Numpy, and MMTK. One of the areas where Python excels the most is in visualization, and we have taken advantage of their enthusiastic, active development and user community throughout our research.

Mentor: Phil Hampton, Professor of Chemistry (Chemistry)

Abstract:
Curcumin is the active component of dried rhizome of Curcuma longa, a perennial herb belonging to ginger family, cultivated extensively in south and southeastern tropical Asia. It is widely consumed in the Indian subcontinent and south Asia in traditional food recipes. Widespread research over last few decades has shown that curcumin is a potent anti-inflammatory agent with influential therapeutic potential against a variety of cancers and illness. It induces apoptotic cell death and also inhibits proliferation of cancer cells, as well as suppresses proliferation and metastasis of human tumors. data has shown that curcumin undergoes rapid metabolism leading to glucuronidation and sulfation in the liver and excretion in the feces, which accounts for its poor bioavailability. The compound has, therefore, been formulated and administered using different drug delivery systems such as liposomes, micelles, phospholipid complexes and nanoparticles. Attempts to avoid
rapid metabolism of curcumin in the past have been met with limited success. Under the supervision of Dr. Phil Hampton, we have been configuring novel synthetic approaches in order to increase bioavailability while keeping the molecules therapeutic abilities intact.

Poster No. 34: "Analysis of mercury concentration in the top two cigarettes brands sold in the United States as a viable source of human exposure." by Samantha Freitag, Jason Bland, Sandra Peyton.
Mentor: Simone Aloisio, Professor and Chair of Chemistry (Chemistry)

Abstract
Cigarette smoke inhalation exposes individuals to thousands of different substances including carcinogens and toxic metals such as mercury. Previous studies have been performed on mercury concentrations in cigarettes, but very few recent ones in the United States. According to the CDC, nearly 17.8% of adults in the United States smoke cigarettes today making tobacco a possible source of human exposure to mercury. The top two brands sold in the US, Marlboro and Newport, were studied both regular and menthol varieties. This data was gathered through the techniques of Thermal Decomposition, Amalgamation, and Atomic Absorption Spectroscopy. This study of 24 cigarettes found an average value of 15 (±1.3) ppb (ng/g) of mercury concentration in each cigarette. The average concentrations in ppb found in the Marlboro, Newport, and Newport Menthols were 16 (±1.0), 14 (±1.4), and 14 (±1.1) respectively. This is a 15% increase from a 2008 study of mercury concentration in cigarettes that found an average of 13 (±1.3) ppb Hg in a whole cigarette out of 30 samples on three different non-specified brands. Implications of these findings will be discussed. Further studies on human Hg level changes after smoking cigarettes would indicate if cigarette smoking is a reasonable pathway for mercury accumulation. The addition of electronic cigarettes to the market in recent years provides another area to investigate possible mercury exposure risks to humans.

Poster No. 35: "Effects weather conditions in Camarillo, California have on ground level ozone concentrations." by Rysn Rush, Evy Monge.
Mentor: Simone Aloisio, Professor and Chair of Chemistry (Chemistry)

Abstract
Ozone (O3) is a main component of photochemical smog. It is a secondary pollutant that forms from NOx and volatile organic compounds (VOCs) that are emitted into the atmosphere. Its formation is strongly dependent on weather condition. High amounts of ground level O3 are known to have harmful health effects to humans. With contemporary issues such as global warming and the threat of increased temperatures, regions like Camarillo with a warm-summer mediterranean climate, can expect to have increased ozone concentrations due to the strong positive correlation O3 had with temperature. For these reasons means to measure O3 concentrations locally is needed. Ozone concentration were measured from October 2013 – February 2015 in Camarillo, California an agricultural region located in Ventura County. Ozone measurements were taken through instrument based UV-absorption approximately 10 miles inland of the pacific coast. To date O3 concentrations were found to average around 38 ppb and peaked at temperatures near 22 degrees celsius. As one might expect from previous studies, we find a positive correlation of O3 concentration with temperature, and a weak negative correlation with humidity and wind speeds. This study observed 29 out of 280 days so far, that had one-hour average concentrations greater than 50 ppb. Concentrations above 50 ppb are said to have adverse health effects to sensitive population groups, a standard set by the World Health Organization (WHO). These maximum concentrations occurred during the spring/summer months from April-June during a heat wave and in the fall/winter months from October-January during lower than expected Santa Ana wind speeds. We discuss our findings in detail for this period of time.

Communication
Poster No. 36: "UNIV 498: Documenting Public Memory from WWII to Ventura County" by Chelsea Howard, Karla Aguirre, Caroline Gergen, Angelica Rodriguez.
Mentor: Dr. Christina Smith, Assistant Professor of Communication (Communication)
Abstract:
Within the field of Communication, public memorials have gained attention from scholars interested in the ways that public memory of individuals, events, and/or spaces is constructed, negotiated, and contested. This UNIV 498 project involved faculty-student collaboration between four Communication students to further investigate the public memory of warfare in Ventura County. Specifically, students were assigned 5-7 scholarly articles relating to the topic and crafted a thorough literature review that was used simultaneously for an immediate pedagogical project, as well as in the faculty’s research agenda. Next, students were trained in textual analysis and were assigned a set number of news articles related to each of the National War Museums. Applying their analytic skills, students traced the themes and frames employed by journalistic organizations in covering the Museum’s construction and reception by audiences. Students were then assigned a war-related monument in Ventura County and were responsible for creating a “profile” of the memorial that overviewed its design, construction, and the ways in which viewers interact with the structure. Ultimately, all elements (key concepts from the literature, images, and information) were combined on a .tumblr site that allowed for widespread accessibility and dissemination which will be utilized as a pedagogical resource in teaching COMM 320: Persuasion and Argumentation.

Poster No. 37: "The First Fleet of Australia" by alex Smith, Osbelia Duenas.
Mentor: Ivona Grzegorczyk, Professor and Chair of Mathematics (Communication)

Abstract:
The evolution of how Australia was colonized, shines light on the individuals that populated the country. The solution to Great Britain’s over crowded prisons was to ship the inmates to Australia lowering the body count, as well as a form of labor to build up the new land. Our project captures the types of prisoners that were sent to Australia and the lives they were forced to live.

Poster No. 38: "Digital Technology and Community-Based Storytelling Learning Community" by Anthony Larios, Bryce Showalter.
Mentor: Nancy Chen, Professor (Communication)

Abstract:
Since the spring of 2013, the Communication Program has been exploring the establishment of Dolphin Radio - a campus based, internet streaming radio station. The Program has received funds to acquire equipment, as well as to begin the streaming service. Therefore, a Learning Community based around the radio station and the idea of digital community-based storytelling was created in spring of 2015. The Learning Community involved two student facilitators and 5 undergraduate student reporters/producers. Participating students were trained in digital technology-based radio production and created two 15-minute podcasts that addressed issues impacting CI and the local community: the future of CI, health and wellness, sports and athletics, career guidance, financial literacy, and a series of student profiles. In fulfillment of his/her Capstone (a requirement in the Communication major), the students completed all aspects of a podcasting project from conceptualization, to research, to production and editing. In addition, to maintain the academic rigor of the class, these students engaged in coursework that further explored the theoretical and applied aspects of journalistic writing and interviewing, solutions-oriented journalism, digital storytelling, and community storytelling. With each article, students located and presented examples in a discussion of key theoretical material.

Computer Science

Poster No. 39: "CI Rainbow: Data Collection & Analysis Framework for the Santa Rosa Island" by Gradon Faulkner, Kevin Scrivnor.
Mentor: Andrzej Bieszczad, Professor of Computer Science (Computer Science)

Abstract
The ultimate goal of the CI Rainbow project is a modular system of sensors to record and transmit data through a series of networks on the Santa Rosa Island to the CI SRI Research Station and then onto the mainland. This system employs a network of Raspberry Pi’s that collect temperature, humidity, audio, video, and animal RFID tracking data to a database accessible through web and mobile interfaces. The system can be extended with new sensors in a convenient, flexible, and inexpensive way accommodating new researchers that want to participate in environmental studies. Furthermore, data analysis, mining, and collaboration capabilities are being added to the backend. The result of this research is sound data acquisition, transmission, and retrieval system that are detailed here to illustrate how this framework can support various environmental studies.

Mentor: Andrzej Bieszczad, Professor of Computer Science (Computer Science)

Abstract:
The CI Rainbow system is a cloud-based data collecting infrastructure that consists of sensor nodes, distributed throughout a terrain, that collect data such as temperature, humidity, moisture, image, video, sound, and RF tag readings. The system is a self-sustainable framework with flexible sensor node additions, removals, and configuration modifications currently developed at the University Park with the ultimate deployment goal at the Santa Rosa Island. Each solar powered Raspberry Pi sensor node is responsible for collecting and transmitting data. In particular, the audio sensor node (1) continuously records sound, (2) performs preliminary audio analysis to select interesting sounds, (3) extracts additional descriptive features after selection, and (4) sends the features and the audio recording to a mainland database via a bidirectional network. Within the database, a set of identifiable audio recordings is standardized and for each recording, features are extracted and used to build corresponding feature vectors. The set of feature vectors is then used to train a Support Vector Machine (SVM) off-line to create a sound classifier. The classifier is used to identify new unknown sounds, recorded by the audio sensor nodes. Identifying sound and location allows us to identify the wildlife population and its corresponding movement throughout the terrain. This machine learning capability will be integrated with a web-based interface, allowing the user to view recordings and individual wildlife population models through the use of Google-maps-based histograms. This data collecting infrastructure allows for further machine learning and data mining techniques to be employed for different studies and applications.

Global Studies

Poster No. 41: "Habitat Uses as a Function of Humpback Calf Age" by Blake Swendrowski, Jordan Bowen, Michaela Miller.
Mentor: Rachel Cartwright, Biology faculty (Global Studies)

Abstract:
The Au’au channel off the coast of West Maui is recognized as a breeding ground that humpback whales (Megaptera novaeangliae) use seasonally. Research has shown that the Au’au channel is a critical breeding area due to its unique tranquil waters that provide protection to mothers and calves. Previous studies have shown that mother and calf pairs avoid areas with high vessel activity. We will continue research to see the influence of calf age on habitat choice by mother and calf pairs. Adding to data collected during the 2012 to 2014 seasons, our research provides further information relating the geospatial locations of mother and calf pairs to the life stages of calves. Specifically, our study describes spatial associations between ages of calves and habitat types.

Mathematics

Poster No. 42: "Limão: A Citric Sextic" by Kathryn Becker.
Mentor: Ivona Grzegorczyk, Professor and Chair of Mathematics (Mathematics)

Abstract:
In $\mathbb{P}^3(w, x, y, z)$, the limão surface is defined as the set of the zeros of the homogenous polynomial, $f(w, x, y, z) = x^2w^4 - y^3z^3$. What classification of sextic surfaces remains an unsolved problem, we can study their properties using algebraic geometry and visualization tools. Although the limão has a simple equation, it has some very interesting and unique properties. For example, it has several symmetries and also several singular lines. In addition, there are many curves that can be found by looking at its cross sections. I have also examined deformations, rational functions, blow ups and divisors.

Poster No. 43: "Fingerprint Analysis using Minutiae Triplets and Delauney Triangulation" by Shawn Richardson.
Mentor: Geoff Dougherty, Professor of Applied Physics; Kathryn Leonard, Associate Professor of Mathematics (Mathematics)

Abstract:
Scanned fingerprint images are pre-processed to facilitate data extraction. Minutiae are then extracted from which triangles are generated for analysis. Delaunay triangulation is then used to reduce computational complexity and improve processing times. Data is stored in a relational database with a discussion on processing and searches using SQL and Matlab. Triggers and stored procedures are presented as options for generating datasets.

Poster No. 44: "A Smart Approach to the Dumbbell" by Troy Jasso.
Mentor: Ivona Grzegorczyk, Professor and Chair of Mathematics (Mathematics)

Abstract:
Algebraic geometry is the study and visualization of roots of polynomials. Since polynomials are amenable to computer manipulation and ubiquitous in math, this is a field with remarkable connections (realized and potential) to animation, physics, and more. This poster presents a basic background in algebraic geometry and an application of its techniques to one specific surface, which looks roughly like a dumbbell. Included is motivation for using four variables to represent a three-dimensional object (projective space), how one can stretch and tweak an equation slightly to "fix" a surface (symmetries, deformations, and blowups), and how sophisticated abstract group operations (for rational functions, regular functions, and ideals) correspond to nonobvious physical properties of a space.

Poster No. 45: "On the Hunt with Barth's 'Wolf' pack of Singularities" by Emery Stafford.
Mentor: Ivona Grzegorczyk, Professor and Chair of Mathematics (Mathematics)

Abstract:
In 1996 Wolf Barth presented a counterexample to the thought that a six-degree surface could have only 52 singular points. Barth's Surface boasts 65 singularities, a number that was shown in 1997 to be the maximum singularities a surface of degree 6 may have. The poster includes a discussion of properties of this surface from an algebraic geometry perspective such as; interesting curves, symmetries, and deformations, as well as an exploration of the singular points themselves. It also touches on blow ups and divisors, regular functions, rational functions and sheaves on the surface. The construction of this surface is related both to a sphere and to the golden ratio.

Poster No. 46: "Analyzing the Distel Surface" by Blaine Kutin.
Mentor: Ivona Grzegorczyk, Professor and Chair of Mathematics (Mathematics)

Abstract:
The Distel surface is a totally regular 6-sided flower described by the sextic equation. This surface exhibits many symmetries. Six singular points were found, but no lines. We also analyzed the curvature, ideals, tangent spaces, blowups, ring of regular functions, field of rational functions, interesting divisors, and sheaves on the surface. In our research, we used computer software to visualize the surface and performed calculations in three dimensional real projective space to verify properties about the surface.
Poster No. 47: "The Lucky Quadrifolium" by Mayra Sahagun.
Mentor: Ivona Grzegorczyk, Professor and Chair of Mathematics (Mathematics)

Abstract:
Have you ever been lucky enough to find a four leaf clover? A sextic surface is defined as the set of zeroes of a homogeneous polynomial \( f \) of degree six in three dimensional real projective space. The Quadrifolium also known as a four leaf clover is a surface of degree six. Using technology we are able to visualize the quadrifoliums and describing their properties. We are going to analyze their features such as symmetries, singularities, lines on the surface, curvature, deformations, blow ups of the Quadrifolium and their divisors, regular functions, rational functions and sheaves on the surface.

Poster No. 48: "Properties of the Nephroid Sextic Surface" by Michael Ruiz.
Mentor: Ivona Grzegorczyk, Professor and Chair of Mathematics (Mathematics)

Abstract:
Algebraic Geometry is rich in objects known as Sextic Surfaces. These surfaces are represented by polynomials of degree six. Not only do they exhibit a certain beauty in their representation, they exhibit many mathematical properties that are applicable to many other areas of interest. With this in mind, we will explore the Nephroid and the properties it holds.

Poster No. 49: "The Sextic Seahorse" by Dana Cochran.
Mentor: Ivona Grzegorczyk, Professor and Chair of Mathematics (Mathematics)

Abstract:
The geometric classification of sextic surfaces remains a mystery today. Here we explore the seahorse sextic surface, a degree six polynomial that we visualize in a three dimensional projective space given the zero set of our homogenous polynomial. We look at the singular points, the tangent planes, and the curvature of our sextic surface. We also recognize the instability of our seahorse surface by deforming our homogenous polynomial and we look at the effects of blowing up our seahorse. Interesting divisors of the seahorse and the field of rational functions on the seahorse are also examined. These algebraic geometry methods and definitions help us unravel the mystery of the seahorse.

Poster No. 50: "The Flight of an Atriphtaloid Fairy" by Miryam Moctezuma.
Mentor: Ivona Grzegorczyk, Professor and Chair of Mathematics (Mathematics)

Abstract:
The focus of this poster will be to analyze properties of the sixth degree Atriphtaloid surface. The poster will discuss properties such as, its 7 symmetries. The singular points of this surface are interestingly singular lines instead of individual points. Tangent planes and curvature of the surface are also some interesting properties of this surface. It is of interest to study the deformations of the Atriphtaloid and its effect on the properties, and so we will discuss one family of deformations and blow ups. In order to look at the surface in depth there will be discussion of it’s divisors, regular functions, rational functions, and sheaves.

Poster No. 51: "The Dancing Daisy - Deformations of a Sextic Surface" by Laurel Drane.
Mentor: Ivona Grzegorczyk, Professor and Chair of Mathematics (Mathematics)

Abstract:
The Daisy surface has a singular locus that is made up of two separate curves that meet in a common singular point. The three-dimensional equation for the Daisy is \((x^2 - y^3)^2 = (x^2 - y^2)^2\). Since geometric classification of these types of surfaces is an ongoing question, our goal is to learn to visualize the set of zeroes of this three-dimensional degree-six surface in real projective space. By using methods from algebraic geometry
and colorful graphics software, we can study properties of the Daisy. We will discuss the symmetries of the Daisy, its lines, curves and singular points, tangent planes and curvature. Then we will study the ring of regular functions, the ideal, the field of rational functions, interesting divisors and sheaves on our Variety. We will also discuss the deformations and blowups of the Daisy in regards to what effects their stability.

Poster No. 52: "The Corny Cornoid" by Marina Morales, Marina Morales. 
Mentor: (Mathematics)

Abstract

An algebraic surface that can be expressed by a polynomial in x, y, and z with degree six is a sextic surface. In this presentation, we study properties about a specific surface; the cornoid. By using algebraic geometry and graphing tools; this alien looking surface can be described. We find singular points, lines, symmetries of the surfaces, the curvature, and other fascinating properties. We will also analyze the blow ups of the surface and divisors, regular functions, rational functions and sheaves on the sextic surface.

Poster No. 53: "Circles of Love: A Sextic Surface and it's Infinity" by Ian McGuire.
Mentor: Ivona Grzegorczyk, Professor and Chair of Mathematics (Mathematics)

Abstract

Dynamic surfaces are central to many scientific fields. In particular, a distinct division between positive and negative curvature on the surface can give insight to how we can analyze applications of these surfaces. The Heart surface I researched has this characteristic of positive to negative curvature. The surface is completely formed by a series of circles. The research consisted of defining the Ideal of V, exploring the ring of regular functions associated with the surface, interesting divisors (sheaves) on V, curvature of the surface calculated using Python, and deformations of the surface.

UNIV 392: Physics, Math, and Culture of Australia

Poster No. 54: "America's Cup: A Study of the Culture of Sailing in Australia" by Jeffrey Tedmori, Bianca Barnes, Kyle Clarke.
Mentor: Ivona Grzegorczyk, Professor and Chair of Mathematics; Jessee Elliott, Professor of Mathematics (Anthropology)

Abstract

We explored and observed the differences between sailing in Australia compared to sailing in the United States. We focused primarily on the impact of the America’s Cup competition within the Australian sailing community. We found that unlike the streets of Australia, the ocean is a common ground connecting the United States and Australia. As a group we met with local members of the sailing community in order to get a first-hand look into the culture of sailing in Australia.

Mentor: Ivona Grzegorczyk, Professor and Chair of Mathematics (Applied Physics)

Abstract

In Australia my goal was to explore in detail how the Deep Space Network operates and its importance to ongoing deep space missions. By visiting one of three large facilities strategically placed around the globe, I was able to see first hand the buildings and antennas that are necessary to stay in contact through night and day with humanity's distant probes. Without the Deep Space Network, our missions to explore the solar system in the pursuit of science are prone to failure. These missions don't just include missions by NASA, but also by the European Space Agency, the Russian Federal Space Agency, or any other nation who sends probes outside of
Earth orbit. The Deep Space Network is an international treasure that allows us explore worlds astronomical distances away from Earth.

Poster No. 56: "The Physics Inside a Didgeridoo" by Christopher Knowles.
Mentor: Ivona Grzegorczyk, Professor and Chair of Mathematics (Applied Physics)

Abstract:
With an interest in the techniques utilized to create sound through a didgeridoo, I analyze the different sounds, timbre, and harmonic richness that the didgeridoo allows for. To aid in this analysis I utilize the sound analysis software Raven to construct spectrograms and waveforms. The sounds to be inspected were created by myself, from a didgeridoo purchased while traveling abroad with the math department. A new perspective to aboriginal music will be presented.

Poster No. 57: "Physics of Sailing" by Drew Waner, Drew Waner, Brandon Artner.
Mentor: Ivona Grzegorczyk, Professor and Chair of Mathematics; Jessee Elliott, Professor of Mathematics (Applied Physics)

Abstract:
In this project we explore the physics behind why sailing works and the forces behind by using Bernoulli's principal. We also investigated the history of competitive sailing in Australia.

Poster No. 58: "Endemic and Invasive: The Flora and Fauna of Ventura County and New South Wales/Australian Capital Territory" by Vickie Chen.
Mentor: Ivona Grzegorczyk, Professor and Chair of Mathematics (Biology)

Abstract:
Analysis of observations of the impact of human activity on the habitats of Ventura County and New South Wales/Australian Capital Territory. Focus is on invasive species, accidental introductions, and the impact of historically recent droughts and fires. Comparisons focus on the flora and fauna found in urban areas, wilderness areas encroached upon by development, and tidepool/beach areas.

Poster No. 59: "Analysis and Parallels between Australian and Californian Water Conservation" by Cameron Embree.
Mentor: Ivona Grzegorczyk, Professor and Chair of Mathematics (Environmental Science and Resource Management)

Abstract:
California often faces drought situations similar to those found in Australia. To better handle drought conditions, California's may benefit from employing some of the currently successful water conservation techniques from Australia. We traveled to Australia to explore the many conservation methods used there. We have identified the most successful key forms of water conservation efforts and discuss how each could be administered in California.

Poster No. 60: "Political and Historical Tension Between the Aboriginal and Australia" by Katelynn Yepiz, Laura Everest, Bruno Wilroy.
Mentor: Ivona Grzegorczyk, Professor and Chair of Mathematics (History)

Abstract:
In the duration of stay in Australia, we witnessed how the Aboriginal people and the rest of its inhabitants were in conflict. Although both groups have a significant history, the same disputes of land and freedom are still prevalent today. Upon observing various museums and even speaking with protestors outside of the Parliament house, it is appalling that the Aboriginal people still have to face the same issues that their ancestors were faced with.
Poster No. 61: "Symmetry Groups in the Sydney Opera House" by Abigail Zsarnay, Glo Adelyn Mercado, Gradon Faulkner.
Mentor: Ivona Grzegorczyk, Professor and Chair of Mathematics; Jessee Elliott, Professor of Mathematics (Mathematics)

Abstract: We looked into the history of the opera house such as its planning, construction, and completion in order to understand the mathematics behind it. The result was that we observed the opera house and the mathematical solution to the construction, along with exploring the symmetry groups of the architecture.

Poster No. 62: "The Social Dynamics of Music in Australia" by Leslie Garcia.
Mentor: Ivona Grzegorczyk, Professor and Chair of Mathematics (Performing Arts - Music)

Abstract: Presented, is an up close look at the musical world offered in day-to-day Sydney, Australia. Every kind of musician, from college and aboriginal street performers to full-scale opera singers, presented a different dynamic to the city's diverse-filled environment. I assessed the social aspects that the various type of musicians around the city offered up, to hopefully shed some light on the music culture in Australia!

Poster No. 63: "Cultural Diversity Found In Australia" by Lizet Ruvalcaba, Boss Konenakeaw, Veronica Villanueva.
Mentor: Jesse Elliott, Professor of Mathematics; Ivona Grzegorczyk, Professor of Mathematics (Sociology)

Abstract: Australia consists of a diverse cultural population that ranges from coast to coast. We will be sharing our personal experience of the Australian culture found in two of the places we visited, Sydney and Canberra. Studying abroad gave us the opportunity to learn more about the variety of the Australian people, their culture, and history. One of which were the aboriginal people, whom are indigenous to the area.

Nursing

Poster No. 64: "Break the Cycle – It’s in Your Hands: Effective Methods of Improving Hand Hygiene Adherence" by Maryna Tarasenko.
Mentor: Carol Mack, Associate Professor of Health Sciences (Nursing)

Abstract: Hand hygiene is considered one of the most effective ways in preventing healthcare-associated infections. However, the rates of hand hygiene adherence continue to be low. This literature review analyzed the existing evidence about the methods of improving hand hygiene adherence as well as their effectiveness in different healthcare settings. The author systematically reviewed PubMed and Science Direct for articles published between January 2010, and March 2015, containing the terms “hand hygiene and adherence” or “hand washing and compliance.” The resulting articles were assessed to determine the most effective methods of improving hand hygiene practices. The author identified 20 articles for inclusion and grouped them into 5 categories based on the underlying method of improving hand hygiene used: direct observations, electronic methods, education, multimodal, and innovative approaches. The literature review demonstrated that these approaches had specific benefits and limitations, as well as used different rationales behind them. Some methods seemed to be more effective than others for a specific setting. Overall, the author comes to a conclusion that there needs to be an individualized approach in choosing a particular method. The clinical and educational implications of findings are extremely important and relevant for nursing profession. This summary provides the examples of evidence-based studies that nurses can use to improve their own hand hygiene and implement suggested approaches at their work place to educate other medical personnel. A simple procedure of washing hands breaks the vicious
cycle of infection and saves lives. Continuous efforts of improving hand hygiene practice bring positive results in both increased rates of adherence and decreased rates of nosocomial infections.

Poster No. 65: "The advantages of lowering the Nurse to Patient ratio" by Pieter van Zyl, Carl Ilanos.
Mentor: Carol Mack, Associate Professor of Health Sciences (Nursing)

Abstract:
Because of the current regulation by Medicare regarding readmission to hospitals and patient dissatisfaction during hospital admissions, hospitals are receiving monetary fines that reduce the funding they receive, and are being put under tremendous pressure to increase patient satisfaction and patient education. Numerous studies show that a lower nurse to patient ratio can increase patient satisfaction and decrease hospital readmission. Therefore the focus of this literature is to analyze the stated problem using data triangulation and reviewing current legislations to illuminate the positive results that may be yielded by further lowering the nurse to patient ratio, such as: increased federal funding to hospitals, increased effectiveness of patient education, decrease medication errors and improve the health care setting in general.

Poster No. 66: "Incorporating Evidence-Based Practice into Teen Pregnancy Prevention Programs" by Caitlin Dunn, Tracy Westcott.
Mentor: Carol Mack, Associate Professor of Health Sciences (Nursing)

Abstract:
Healthy People 2020 names improved adolescent health as an goal and lists teen pregnancy as a national public health problem. Teen pregnancy and parenthood contribute to financial strain and decreased educational opportunities. These personal and societal consequences make teen pregnancy an issue of national concern that needs ongoing support and effort to reduce its rates. A major part of this effort is adolescent educational programs that focus on sexual health. These programs are diverse in their format, objectives, and execution, but are not universally evidence-based. There is a need to incorporate evidence-based practice into these sexual health education programs. To this end, the authors conducted a literature review of articles evaluating teen pregnancy prevention and attitudes. This information can be used to influence future program design and implementation so that evidence-based practice can become a stronger part of adolescent pregnancy prevention programs. Results to be presented and discussed.

Poster No. 67: "Using copper surfaces in hospitals to minimize spread of multi-drug resistant organisms and healthcare-associated infections" by Natalie Thornton.
Mentor: Carol Mack, Associate Professor of Health Sciences (Nursing)

Abstract:
Multi-drug resistant organisms (MDRO's) and new superbugs are emerging every year due to poor infection control. By controlling the spread of infection through the use of copper surfaces and/or pipes, infection rates can be dramatically cut and positive implications will be seen in healthcare. Copper, known for its antimicrobial properties, could be the answer to decreasing both MDRO's and, subsequently, healthcare-associated infections (HAI's). HAI's costs the health industry $35.7-$45 billion and account for 100,000 deaths. Through review of literature surrounding this topic, it was discovered that copper surfaces do not allow bacteria to grow or survive, immediately halting the spread of infection. Implications for practice include an overall reduction in HAI's, reduction in repeat admissions (for which hospitals do not get reimbursed), and a downtrend in MDRO and superbug emergence. Further research would introduce copper surfaces into test hospitals and measure the effectiveness over a given period of time. Rates of infection, hospital readmission rates due to HAI's, types of infections encountered, and infections that were eliminated due to copper would be discovered.

Poster No. 68: "Literature Review of Factors Affecting Vaccination Rates" by Diana O'Connor, Leslie Roth.
Mentor: Carol Mack, Associate Professor of Health Sciences (Nursing)
Abstract:
Recent outbreaks of vaccine-preventable diseases have caused a national debate surrounding the controversies of adherence to recommended vaccination schedules. In this literature review the authors sought to investigate the reasons behind exemptions to vaccine-preventable diseases in order to determine the clinical implications for this practice. Included in this review were barriers to use such as religious, philosophical or medical exemption and differences among states in restrictiveness of the exemptions. In 2014, the CDC determined that “vaccination will prevent an estimated 322 million illnesses, 21 million hospitalizations and 732,000 deaths during the lifetime of children born during 1994-2013” (Elam-Evans, L., Yankey, D., Singleton, J. & Kolasa, M., 2014). Vaccination rates have significant implications for nursing practice, especially school nurses who are often on the front line of educating the public about preventable diseases and the vaccination requirements of school-age children. A thorough analysis of the literature is expected to reveal findings that support the need for multiple levels of education targeted at both urban and rural populations of all socioeconomic backgrounds. Common misconceptions regarding the safety of standard vaccinations will be investigated. Benefits of vaccination for the general population, including ‘herd immunity’ will also be part of the literature review.

Poster No. 69: "Miscarriages: The Psychosocial Effects on Women’s Health" by Iran Rahbar, Elizabeth Jimenez, Olivia Graza.
Mentor: Carol Mack, Associate Professor of Health Sciences (Nursing)

Abstract:
Miscarriages are prevalent complications that affect pregnancy which may take a toll on a woman’s psychological well-being. This research study aims to investigate the psycho-social effects of women of who have experienced a miscarriage and identify the most effective interventions to promote emotional well-being after loss. In this study, we will determine the psychological, social, and emotional effects manifested after miscarriage and women’s desire for support following miscarriage. The results of this study may indicate an increased need for therapeutic interventions delivered in a culturally sensitive and supportive manner. After reviewing the literature, recommendations can be made in practice for: cognitive therapies, social support, and psychoeducational support.

Poster No. 70: "Back to VBACs" by Laurie Hurtado, Sara Arias, Noelle York.
Mentor: Carol Mack, Associate Professor of Health Sciences (Nursing)

Abstract:
Vaginal birth after Cesarean section (VBAC) is a controversial issue pertaining to a woman delivering vaginally after undergoing a previous Cesarean section. VBACs can be a safe alternative for many women, yet is not routinely practiced. A risk commonly associated with VBACs is uterine rupture. Our review of research literature suggests there is minimal risk with significant benefits. Some examples of these benefits include avoiding invasive surgery, decreased blood loss, avoiding an additional uterine scar, shorter recovery period, decreased infection risk, shorter hospital stay, and allows for immediate skin-to-skin. Despite the multiple benefits, most hospitals and physicians fear liability therefore, do not perform VBACs. The purpose of this literature review is to review the benefits and risks, and to provide possible recommendations to solve the issue of decreasing VBAC rates.

Poster No. 71: "Managing Critical Incident Stress: Caring for the Carers" by Dana Street.
Mentor: Carol Mack, Associate Professor of Health Sciences (Nursing)

Abstract:
Health care workers are frequently exposed to sensitive and stressful situations. Incidents such as failed resuscitation, traumatic or unexpected patient death, and elder or child abuse can be particularly distressing. Critical incidents such as these can have overwhelming effects on the physical and mental health of health care staff. If not properly addressed, this stress can result in burnout, compassion fatigue, or even change of profession. A systematic literature search was conducted to examine the prevalence and effectiveness of debriefing in managing critical incident stress in health care workers. The reviewed literature suggests health care workers place a great value on debriefing and peer support and feel they are better able to cope with the
stress of critical incidents when provided with these tools. Healthcare organizations need to focus on providing a culture of caring, not only for their patients, but also for their employees. Future research should focus on the development and effectiveness of specific guidelines and models for debriefing.

Poster No. 72: "Factors Inhibiting Compliance with Personal Protective Equipment Use" by Ashlee Dodge, Katie Corley.
Mentor: Carol Mack, Associate Professor of Health Sciences (Nursing)

Abstract
Personal Protective Equipment (PPE) has continued to be a cornerstone for infection control throughout many healthcare facilities. However, healthcare associated infections (HAI) remain to be the leading cause for re-admittance to a healthcare facility. According the Centers for Disease Control and Prevention (CDC), 722,000 patients had a HAI in 2011, and an estimated 75,000 of those patients died during treatment. Despite the effectiveness of PPE, a review of recent literature found that many barriers to PPE compliance exist. These include availability, understaffing, restocking, knowledge deficit, inconsistent monitoring by administration, improper judgment of necessity, and high costs. Following extensive research, further recommendations include regularly scheduled education trainings regarding PPE (necessity and proper use), increased surveillance of use by administrators and allocation of a proper portion of the hospital budget to the purchasing and restocking of PPE.

Poster No. 73: "Screening for Abuse: Considering the Methods & Barriers to Accurately Identifying Child Abuse in the Emergency Department" by Kalie Ihrig, Arcel Ho.
Mentor: Carol Mack, Associate Professor of Health Sciences (Nursing)

Abstract
This literature review identified prospective and current effective screening methods used in the emergency department in alleged pediatric abuse cases, and discussed the barriers to implementing these screening methods. Research has identified that previous screening methods may be ineffective in accurately recognizing authentic pediatric abuse cases. Data on previous, current, and prospective child abuses screening methods were collected from multiple nursing database engines to determine the efficacy of and barriers to each method. Through the literature review, multiple screening methods from various countries were examined. Some screening methods were found to be effective as a supplement to current practices, including one protocol showing potential for increasing detection of pediatric abuse cases through examination of parental characteristics. The research also identified barriers to implementing these screening methods in the emergency department, including a lack of training for health care workers and time in further investigations. The results of this literature review recommend utilizing the proposed screening methods, in addition to having hospitals train their emergency department nurses before implementing a supplemental screening method.

Poster No. 74: "Self-Care Practices of Baccalaureate Nursing Students: Perceptions Before & After Intervention" by Brooklyn Steinfeld, Elizabeth Vinci, Jessica Wager, Dr. Colleen Nevins, Dr. Jacqueline Sherman.
Mentor: Colleen Nevins, Assistant Professor of Nursing; Jacqueline Sherman, Lecturer of Nursing (Nursing)

Abstract
Nursing students are taught to promote health and educate patients on self-care practices, which include exercise and complementary alternative therapy. However, there is a gap between learned knowledge in self-care promotion of patients and nursing student behavior in self-practice related to their health promotion, which results in a less-than-desired perception of their own health. This study includes a convenience sample of baccalaureate students from the California State University, Channel Islands Nursing Program and aims to explore if the implementation of participation in regular fitness sessions and/or alternative therapies (at least three per week) offered within a three week time span, improves the students’ self perception of health promotion using exercise. Prior to the study, the students will be asked to volunteer, consent to participate, and complete an online pre-survey. After the pre-survey and three week intervention period, students will be
Poster No. 75: "A Better Quality of Life: Nursing Interventions for HIV/AIDS Treatment Adherence" by Keri Canchola.
Mentor: Carol Mack, Associate Professor of Health Sciences (Nursing)

Abstract:
People living with HIV/AIDS (PLWHAs) experience various barriers to treatment adherence such as co-occurring depression, social stigma, medication side effects, and medication regimen complexity. Although maintaining a consistent regimen confers clear advantages in quality of life and life expectancy, medication adherence remains a serious issue for PLWHAs. The nursing role includes a high degree of patient interaction. Therefore, nurses are uniquely positioned to encourage treatment adherence. This literature review will examine nursing interventions used to promote adherence among PLWHAs to determine best practices.

Poster No. 76: "Psychosocial Interventions for Managing Symptoms of Distress in Patients with Cancer" by Christy Diggins-Richey, Brandy Rosero.
Mentor: Carol Mack, Associate Professor of Health Sciences (Nursing)

Abstract:
A diagnosis of cancer, as well as symptoms of distress associated with the disease process, can have a profound psychological effect on a patient, negatively impacting quality of life and survival. Research shows the use of evidence-based psychosocial interventions can help to alleviate symptoms of distress such as anxiety, depression, and fatigue. A literature review was conducted utilizing the CINAHL database to search for articles containing the keywords “psychosocial intervention,” “distress,” and “cancer.” Findings from the resulting articles suggest that the most effective psychosocial interventions promote self-efficacy, increase patient knowledge of the disease process, and employ relaxation modalities. In addition, researchers suggest future studies would be merited and necessary to develop a reliable tool for assessing distress to aid in the selection of appropriate interventions.

Poster No. 77: "Barriers to Breastfeeding for Adolescent Mothers" by Danielle Lynch, Casie Berlfein, Janelle Demartini.
Mentor: Carol Mack, Associate Professor of Health Sciences (Nursing)

Abstract:
In recent years, numerous advantages of breastfeeding have been identified to benefit both the mother and baby. Ovarian and breast cancer rates have decreased for breastfeeding mothers, alongside the lower incidence of diabetes and obesity (Woods, Chesser, & Wipperman, 2013). Infant outcomes include lower rates of infections and improved cognition (Woods, Chesser, & Wipperman, 2013). Despite the overwhelming evidence of the many benefits related to breastfeeding, there are still many barriers that exist and interfere with the population of adolescent mothers and their choice to breast-feed. It is imperative to identify these barriers so they can be addressed in order to improve the breastfeeding rates of adolescent mothers. The purpose of this study is to identify existing barriers to breastfeeding initiation and continuation, and use this information to help change the existing trend. A literature review was conducted in order to identify such barriers. Some of the major barriers identified included a low socioeconomic status, returning to school, nipple pain, insufficient milk, lack of social support, and lack of prenatal intervention. The use of web-based educational programs has been utilized for improving nurses’ knowledge on breast-feeding and how to better support their patients in initiating and maintaining breastfeeding practices (Deloian, Lewin, & O’Connor, 2014). Perhaps the use of web-based programs focused on patient education could help younger mothers comprehend the many benefits of breastfeeding and support their participation.

Poster No. 78: "The Implications of Depression in Licensed Nursing Staff on Clinical Practice and Patient Care" by Cassidy Gordon, Kaele Morrow, Angelina Hodgson.
Mentor: Carol Mack, Associate Professor of Health Sciences (Nursing)

Abstract:
Prevalence of depression in licensed nurses has been found to be almost double the national averages of adults in the United States. Although a higher prevalence of depression has been observed in numerous studies in the nursing profession, the implications for clinical practice have not been formally addressed. The purpose of this study was to synthesize current research on depression and nursing, focusing on the associations between depression and specific variables as well as the implications depression in nursing staff has for work productivity and patient care outcomes. An intensive review of the literature was completed and the information was synthesized. The results of the review and discussion of consequences for nursing practice and further research will be presented in the study.

Mentor: Carol Mack, Associate Professor of Health Sciences (Nursing)

Abstract:
Functional health literacy is defined as the level at which individuals can obtain, process, and understand basic health information. Low health literacy remains an under-recognized problem to effective healthcare around the world. Low health literacy has been linked to longer hospitalizations, non-adherence to medication regimens, and poor management of illnesses. The purpose of the study is to review the literature on the effects of low literacy levels on patient education and suggest ways health care professionals can reduce this barrier and enhance patient self-efficacy. Health literacy deficits should be addressed in the patients' plan of care in order to improve health outcomes. Awareness of low health literacy enables health care professionals to help clients overcome barriers to effective health care education while still promoting self-efficacy.

Poster No. 80: "The Effect of Diet Modification on Attention Deficit Hyperactivity Disorder (ADHD) Symptoms" by Corene Hutchison, Cassandra Lovick.
Mentor: Carol Mack, Associate Professor of Health Sciences (Nursing)

Abstract:
The prevalence of Attention Deficit Hyperactivity Disorder (ADHD) diagnoses is heavily increasing in today’s society. ADHD is a behavioral disorder that can inhibit a child’s ability to concentrate and focus during activities such as school work. Often times, physicians chose to prescribe various medications that can be used to decrease inattention. However, these medications can have negative long term effects on the child’s health. Alternatives to the use of medication in ADHD treatment are currently being evaluated. In this study, we will evaluate the effect diet has on the presence of ADHD symptoms in children and adolescents grades K-12. Throughout research, diet modifications have focused on sugar-restricted diets, preservative-free, and fatty-acid supplementation. With these modifications, it has been proven to help manage the symptoms of ADHD.

Poster No. 81: "The 12-hour shift: An industry standard that may detrimentally affect nurse performance and patient care outcomes" by Breehan Yohe-Mellor, Jade Gunnarson.
Mentor: Carol Mack, Associate Professor of Health Sciences (Nursing)

Abstract:
Twelve-hour shifts have become an expected industry standard for a majority of nurses in hospitals today internationally. This literature review investigates the effect long shifts have on the impact on nurse competency which would have a direct effect on on patient care outcomes, including timeliness and successful job task completion. Topics explored include implications of nurse fatigue, nurse mental health, effects on sleep patterns, compromised quality of patient care and safety, and an increased number of unfinished nursing tasks. Methods used included a literature review of journal articles published within the previous five years regarding related qualitative and quantitative studies. Numerous studies showed strong evidence suggesting that long shifts originated primarily from motivating factors that included economic, administrative and nursing shortage factors more than from evidenced based practice regarding patient safety and care. Therefore, there
are strong implications to continue to assess and question the 12-hour shift and its consequences on nurse performance and patient outcomes.

Mentor: Carol Mack, Associate Professor of Health Sciences (Nursing)

Abstract:
It has been presented in recent studies that high levels, or excessive noise in neonatal intensive care units (NICU) disrupts sleep, causes stress, and may lead to complications with hearing and comprehension. The American Academy of Pediatrics (AAP), Committee on Environmental Health has recommended a maximum safe noise level of 45 decibels in a NICU setting. Failure to comply with the recommended safe-noise levels may cause greater distress and adverse noise-induced health effects, especially in premature infants. A literature review was performed to determine which noise-reducing protocols are being implemented in NICU settings. The results presented include: which interventions are being put into place, the feasibility of implementation, their effectiveness at promoting healing, and staff adherence. It is important that NICUs implement effective noise-reducing techniques to reduce risk of prolonged healing time, impaired hearing, poor neural development, and increased stress levels in premature infants. Evidence shows that nurses play a pivotal role in instituting this change. Modifying staff behavior, decibel sound meters in all of the rooms and noise dampening walls are some examples of noise-reducing protocols that were implemented. The background research supports the need for noise-reducing protocols because preterm infants, the majority of NICU patients, lack organized neurological functioning making them unable to respond to external environmental stimuli as efficaciously as full-term infants.

Poster No. 83: "Reducing the Incidence of Psychiatric Distress in ICU Survivors" by Melissa Zaragoza.
Mentor: Carol Mack, Associate Professor of Health Sciences (Nursing)

Abstract:
Background. Intensive care unit (ICU) admissions can be traumatic experiences for patients. These patients are often limited in providing self-care and dependent on healthcare providers. Furthermore, fear and distress of the unknown have negative impacts on the health outcomes of ICU patients. Despite all this, ICU survivorship has been on the rise thanks to medical advancements. Unfortunately, rise of psychiatric morbidities following discharge have also been observed among this population. Findings. This literature review assesses and evaluates the importance of follow-up care on health outcomes and quality of life, as well as interventions targeted to alleviate psychiatric distress following ICU discharge.

Mentor: Carol Mack, Associate Professor of Health Sciences (Nursing)

Abstract:
Male circumcision is defined as the surgical removal of foreskin from the penis and is usually performed within the first 48 hours of birth. Male circumcision is considered one of the most commonly performed elective procedures, occurring in more than half of newborn males in the United States. There is well documented debate among healthcare professionals whether or not the preventative health benefits of male neonate circumcision outweigh the risks for US populations. The purpose of this review is to identify any gaps in the current literature that prevent policy makers, health care professionals, and stakeholders from making informed decisions related to routine male neonate circumcision. Although the American Academy of Pediatrics (AAP) revised policy statement on male circumcision (which is endorsed by the American College of Obstetricians) claims that benefits of male circumcision outweigh the risks, the policy does not recommend routine circumcision for all male neonates. This review identified a need for further research that provides empirical evidence applicable to US populations related to both the preventative health benefits and risks of male neonate circumcision.
Poster No. 85: "Fecal Microbiota Transplantation: Bearing Down on the Evidence" by Sergio Magdalenogarcia, Devon Lueck, Jairo Gonzalez.
Mentor: Carol Mack, Associate Professor of Health Sciences (Nursing)

Abstract:
Clostridium difficile infection [CDI] can be a formidable challenge to health care providers. Not only is it highly contagious, but it can also be life threatening and difficult to treat with standard antibiotic therapy. This review examines fecal microbiota transplantation [FMT] as an alternative, and potentially more effective, treatment option for recurrent CDI. Specifically, the purpose of this study was to investigate the effectiveness and safety of FMT, as well as the barriers that impede it from becoming a more widely utilized treatment modality for CDI. Articles relevant to this purpose were obtained through database searches of PubMed, CINAHL, Sage Journals Online, and EBSCO. Our findings demonstrate that FMT is a highly effective treatment for recurrent CDI, with minimal associated adverse effects. Barriers to adoption of FMT include physician and patient attitudes, legislational boundaries, and a need for further experimental research. Wider implementation of and research into FMT has a strong potential to improve general outcomes in CDI treatment; this potential must be considered as the future of CDI treatment unfolds.

Poster No. 86: "Barriers to Prenatal Care" by Lauren Beltran, Desiree Douglas, Nicole Reed.
Mentor: Carol Mack, Associate Professor of Health Sciences (Nursing)

Abstract:
In recent years there have been many studies conducted to identify the importance of receiving prenatal care. Studies have shown that early initiation of prenatal care has resulted in better outcomes for both the mother and infant. Prenatal care is a strong predictor for the overall health and well-being of the newborn. Health professionals agree that early initiation of prenatal care has been shown to reduce the risk of low birth weight and preterm infants. Many women are aware of the importance of prenatal care and the overwhelming evidence of its benefits however; they are unable to access these resources due to the many potential barriers that exist for each mother. Some of the major barriers to receiving prenatal care include socioeconomic hardships, marital status, psychodynamic state, educational level and age. It is crucial to identify these barriers and focus on the importance of obtaining a way around them in order to promote and increase the number of pregnant women who utilize early prenatal care. The purpose of this study is to identify the existing barriers to prenatal care for all pregnant women. A key in encouraging pregnant women to attend and receive prenatal care would be to improve health care accessibility for all women.

Poster No. 87: "Nursing student self-efficacy and technology" by Miguel Velazquez, Jason Amurao, Cesar Rivera.
Mentor: Jaime Hannans, Assistant Professor of Nursing (Nursing)

Abstract:
Patient education is an important aspect of a nurse’s professional role. Trends in healthcare are focused upon the patient assuming more responsibility for self-care, emphasizing the need for patient education (Bastable, 2014). In healthcare, patient education is critical for patients to make informed decisions in care, ideally resulting in better outcomes, and incurring lower costs (James, 2013). The Institute of Medicine (2010) described the changes in healthcare and patient needs have led to expanded roles of nurse competencies that need to be implemented in nursing education programs, such as technology, research, evidence-based practice, and collaboration, to better prepare new graduates as they enter the profession (Shalala et al., 2010). Education delivered needs to be patient-specific, and provided in a method that meets diverse backgrounds, various learning needs, and different cognitive levels (James, 2013). Review of the literature indicates the need for nurses to be better prepared, deliver high-quality education, work collaboratively, and be competent in use of technology. However, new nurse graduates and nursing students are often less confident with high anxiety, while simulation is one of the only strategies address these issues in practice-like settings (Durham & Alden, 2008). Traditionally, educating patients has relied heavily on verbal and printed education materials (Bastable, 2014). Today however, students favor the use of mobile devices because “information is up to date and it can be accessed at the patient’s bedside for teaching and learning” (Kenny et al., 2012, p. 285).
Political Science

Poster No. 88: "Is All Politics Local? Credit Claiming and the Quest for Reelection" by Beatriz Dorado, Rosalba Rocha, Zachary Schultz.
Mentor: Sean Kelly, Professor of Political Science (Political Science)

Abstract:
Former Speaker of the House Tip O’Neill is famous for his often-repeated claim that “all politics is local.” O’Neill believed that taking care of the concerns of one’s district ensured electoral success. David Mayhew includes credit claiming —providing particularized benefits to the district, pejoratively referred to as “pork”— among the tried and true strategies incumbents use to ensure their reelection. Using the press releases and constituent newsletters of Representative Bizz Johnson (D-CA) this research examines patterns of credit-claiming activity over his twenty year career. In particular we examine the hypothesis that credit claiming will increase during election years as Johnson sought to ensure his reelection to Congress.

Poster No. 89: "Media Coverage of Watergate and the Nixon Impeachment" by Bobby Herrera, Keegan Carrico, Robert Dennis.
Mentor: Sean Kelly, Professor of Political Science (Political Science)

Abstract:
Media coverage provides a fundamental link between the people and their government. Coverage was particularly limited in the 1970s. With only three broadcast networks, most Americans got their national news coverage by tuning into one of the nightly news broadcasts. The news that Americans receive, and the manner in which it is portrayed, helps to shape public opinion. This project focuses on a content of national news coverage of the Watergate break in, and the subsequent investigation of the Nixon Administration and Impeachment proceedings. Combining content data with constituent correspondence to a single member of Congress representing a district in Northern California, we explore the relationship between media coverage and the expressed opinions of his constituents.

Poster No. 90: "Is All Politics Local? Credit Claiming and the Quest for Reelection" by Zachary Schultz, Rosalba Rocha, Beatriz Dorado.
Mentor: Sean Kelly, Professor of Political Science (Political Science)

Abstract:
Former Speaker of the House Tip O’Neill is famous for his often-repeated claim that “all politics is local.” O’Neill believed that taking care of the concerns of one’s district ensured electoral success. David Mayhew includes credit claiming —providing particularized benefits to the district, pejoratively referred to as “pork”— among the tried and true strategies incumbents use to ensure their reelection. Using the press releases and constituent newsletters of Representative Bizz Johnson (D-CA) this research examines patterns of credit-claiming activity over his twenty year career. In particular we examine the hypothesis that credit claiming will increase during election years as Johnson sought to ensure his reelection to Congress.

Poster No. 91: "War and Position Taking: A Case Study" by Sebastian Navarro, Thomas Inlow.
Mentor: Sean Kelly, Professor of Political Science (Political Science)

Abstract:
War presents a special challenge for members of Congress. They are cross-pressured by concerns of national unity, the positions of party leaders and, most important, the opinions of their constituents. In an attempts to navigate these cross-pressures members of Congress engage in position taking. As David Mayhew elaborates it “The congressman as position taker is a speaker rather than a doer. The electoral requirement is not that he make pleasing things happen but that he make pleasing judgmental statements. The position itself is the political commodity” (62). Using constituent correspondence, constituent newsletters, press releases, and press accounts this project examines how one member of Congress, Bizz Johnson (D-CA), shifted his position...
taking activities to respond to changing pressures on the Vietnam War. We explore how the cross-pressures that Johnson faced were reflected in his position taking activities.

Poster No. 92: "War, Public Opinion, and Representation" by McLain Neville, Samuel Lee.  
Mentor: Sean Kelly, Professor of Political Science (Political Science)

Abstract:  
Between the mid-1960s and the mid-1970s no issue dominated American politics like the war in Vietnam. Early public and congressional support for the war eroded over time, resulting in widespread rejection of the war. This project looks at the relationship between public opinion in a single district of California, and the struggle of a single representative—Bizz Johnson (D-CA)—to reflect the opinion of his constituents and his own evolving opinion about the war. Using original documents we measure change in district opinion. Using documents internal to the member's office we measure change in the Johnson's position. We conclude that Johnson's opinion changed along with district opinion, supporting the expectations of democratic theory.

Poster No. 93: "Representation and Power in the House of Representatives" by Alexa Gonzalez, Gabriela Guaradado, Lauren Tyler.  
Mentor: Sean Kelly, Professor of Political Science (Political Science)

Abstract:  
Do the qualities of communication between a member of Congress and his constituents change as his career progresses? Employing content analysis of constituent newsletters and press releases over the 20 year career of a member of Congress, this project examines how increasing power in the House is reflected in how Representative Bizz Johnson (D-CA) communicated with his district. Specifically, as Johnson’s institutional power increases does he: 1) increase the scope of his credit-claiming activities to include less parochial—more statewide or nationwide—issues, and 2) increase the scope of his position-taking to include issues that transcend his congressional district.

Sociology

Poster No. 94: "Racially and Ethnically Diverse Neighborhoods in Ventura County" by Veronica Villaseñor.  
Mentor: Luis A. Sánchez, Assistant Professor of Sociology (Sociology)

Abstract:  
The United States is becoming increasingly diverse on the basis of race and ethnicity greatly due to immigration from Latin America and Asia in addition to racial variation in age structure, mortality, and fertility (Johnson and Lichter, 2010). However, diversity is not equally represented across the country and aggregate measures may not illustrate how diversity is changing at the micro-level. Therefore, using census tract-level data from the 1990 Census and 2008-2012 American Community Survey (ACS), I examined the change in racial diversity in Ventura County over the last two decades (1990-2010). I hypothesized neighborhood diversity would have increased and become more evenly distributed throughout the county, not only because minority groups have grown in size, but have also integrated into previously majority-white neighborhoods. I used the entropy index to measure neighborhood diversity and found considerable variation in neighborhood diversity. Despite an overall increase in diversity at the county level, I also discovered that some census tracts became less diverse. Moreover, I am interested in further exploring the relationship between diversity and neighborhood characteristics. Thus, in my next steps I will focus on how specific ecological, socioeconomic, and demographic characteristics have changed since 1990 to 2010. Additionally, I will examine if diversity is spatially clustered and if so, how those clusters have changed over time.

Mentor: Luis Sanchez, Assistant Professor of Sociology (Sociology)
Abstract
Today we have over 4.7 million Asians in California compared to 1.2 million in 1980; a 279% increase in merely 30 years. The aim of this research is to identify which Asians are assimilating into American society in two different metropolitan areas; San Francisco and Los Angeles, the two largest home cities in California to these Asian immigrants. By applying theories of segmented and straight line assimilation I will guide understanding of how contemporary Asians are incorporated into American society. Straight-line assimilation suggests generations of immigrants develop a new stage of adjustment to their host society (Alba & Nee, 1997). Segmented assimilation allows us to understand the process by which the new second generation of immigrants becomes incorporated into the host society and experience stratification (Zhou, 1997). Using individual 2012 IPUMS data I will be measuring employment, healthcare coverage, income, education levels, marriage, and home ownership among other categories to measure differences across place in California. With this data I will be able to identify how place may play a role in the promotion or interference of their assimilation. Many of these Asians in California are highly educated, almost 43% have at least a Bachelor’s degree or higher leading to higher income and home ownership levels as well as greater political involvement and higher employment rates. The financial success of some of these groups can contribute to the economy, housing market, and politics in California. With an increasing population we are encouraged to understand the different experiences across these Asian groups in different places in order to provide appropriate support towards to them, as well as understand the influence and outcomes they have in the community. Future work will be to study differences across both age and gender within these Asians.

Poster No. 96: "Immigration and the Likelihood of Arrest In Greater Los Angeles Area" by Brittany Marberry. Mentor: Luis Sanchez, Assistant Professor of Sociology (Sociology)

Abstract
The United States has long experienced a constant migration of Mexican immigrants, however more recently there has been an influx of Salvadoran and Guatemalan immigrants. It is important to study these contemporary immigration trends due to their rising share of the population and of its implication for population polices. This study examines Latino immigrant groups, particularly Mexicans, Salvadorans and Guatemalans, and the likelihood of being arrested. Although many assume that there is a link between immigration and crime, more recent studies suggest the contrary: there is a negative association between first generation status and arrest rates. (Maers 2002: 284). To examine the link between immigration and arrests, I use individual-level data from the Immigration and Intergenerational Mobility in Metropolitan Los Angeles (IIMMLA) 2004. My project addresses the following research questions: (1) Are there intergroup differences in the likelihood of ever being arrested? (2) Is there a relationship between generation status and the likelihood of being arrested? and lastly (3) Does the relationship between generation status and the likelihood of being arrested differ across groups. My study examines the likelihood of being arrested across the three largest Latino immigrant groups in the greater Los Angeles region. This project is significant because it provides insight to an outcome of interest that has implications for these groups’ socioeconomic mobility.

Environmental Science and Resource Management

Poster No. 97: "Geomorphological Impact of a Beach Nourishment Project: Port Hueneme State Beach, California" by Alex Greene.
Mentor: Sean Anderson, Associate Professor of ESRM; Linda O’Hirok, Lecturer of ESRM (Environmental Science and Resource Management)

Abstract
Since 1938, the Port of Hueneme has obstructed the natural littoral flow. Sediment accumulates on the updrift side of the harbor forming a sand trap, while on the downdrift side, sediment continuously erodes. Intermittent sediment bypassing by the Army Corps of Engineers, pumps sediment across the harbor mouth to replenish depleted sediment reserves. This study mapped the beach profile of four sample sites documenting beach slope, elevation, angle, and length before the dredging occurred, throughout, and two months after the dredging. Sample sites were also analyzed for several species of infauna and macroinvertebrates within the profiles to
study the change in distribution and abundance of these organisms. The scope of the research was to investigate and objectify the magnitude of sand bypassing leading to an identifiable morphological and biological response of updrift and downdrift beaches adjacent to a stabilized harbor.

Poster No. 98: "The Biological Effects of Beach Nourishment at Port Hueneme Beach: An Ecological & Geomorphological Assessment" by Colton Schmidt.
Mentor: Sean Anderson, Associate Professor of ESRM (Environmental Science and Resource Management)

Abstract:
Beach nourishment is an increasingly popular response to coastal erosion even though the effects on organisms is poorly documented. This study took a look at the shape of the beach and what was living there before a dredging event and comparing it to how the beach was after the dredging was completed. Over a span of seven months we surveyed the beach at eleven different location. These eleven transects were mapped to show their topography and analyzed for infauna and macroinvertebrates within the profile. These surveys reflected the change of the shape of the beach as well as what lived there from before the dredging occurred throughout the time sand deposited down the beach. The data showed the mean number of infauna found near the dredge site decrease after dredging began and slowly increased in the following months. It was also noted that there was a decrease in the number of certain shorebird species.

Poster No. 99: "The Effects of Seasonality on the Prevalence of Profilicollis altmani in Emerita analoga on Nine California Sandy Beaches" by Laura Powell.
Mentor: Sean Anderson, Associate Professor of ESRM (Environmental Science and Resource Management)

Abstract:
I investigated the variation in the presence and abundance of the parasite Profilicollis altmani within Emerita analoga across nine sandy beaches in California from October 2014 through April 2015. I collected sand crabs and counted shorebirds from sandy beaches from Rincon Point through Malibu in Southern California to test the effect of seasonality and the distribution of Profilicollis altmani within Emerita analoga. I predicted that Profilicollis altmani would be less prevalent in Emerita analoga during the winter seasons due to changes in water temperature, weather, and storm patterns. There was no significant difference between populations of Profilicollis altmani over time at each beach.

Poster No. 100: "Environmental education efficacy comparison of classroom instruction and experiential learning of intermediate school marine science students in Ventura County, CA" by Julie Bunting.
Mentor: Sean Anderson, Associate Professor of ESRM (Environmental Science and Resource Management)

Abstract:
The state of California has begun integrating the state-sponsored kindergarten through twelfth grade curriculum Education and the Environment Initiative (EEI). Eighth grade marine science students were observed during instruction over a seven month period. A month-long LiMPETS unit was created and taught in the classroom and in the field. Using curriculum based assessment (CBM), students were repeatedly assessed to detect differences in comprehension of EEI and LiMPETS curriculum throughout instruction. Students were evaluated after classroom instruction and after field instruction/experiential learning using a timed vocabulary quiz. The data analyzed from the assessment scores showed a greater class average rate of comprehension from experiential learning (.75) than from classroom instruction (.46).

Poster No. 101: "The relationship between students and the environment: A comprehensive study at a Ventura County high school" by Kira West.
Mentor: Sean Anderson, Associate Professor of ESRM; Cause Hanna, SRI Research Station Manager (Environmental Science and Resource Management)

Abstract:
I explored the efficacy of a new environmental education program for high schoolers in Ventura County: The Santa Barbara Channel's Watershed Program Crossing the Channel. Throughout the implementation of the yearlong Crossing the Channel environmental education program and its associated activities, students were surveyed to gauge their learning and interest in improving their local environment. The average feeling of having a connection with nature at the beginning of the program was 1.96, which increased to 2.55 by the end of the year on a Likert scale from 1 to 3. This significant increase shows that the Crossing the Channel educational program is effective in allowing students to learn about their local environment, therefore helping to facilitate a closer relationship with nature and promote environmentally conscious decisions outside of the classroom.

Poster No. 102: "Quantitative Analysis of Remote Operated Vehicles for Research Purposes Around Southern California" by Blake Swendrowski, Christopher Wells.
Mentor: Sean Anderson, Associate Professor of ESRM (Environmental Science and Resource Management)

Abstract:
Remote Operated Vehicles (ROVs) are new technology used to study most aspects of the ocean. This technology allows humans to send a remote controlled machine into depths divers cannot reach and take footage along designated areas. This technology takes away the human risk associated with the depths of the ocean and it can also go deeper than a diver can. This expands the limitations of what humans can see in the ocean. As most know, the planet has more surface area that is water than terrestrial ground, but we do not know as much about the ocean compared to terrestrial areas. The research potential will be tested for affordable ROVs the public can purchase. Five platforms will be tested to see which is most research capable around Southern California and in particular the Channel Islands. These platforms include three variations of OpenROV as well as two Marine Advanced Technology Education Center (MATE) platforms named the PufferFish 2.0 and the TriggerFish. These platforms will be tested for a variety of attributes that will benefit their performance in Southern California waters.

Poster No. 103: "Determining fish species awareness of Marine Protected Area borders on Santa Rosa Island, California as a means to define overall Marine Protected area effectiveness as conservation tools using remotely operated vehicles (ROVs)" by Christopher Wells, Blake Swendrowski.
Mentor: Sean Anderson, Associate Professor of ESRM (Environmental Science and Resource Management)

Abstract:
Remotely operated vehicles (ROVs) offer a potentially more comprehensive and/or cheaper approach to quantifying the effectiveness of Marine Protected Areas (MPAs). They may be particularly helpful across multiple depths and assessing multiple ocean health metrics around Santa Rosa Island, California. ROVs were used to explore the Carrington Point States Marine Reserve (SMR) on the northeast side of Santa Rosa Island. Locations outside of the SMR were also studied to compare data between MPAs and fished area. Camera equip ROVs were run along eight 20 m transects multiple times at various times of day to document the abundance of fish species. Data was also collected on factors that have the potential to influence fish abundance (percent rock cover, percent kelp canopy cover, time of day, etc.). The variables of depth and substrate type were controlled by equalizing sampling effort. For the analysis, a two-way ANOVA was used with the dependent variable as number of fish observed and independent variables as location (MPA vs. NonMPA) and distance from dock (distance from MPA border). It showed that there was no significant difference in fish abundance between transects inside MPAs and transects outside (F= 0.157, df = 98, p=0.692) as well as no significant difference in fish abundance between the different distances of transects from the dock (F=0.872 , df.= 98, p=0.459). From this it was determined that fish species have no awareness of MPA borders.

Mentor: Sean Anderson, Associate Professor of ESRM (Environmental Science and Resource Management)

Abstract:
Dudleya verityi is a federally endangered plant species of special concern to the CSU Channel Islands as several remnant populations of this very rare plant are endemic on university land. These plants were further reduced by the Camarillo Springs Fire of May 2013 and four years of unprecedented drought conditions. We tested to see if the Dudleya can benefit from weekly watering. This was done by applying ~1 gallon of water every 7-10 days to three 0.25m² field plots, each with a corresponding unwatered control. A range gauge was established near the site to quantitatively measure all of the winter rainfall correlated with Dudleya growth. A humidifier was also established, showing that humidity was generally greater at night when Dudleya open their stomata and photosynthesize. Water treatment Dudleya plots increased in average size from 9.22mm (+/- 0.53) on 11/6/14 to 21.9mm (+/- 1.61) as of 4/2/15, showing a large change in the overall size of the species within these plots. Unwatered also increased in average size from 9.17mm (+/- 0.47) on 11/6/14 to 19.9 (+/- 1.26) on 4/2/15 however the increase in the un-watered plots as well is likely due to the 9.4cm (3.7inches) of rainfall that had fallen since the beginning of the study.

Mentor: Sean Anderson, Associate Professor of ESRM (Environmental Science and Resource Management)

Abstract:
The Springs Fire of May 2013 burned 24,238 acres of the Santa Monica Mountains. Within those thousand acres affected was the habitat of the Dudleya verity, a federally endangered plant species. I explored potential post-fire and drought recovery of the Dudleya verity through monitoring the existing seed bank to quantify if any propagules persisted through the fire and continuing drought. Various plant species bloomed from our seed bank samples including moss, lichen, and Dudleya verity, indicating these plants seeds survived and remained within the soil at least one year post fire. The germinating moss and lichen were effective factors in the germination of Dudleya verity. This assessment provides important baseline conditions with which to evaluate the survival of Dudleya verity within the region affected by the Springs Fire and continuing drought.

Poster No. 106: "Effects of fire on hillslope sedimentation rates within a chaparral watershed in Camarillo, California" by Lauren Kehiayan.
Mentor: Sean Anderson, Associate Professor of ESRM; Linda O'Hirok, Lecturer of ESRM (Environmental Science and Resource Management)

Abstract:
Sediment yields and runoff rates from burned slopes are much greater than those from unburned slopes (Shin et al. 2013). I measured the sediment yields of two post-fire slopes that had burned during the 2013 Springs Fire during six rain events and compared those sediment yields to that of two slopes that had not been exposed to fire to determine the difference in sediment yield. Sediment was collected in sediment traps at the base of each slope from December of 2014 to March of 2015. Over the course of four months, Camarillo experienced six rain events ranging from 0.12 inches to 1.92 inches per rain event. In general, the two burned slopes (Slopes 3 and 4) experienced higher rates of sediment erosion compared to unburned slopes 1 and 2. The average of sediment accumulation for all rain events for Slopes 1 through 4 was 80.7 g, 38.4 g, 1443.6 g, and 245.8 g respectively. The combination of drought conditions that caused delayed vegetation recovery after the fire and the presence of hydrophobic soil following the fire resulted in higher yields of sediment erosion on the burned slopes compared to the hillslopes that remained unaffected by the Springs Fire.

Poster No. 107: "Stream Channel Efficiency of Long Grade Creek, Santa Monica Mtns, CA" by Kelsey Erisman.
Mentor: Sean Anderson, Associate Professor of ESRM (Environmental Science and Resource Management)

Abstract:
Wildfires and anthropogenic modifications can significantly alter stream geomorphology and function. I measured the elevation change of Long Grade Creek, CA cross-sections before and after significant rain events post wildfire to determine if the sediment yields in the creek bed during the study changed among physically different and altered sections of the creek: a restored area, sites adjacent to an urban area, and an upstream
portion below a debris flow basin. All sections are located on California State University, Channel Islands property and were burned by the 2013 Springs Fire. The ideal efficiency of a typical chaparral stream is measured by the extent of the drainage area of the creek’s watershed. According to the Rosgen Stream Classification and the Los Angeles Regional Watershed Curve, Long Grade Creek should have a natural channel shape for ideal sediment transport for the size of the watershed.

Poster No. 108: "Assessing and Mitigating Surface Runoff Pollution from the California State University Channel Islands Campus: Stage Two" by Jonathan Fausto, Dominykas Ablingis.
Mentor: Sean Anderson, Associate Professor of ESRM (Environmental Science and Resource Management)

Abstract
California State University Channel Islands (CI) is the youngest of the California State University campuses, and is planning to double its current student population by 2025. Located in Ventura County, CI is within the Calleguas Creek watershed an impaired body of water listed under section 303(d) of the Clean Water Act (CWA). During major storm events, CI's runoff flows into the Calleguas Creek reach 2. It is known that population increase leads to an increase in land development, pollution runoff, and higher surface area volume of impermeable surfaces causing harm to its surrounding environment (Davis 2005). In order to protect the significant nexus that surrounds CI (Rapanos v. United States 2006); Best Management Practices (BMP) technologies have been tested for their ability to reduce the adverse effects of elevated runoff pollution from non-point sources on CI's campus. We collected storm water runoff samples from identified outfalls, possible high risk MS4 sites, and a controlled study site location. We tested for 37 parameters, including California Title 22 metals and other organic materials during wet and dry weather events. We have found that certain parameters that were tested for at our monitoring sites are higher than TMDLs considered safe from contributing to the impairment of the Calleguas Creek Watershed. By strategically placing BMP's across CI campus, these pollutants can be maintained below TMDLs, and can help Calleguas Creek Watershed recover. Through our monitoring we have also benchmarked pollution runoff at these locations, which is necessary in further identifying high risk MS4 locations at CI. Though some pollutants were not detected over TMDLs, it is best to reduce storm water pollution as much as possible. The continuation of monitoring storm water runoff is essential and required for CI's future plan to enforce a MS4 permit.

Poster No. 109: "Mitigating Surface Runoff Pollution from the California State University Channel Islands Campus with Advanced Filter Systems" by Dominykas Ablingis.
Mentor: Sean Anderson, Associate Professor of ESRM (Environmental Science and Resource Management)

Abstract
The brand new California State University Channel Islands (CSUCI) campus in Ventura County, California has increased its student enrollment by 558% since 2002 and continues to grow quickly (CSUCI 2013). Neighboring the campus are Long Grade Creek and Calleguas Creek: one of the County’s most important year-round waterways. Reducing and understanding pollution during surface storm runoff events is an effective way to improve the quality of adjacent riparian areas (EPA 1997). To improve the quality of storm water runoff we tested and monitored five sites across campus, three of which were identified as MS4 outfall locations. The effectiveness of the Bio-SWIPE filter was tested using water sampled from four sites. Water runoff samples for lab analysis were collected for one rain event, one wash event and one dry weather event. The samples were tested for 37 parameters including title 22 metals and other organic materials. Results showed varying levels of pollutants in all samples collected. A one sample t-test was used to determine the effectiveness of the Bio-SWIPE filter. It was found to significantly reduce pollutants in all four locations tested (p=.000). In addition, the Bio-SWIPE filter achieved average total reduction of 48.8%, 34.7% ,31.5% and 21.3% for parameters tested at the four sites. The continuation of monitoring storm water runoff is essential and required for CI's future plan to enforce a MS4 permit. Suggestions for optimal mitigation and the continuation of this project at CSUCI are made.

Poster No. 110: "Accumulation of Trash in Revlon Slough and Beardsley Wash Channel" by Chelsey Ballot.
Mentor: Sean Anderson, Associate Professor of ESRM (Environmental Science and Resource Management)
Abstract:
The Los Angeles Regional Water Quality Board is responsible to maintain compliance with a Total Maximum Daily Load (TMDL) for Calleguas Creek and Mugu Lagoon, a protected wetland, which are listed in the state of California as impaired waters under section 303(d) of the Clean Water Act. This project focuses on the non-point sources of pollution and included the tracking and categorizing of trash that has accumulated within Revlon Slough and Beardsley Wash which flow unfiltered into Calleguas Creek. Four channels were monitored for trash accumulation and surrounding agricultural activities in the City of Ventura as a comparison to those on the floodplain. The data collected is important to the City of Camarillo, the County of Ventura, the Los Angeles Regional Water Quality Board, Caltrans, and the Ventura County Agricultural Irrigated Lands Group who share the responsibility for removing or reducing the amount of trash within the channels.

Poster No. 111: "Phenology of different species of plants in the Chaparral ecosystem adapting to Climate Change" by Lily Alexander.
Mentor: Bradley Monsma, Professor and Chair of English (Environmental Science and Resource Management)

Abstract:
My research question is how temperature has affected different species of plants and their bloom times, especially given the severe drought and Climate Change that is ravaging Southern California’s chaparral ecosystem. Between Jan-May 2012 and Jan-May 2014 a huge variance in temperature occurred. I performed a T-Test for average temperatures between the years 2012 and 2013 and yielded a significant p-value of .002, and then, comparing that same baseline year of 2012 to 2014, yielded a p-value of .00002. This, when compared with bloom data collected by Dr. Bradley Monsma’s Literature of the Environment class, provided a snapshot of how bloom times have changed between these years and what it may suggest.

Poster No. 112: "Climate Change, Wildfires, and the Phenology of Local Vegetation in Camarillo." by Lindsey Robertson.
Mentor: Sean Anderson, Associate Professor of ESRM (Environmental Science and Resource Management)

Abstract:
Climate change and drought in Southern California are having many effects on our environment. Warming trends bring about an earlier spring and cause plants to bloom ahead of schedule. Early blooming can lead to many plants remaining unpollinated, as pollinators like bees and birds have yet to adjust to these changes in seasonality. Dry weather also increases the chances and severity of wildfires in Southern California. Phenological studies, looking into changes in the bloom periods of plants, can help demonstrate the effects that climate change is having on our environment. For our study, the phenology cycles of over 8 species of native plants growing in the mediterranean climate of Camarillo were observed and recorded over the course of 4 years. The data collection, gathered by students between the months of February and May, took place on the campus of CSU Channel Islands on a demarcated plot that receives little human disturbance in Camarillo, California, USA. From this data, we were able to identify peak bloom periods for many of these floral species and observed the succession of the plant community after the Camarillo Springs fire. Bloom time varied from year to year, but with a noticeable shift toward earlier peak blooming each spring. Warming trends in Camarillo, as well as a marked decline in precipitation, have led to advanced blooming times of local flora. Post-fire succession has shifted the chaparral community from a species rich, diverse community to a landscape dominated by pioneer species. These changes could lead to problems with pollination and the proliferation of native species.

Poster No. 113: "Validating passive restoration after grazer removal: Change detection analysis of vegetation on Santa Rosa Island, California" by Sean Clark, Colton Schmidt.
Mentor: Brett Hartman, Lecturer of ESRM (Environmental Science and Resource Management)

Abstract:
There have been limited studies that utilize long-term datasets to quantify large scale passive restoration. Our study demonstrates the effects of non-native grazer removal on Santa Rosa Island (SRI), California. SRI is a floristically rich island with over 500 plant taxa, including numerous endemics and endangered species. Plant
communities have been heavily impacted on SRI since ranching began in 1844 with cattle, elk, sheep, and deer. Ranching ceased in 1998 and the remaining non-native grazers were removed in 2011. Following the cessation of ranching, we expected to see significant changes within plant communities due to passive restoration. Using LandSat aerial imagery and ArcGIS, we conducted a change detection analysis to quantify changes in specific plant communities and overall vegetation. Supervised classification was applied using National Park Service transect vegetation data, taken since 1990. These data support the passive restoration efforts on the California Channel Islands.

Poster No. 114: "Rocky Intertidal Study Comparing Protocol Methodologies on Santa Rosa Island, California" by Julia V. Dorosh.
Mentor: Sean Anderson, Associate Professor of ESRM; Cause Hanna, SRI Research Station Manager (Environmental Science and Resource Management)

Abstract:
Santa Rosa Island is a pristine location for long-term ecological monitoring of the rocky intertidal ecosystem due to minimal human disturbance. California State Channel Islands (CSUCI) Intertidal Research Team’s implementation of two permanent long term intertidal ecological monitoring sites on Santa Rosa Island aims to detect and understand community dynamics, zonation patterns, and population trends in order to aid development of management measures to reduce and anticipate minor or major environmental impacts. CSUCI’s Santa Rosa Research Station works cooperatively with the National Parks Service (NPS) in order to create a long-lasting relationship between student researchers and NPS in data collection and analysis. The current NPS intertidal protocol and a larger scale vertical band transect protocol created specifically for CSUCI was conducted and compared to determine what each can answer concerning ecological and resource management questions, and what methodology or a combination of the two is ideal for CSUCI’s sites on Santa Rosa Island.

Poster No. 115: "Viewing Vegetation Change on Santa Rosa Island: A Photo-Point Study" by Taylor Lane.
Mentor: Sean Anderson, Associate Professor of ESRM; Cause Hanna, SRI Research Station Manager (Environmental Science and Resource Management)

Abstract:
Examining the recovery of plant communities, years after the eradication of invasive species, is critical in determining the results of the restoration and conservation efforts on Santa Rosa Island, California. Santa Rosa Island was once used by ranchers to allow their livestock to freely graze the island landscapes, severely altering the plant communities on the island. To examine this change in vegetation, this study will use ground-based photo-point images to compare historical photographs with images taken during the course of this study and evaluate the changes in vegetation patterns across a landscape. Using scenic photographs taken of various regions of Santa Rosa Island during the 1900s, we can compare current vegetation with historic vegetation by taking photographs of the same landscapes from similar points. Percent cover of vegetation across these landscapes changed from primarily grass (85% cover), to primarily herbaceous vegetation (68% cover). These results suggest that the island plant communities have experienced a significant change after post eradication of non-native grazers. Additionally, this study will mark be the beginning of a long-term study using ground-based photo-point images on a semiannual basis to examine changes in landscapes and plant communities over the course of the following years.

Poster No. 116: "Population Dynamics of the Santa Rosa Torrey Pine" by Travis Hall, Andrew Brinkman.
Mentor: Sean Anderson, Associate Professor of ESRM; Cause Hanna, SRI Research Station Manager (Environmental Science and Resource Management)

Abstract:
The Torrey pine (Pinus torreyana) is the rarest pines species in North America, with its’ current population limited to San Diego, CA and Santa Rosa Island (SRI), CA. We completed a census on the SRI Torrey pine population to determine (a) its population size and whether it is stable, growing, or declining; (b) the spatial variation in population structure; (c) the spatial patterning of trees in different life stages; (d) the environmental
factors that are related to seedling recruitment; and (e) the conservation gains associated with non-native ungulate removal. In total, 24,192 individuals make up the SRI Torrey Pine population, only 3,068 of which are sexually mature. The proportion of juveniles to adults for SRI is 8:1, compared to San Diego's 1:2. Core samples were taken from 19 trees to find a relationship between diameter at breast height (DBH) and age in order to estimate the how old each plant is. We are continuing to monitor the survival and growth rate of the juveniles in 45, 10 x 10 m permanent monitoring plots. With non-native elk, deer and cattle removed from the island by 2013, this study provides baseline data to enable land managers to quantify the ongoing recovery of the Santa Rosa Island Torrey pine from over a century of population suppression.

Poster No. 117: "Creation of the Santa Rosa Island Herbarium and Repeat Photo Analysis on Santa Rosa Island, California" by Sean Clark.
Mentor: Sean Anderson, Associate Professor of ESRM (Environmental Science and Resource Management)

Abstract
Santa Rosa Island (SRI) is a floristically rich island with over 500 plant taxa including numerous endemics and endangered species found within 14 distinct plant communities. Plant communities have been heavily impacted on SRI since ranching began in 1844 with the introduction of cattle and sheep, to eventually the hunting of elk and deer. Ranching ceased in 1998 and the remaining non-native grazers were removed in 2011. Following the cessation of ranching, I expected to see significant changes within plant communities. I set out to document the current flora of the island and establish a field herbarium at the Santa Rosa Island Research Station. Additionally I have employed a repeat photo analysis to quantify vegetation change after the removal of non-native grazers. This long term dataset consists of photos taken at the same location since 1990 at 86 permanent vegetation transects, performed by Channel Islands National Park. Maximum likelihood classification was performed using ArcGIS to quantify changes in herbs, shrubs, and bare ground frequencies. The repeat photo analysis and collections assist future management decisions, promote plant conservation, assist student and faculty led legacy projects, and contribute to restoration projects on the island.

Poster No. 118: "Quantifying Seasonal & Historical Shoreline Change on Santa Rosa Island" by Stephen Bednar.
Mentor: Sean Anderson, Associate Professor of ESRM (Environmental Science and Resource Management)

Abstract
Eminent sea level rise, and historical management of Santa Rosa Island, CA have likely caused change in the shoreline position of the islands sandy beaches. Using ArcGIS and USGS’s Digital Shoreline Analysis System I analyzed net, and annual rates of change from 1929-2015 using a compilation of historic aerial images, and GPS surveys. Seasonal analysis spanned from November 2014 to March 2015, and beaches saw an average net gain of 24.4m ± 5.45 indicative of erosion seen during stormy winter months. Historical shoreline position was highly variable across all 6 beaches surveyed with R2 values <.10 across most beaches, however one stretch of beach adjacent to a recently stabilized dune field showed annual erosion rates of ~0.4 meters per year across 200m of beach with R2 values >.40. Shoreline analysis while noisy due to many uncertainties provides a best case management scenario for resource managers.

Poster No. 119: "Restoration on Santa Rosa Island: A Geomorphic Assessment of Stream Function" by Nathan Hilpert.
Mentor: Sean Anderson, Associate Professor of ESRM (Environmental Science and Resource Management)

Abstract
The recovery of stream function is assessed post removal of non-native ungulates on the island of Santa Rosa, CA located in the Channel Islands National Park. Historic ranching operations from mid 19th century have heavily degraded the island’s biotic and abiotic communities. Prior study conducted in 1999 and 2002 classified several watersheds as non-functional. This project explores California State University Channel Islands examination of Quemada Creek at 10 original cross sections of the stream, assessing the effectiveness of the restoration efforts. Stream channel cross-sections and photo surveys were documented at each site. Changes in stream morphology, vegetative buffer zones, and potential for erosion were recorded. The stream is
reclassified as fully functional. As grazing reduces dominant species and allows for a greater diversity of nonnative plants, removal of the impact demonstrates an expected riparian recovery timeline. Through elimination of this stress and application of active restoration, an increase in herbaceous and woody vegetation is observed. The stream channel surveys demonstrate a proper movement of sediment as well as improved biological performance.

Poster No. 120: "Water Quality on Santa Rosa Island, California: An Analysis of Riparian System Recovery" by Reily Pratt, Kyle Burns.
Mentor: Sean Anderson, Associate Professor of ESRM; Linda O’Hirok, Lecturer of ESRM; Cause Hanna, SRI Research Station Manager (Environmental Science and Resource Management)

Abstract
The health of riparian ecosystems has been studied intently since the removal of grazing animals from Santa Rosa Island in 1998 in addition to other restoration efforts. In a study by the National Park System published in 2004, ten total locations in three different watersheds on the island were monitored for several parameters, including pH, salinity, conductivity, temperature, nitrogen, phosphorus and total coliform (Wagner et al. 2004a) (Wagner et al. 2004b). This monitoring revealed a distinct improvement from a previous study published in 1998 (Rosenlieb et al. 1995) (with data collected in 1992-97 before the removal of cattle). All but two streams returned to Proper Functioning Condition, as defined by the Bureau of Land Management (Rosenlieb et al. 1995). Preliminary findings show that restoration efforts are having a positive impact on the functionality of riparian ecosystems. However, further studies and monitoring of nutrient loading is advised as the reduction of nitrate was not found to be as efficient as historic levels. Other areas for further research include the impacts of road maintenance and traffic on the island. This study has implications for future management and monitoring strategies in similar ecosystems.

Poster No. 121: "Santa Rosa Island, California: Watershed Spatial Variation" by Kyle Burns, Reily Pratt.
Mentor: Sean Anderson, Associate Professor of ESRM; Linda O’Hirok, Lecturer of ESRM; Cause Hanna, SRI Research Station Manager (Environmental Science and Resource Management)

Abstract
Santa Rosa Island, California was severely overgrazed by non-native animals during the past century. The island suffered severe riparian damage due to the grazing, resulting in the removal of all cattle which ended in 1998. A water quality survey was conducted by the National Park Service, starting in 1993, which determined the overall health of the water during and after the complete removal of cattle. The survey sampled 9 sites spread out among various watersheds. Each site was measured for air and water temperature, pH, conductivity, salinity, turbidity, dissolved oxygen, total Nitrogen, total phosphorous, total dissolved solids, total suspended sediments, total coliform, and fecal coliform. The survey was recreated in 2002 which measured the 9 sites for the same parameters. With the new survey in 2014, the 9 sites and parameters were reconstructed; however, samples were also taken from an additional 11 sites to measure if the locations sampled were representative of the entirety of Santa Rosa Island. The results showed that the standard 9 sites had similar data, which concurred with the previous studies; however the additional 11 sites had widely varying results in dissolved oxygen, total suspended solids, and E. Coli. With the wide differences in data from multiple different sites not in the original study, it can be said that the sites utilized were not representative of the overall water quality on Santa Rosa Island.

Poster No. 122: "Wildlife Monitoring in the Santa Monica Mountains: Assessment of Conejo Creek" by Nita Superak, Sean Anderson.
Mentor: Sean Anderson, Associate Professor of ESRM (Environmental Science and Resource Management)

Abstract
Many species in the Santa Monica Mountains are threatened by habitat fragmentation caused by urban development. Because there is not enough habitat for wildlife, they encounter constraints from each other, humans and cars. A solution to this is wildlife corridors to allow a safe passage for wildlife under or over...
roads. Conejo creek was monitored using camera traps to document whether or not wildlife are using corridors. The animal found using the corridor the most was Coyotes.

Poster No. 123: "Camarillo Regional Park Species Monitoring 2015 An Analysis of Post-Fire Species Abundance" by Maribel Huizar, Maribel Huizar.
Mentor: Sean Anderson, Associate Professor of ESRM (Environmental Science and Resource Management)

Abstract:
The May 2013 Camarillo Springs Fire caused extensive damage to the western Santa Monica Mountains reducing wildlife abundance and average vertebrate species richness. I monitored vertebrate richness in Camarillo Regional Park (aka Cam Park; 34°10'45" N 119°1'47" W) two years post-fire to see if this pattern persisted. I placed camera traps at various locations throughout the park. By week 6 (January 25-31 of 2015), the species richness had risen to a ~75% of the encounter rates pre-the 2013 Springs Fire. I also found a higher encounter rate in areas proximate to riparian zones than in more distal areas of Cam Park. The species richness fluctuated over time but increased overall from December 2014 through March 2015. The diversity and abundance of vertebrate species in Cam Park has increased since the May 2013 Springs Fire with wildlife apparently repopulating the region since the fire.

Poster No. 124: "Evaluating the Recent Reproductive Success of the endangered Pinus torreyana ssp. insularis" by Andrew Brinkman, Travis Hall.
Mentor: Sean Anderson, Associate Professor of ESRM; Dawn Neuman, Professor of Biology (Environmental Science and Resource Management)

Abstract:
The Torrey pine (Pinus torreyana and ssp. Pinus torreyana insularis) is the rarest pine species in North America, with populations limited to San Diego and Santa Rosa Island (SRI), CA. Over the past century, non-native ungulate grazing and erosion reduced recruitment and distribution of P. torreyana insularis. To aid this recovery, all non-native ungulates on SRI were removed from 1999 to 2012. In 2013, we conducted a census of the total population resulting in an 8:1 juvenile to adult ratio (n=24,192). A point density tool within ArcMap was applied to reproductive trees identifying 4 unique groves. Reproduction within each grove was observed as highly clustered within 10m of a parent tree. We evaluated the recent recruitment by sampling seeds, soil and leaf litter from reproductive areas (n=24) across the population. On January 1, 2015 we conducted a common garden experiment to evaluate the effect of leaf litter and precipitation on germination (time and success) and seedling survival. Results from this study will provide resource managers with environmental variables associated with the reproductive success of the SRI Torrey pine.

Poster No. 125: "Quemada Creek Vegetation Survey: Recovery Following Non-native Ungulate Removal" by Kevin Gaston.
Mentor: Sean Anderson, Associate Professor of ESRM; Linda O'Hirok, Lecturer of ESRM; Cause Hanna, SRI Research Station Manager (Environmental Science and Resource Management)

Abstract:
Santa Rosa Island, CA (33.965006 N, 119.988387 W) was the site of intensive ranching throughout the 19th and 20th centuries. After removal of non-native cattle by the National Park Service (NPS) in 1998, a restoration effort was implemented in the Quemada Creek Watershed located on the eastern end of the Island. NPS conducted a survey in 2002 to assess the success of the restoration and twelve years later we repeated their study to observe the long-term change of the region. Our study shows a significant return of native scrubs coinciding with a decrease in bare ground cover. The return of vegetation has implications for water quality, groundwater recharge, and sediment deposition. These results suggest changes in vegetation are contributing to the stability of the stream channel and overall improvement in the functionality of the watershed.

Poster No. 126: "Benthic macroinvertebrates as bioindicators of stream health on Santa Rosa Island, CA" by Benjamin Comfort, Reily Pratt.
Abstract:
Located approximately 43 km off the Ventura coastline of southern California, Santa Rosa Island is the second biggest island of the Channel Islands National Park. This island was heavily degraded by the presence of a multitude of ungulates brought to the island in the early 19th century, represented by the debasement of aspects of the island ecosystem including water quality, fluvial geomorphic stability and invasive species composition. Benthic macroinvertebrates (BMI's) can serve as an indicator of stream health since they are easy to find, mostly non migratory organisms with relatively short life cycles and well-characterized across a range of stream states. In Spring of 2015, I collected BMI samples from five different freshwater systems on Santa Rosa Island using the EPA's Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers. I established consistent sampling sites for each of these reaches and collected available BMI's to analyze biotic factors including species abundance, species health and overall biodiversity; which were then directly correlated with environmental patterns as well as available water quality data including water temperature, total suspended solids, conductivity, pH, turbidity, chlorophyll, fecal coliform and dissolved oxygen of these same freshwater systems. Metrics used to quantify stream health by benthic macroinvertebrate sampling are the Ode et al. 2005 Southern California Index of Biotic Integrity (SCIBI) and the Brinkman 2007 Index for Biotic Integrity (IBI). Two perennial streams (Verde Canyon and Water Canyon) reflected the best overall stream health with the highest biotic index scores classification of “Fair” drawn from both indices, while all other watersheds scored “Poor” or “Very poor”. Quemada Canyon, Cherry Canyon and Lobo Canyon demonstrated the lowest species abundance and stream health as indicated by low biotic indices scores, mostly attributed to the limited available habitat throughout the year as well as degraded water quality.

Poster No. 127: "Geomorphology of Quemada Creek following grazer removal, Santa Rosa Island, Channel Islands National Park, California" by Amber Baglietto.
Mentor: Sean Anderson, Associate Professor of ESRM; Linda O'Hirok, Lecturer of ESRM; Cause Hanna, SRI Research Station Manager (Environmental Science and Resource Management)

Abstract:
Excessive grazing by non-native ungulates such as sheep and cattle degrades watershed efficiency by altering stream channel morphology. Quemada Creek was the site of intense grazing from ungulates for over 150 years and is the largest watershed on Santa Rosa Island, located in the Channel Islands National Park, California (N33°58.031', W119°59.637'). This research replicated two past studies and explored post-grazing channel characteristics of the watershed. We re-surveyed ten channel cross-sections fifteen years after the removal of the cattle in 1998 to assess the amount of watershed recovery and function. This report presents the survey data obtained in October and November of 2014 and compares it with the cross section data taken in 1999 and 2002. The objective of this research is to determine if removing cattle, elk and deer had a positive effect on the functioning of Quemada Creek. We found the once poorly functioning watershed has returned to pre-grazing conditions with increasing native vegetation and floodplain development. Slope of cross-sectional reaches and drainage basin area were hypothesized as main indicators of stream channel morphology and watershed recovery with the main driver being the removal of the grazing animals. This baseline data will lead to the establishment of future comparative studies to determine rates of watershed recovery based on differing slope and geologic factors.

Poster No. 128: "Environmental Communications: Examining Publishing Trends in Modern Media" by Mandy DeSchutter.
Mentor: Sean Anderson, Associate Professor of ESRM (Environmental Science and Resource Management)

Abstract:
The project takes an in-depth look at trends in the publishing trends of news articles that focus around environmental subjects. A selection of online news sources were selected and their published articles from January 5th, 2014 to December 28th, 2014 were sampled to determine the ratio of environmental topics to other topics. Additionally, responses were gathered via survey from news readers in order to gain a reading of what sorts of news sources people most commonly read, and how significant they consider environmental issues to be in relevance to their own lives. The research suggests that environmental topics are not evenly...
covered across different news sources and that this may influence the average reader’s perception of environmental concerns. The purpose of this project was to find which topics are most commonly covered in modern media, and then to compare that to survey responses to find a correlation between publishing and readership trends. It is expected that data from this project can be used to predict publishing trends or provide data to publishers looking to publish stories on environmental issues to increase readership. The central hypothesis is that publishing trends of articles is not consistent across varying sources, and that there is a correlation between publishing trends of papers and their readers’ perceptions of environmental concerns.

Poster No. 129: "Evaluating Groundwater Pollution Potential Using DRASTIC Method and Assessing the Correlation to Water Quality Measurements for Southern Ventura County, California." by Aimee Riegner. Mentor: Sean Anderson, Associate Professor of ESRM (Environmental Science and Resource Management)

Abstract:
I used the EPA's DRASTIC (Depth to water, net Recharge, Aquifer media, Soil media, Topography, Impact of the vadose zone, and Conductivity) rating model to show pollution potential of groundwater in Southern Ventura County, California. From the data, I created a GIS map of the pollution potential within groundwater basins in Southern Ventura County, California for each metric. The metrics that had the most impact on the overall total pollution potential were depth to water table, and soil media. Then the data layers were added together to create the total pollution potential for the County. Southern Ventura County’s pollution potential ratings ranged between 12 on the low end and 259 on the high. The total pollution potential was then compared with the county’s measured groundwater quality sampling. I found that there was a strong correlation for the unconfined aquifers and no correlation for the confined aquifers.

Poster No. 130: " Ventura County Residential Water Use: An Analysis of Demographics, Attitudes and Behaviors" by Renae Farris, Sean Anderson. Mentor: Sean Anderson, Associate Professor of ESRM (Environmental Science and Resource Management)

Abstract:
California has been experiencing devastating drought for the last few years. Historically, the 1970’s drought sparked a movement of self imposed water restrictions among California residents. However, recently California Governor Jerry Brown initiated the state’s first mandatory water use restrictions. This research aimed to determine if relationships exist among demographic characteristics, residential water use, behaviors and attitudes as well as overall ecological concern among Ventura County residents. Through cross tabulation and chi-square statistical tests, it was observed that overall drought concern and income were independent of one another, as a majority of residents noted they were most concerned over the current California drought situation. However, when education level was introduced, a relationship appeared to surface. Relationships were observed, a p value <0.05, among annual household income and if residents sought or would be interested in seeking free water conservation aids from local water districts, ecological concern, and how residents were affected by the 2014 drought conditions.

Poster No. 131: "Eurasian Collared-Dove: Aggression in Ventura County, CA" by Lex Koscielak. Mentor: Sean Anderson, Associate Professor of ESRM (Environmental Science and Resource Management)

Abstract:
Beginning in November of 2014 I started to monitor Eurasian Collared-Doves (Streptopelia decaocto) in Ventura county, California. The Eurasian Collared-Dove is an invasive species in the United States that was first introduced to North America in Florida and now occupies the majority of the US (Romagosa and Labisky 2000). They are larger than the native mourning dove and thus capable of bullying the native Doves. This size advantage may translate into a competitive advantage when competing for food and nesting sites. To test for any real competitive advantage I monitored two sites in Ventura County. I monitored these sites during various hours of the day for aggression. In addition to monitoring the birds I conducted an online survey to assess other peoples knowledge and opinion of the Eurasian Collared-Dove.
**Unofficial DRAFT document. Content may be subject to change.**

Poster No. 132: "On Campus Wind Feasibility Study for California State University Channel Islands" by Thomas Mirzakhani.
Mentor: Sean Anderson, Associate Professor of ESRM (Environmental Science and Resource Management)

*Abstract:*
As the need for non-renewable energy resources continues to grow across the world, the exploration of alternative sources of energy and where they can be utilized has become more and more important. Wind is one of many different renewable energy sources that can be utilized in California. California State University Channel Islands experiences periods of high average wind speeds to frequent, seasonal Santa Ana winds. I explored the feasibility of a single utility-scale wind turbine on campus. Anemometer readings were taken on a daily basis over 6 locations around campus. The average wind speed data along with other variables were used to determine power outputs. The location that recorded the highest average wind speed was site 4, where the student housing parking lot is situated. This site recorded an average wind speed of 5.23 meters per second at a 25 meter elevation. A power output of 25 kilowatts would be provided by a single turbine.

Poster No. 133: "Barn Owls Population Size at California State Channel University Islands in Relationship to Prey Diversity" by Morgan Vahradian.
Mentor: Sean Anderson, Associate Professor of ESRM (Environmental Science and Resource Management)

*Abstract:*
Barn Owl numbers are decreasing due to habitation loss; these owls are extremely secretive birds only hunting at night, and they diet consist of small mammals. The main theme of this paper is whether there has been an increase, a decrease or stayed the same of the Barn Owl population at California State University Channel Islands post two years after the Springs Fire. My methods for this study is to collect pellets from three different roosting sites on the campus of Channel Islands. The process for this project is to freeze the pellets for two week, and then the pellet will be dried for the next 24 hours. Once the pellets have been heated they can be dissected for measurements and find the prey items that the Barn Owls have eaten. The mammal prey had decreased by 87% post Springs Fire. In conclusion I believe this study is important because it demonstrates how the ecosystem food chain can be affected by a fire which includes top predators.

Poster No. 134: "Synanthropic Species Variation in Urban, Suburban, and Natural Environments Based on Roadkill" by Robert Ruzicka.
Mentor: Sean Anderson, Associate Professor of ESRM (Environmental Science and Resource Management)

*Abstract:*
Synanthropic species are species that have tendencies to compete well in urban environments. Urban environments have specific attributes that can allow certain species to thrive whilst others fail to compete. However, it must be defined what an urban environment is and what about it can affect the species in the area. This can be anything from abiotic factors to anthropic factors. One of the major factors however are roads, which can cause things such as habitat destruction as well as interference with natural habits of species. Looking at a series of six different roads split into natural, suburban, and urban environments it was found that a majority of the roadkill find their way into suburban environments. Although of the roadkill, small species took a larger 0.0019 percent of the total species in urban environments. This insinuates that species vary depending on the type of environment that is present.

Poster No. 135: "Trash Management in Los Angeles County Watersheds" by Kristina Thorsen.
Mentor: Sean Anderson, Associate Professor of ESRM (Environmental Science and Resource Management)

*Abstract:*
Marine debris has become one of the most recognized pollution problems in the world's oceans and watersheds today. Most debris found in marine environments is generated from land-based sources of trash; therefore reduction of trash sources from watersheds is an important management action to reduce marine debris. To address this issue, the Los Angeles Regional Water Quality Control Board established a Total Maximum Daily Load (TMDL) for trash for the Ballona Creek, for Malibu Creek, and for the Santa Monica
Bay. I wanted to find out how effective the installation of trash capture devices has been in resolving this issue of trash on beaches. In order to do this, I gathered data from volunteer beach cleanups that occur every year and compared it to the information about trash capture devices from the Trash TMDL Annual Reports. I found that there was not a strong correlation because trash on the beach can come from places other than the storm drain; the ocean and visitors to the beach.

Mentor: Sean Anderson, Associate Professor of ESRM (Environmental Science and Resource Management)

Abstract:
The Spearman’s Rank Correlation test is used to identify a correlation between estimated avian populations and total rainfall measured during the month of December in Southern California. No correlation was detected between avian populations and rainfall, however data does show increasing and decreasing population trends in individual species. Birds were monitored following a variable distance point count methodology at 7 different sites including Santa Barbara, Ventura, Thousand Oaks, Malibu, Pasadena, Los Angeles, and Long Beach. Data collection began 30 minutes before sunrise and continued for 2 ½ hours after sunrise throughout the month of December. The route-regression method is applied to estimate the population trends of total and individual avian populations using data that I collected myself as well as data from the National Audubon Society. Population data consists of approximately 250 species and data may extend as far as the 1950’s, although it varies depending on individual site. In order to determine the causes of decreasing population trends of individual species, further studies are suggested.

Poster No. 137: "K-12 School Recycling Programs Increase Diversion Rates" by Hannah Mize.
Mentor: Sean Anderson, Associate Professor of ESRM (Environmental Science and Resource Management)

Abstract:
Solid waste management is one of the most important yet difficult to manage aspects of campus sustainability (Smyth et al. 2010). Few studies have directly investigated the effects of implementing school recycling programs on campus diversion rate. Subsequently, little is known about the impact school recycling programs have on students’ commitment to waste reduction, environmental stewardship, and sustainability. It is clear, however, that education and access to recycling infrastructure are directly related to active recycling (Knussen 2008). I documented the change in diversion rate at ten K-12 campuses in the Conejo Valley Unified School District (CVUSD), via data from waste audits. Improved understanding of the waste flow is essential to manage and subsequently minimize waste (Farmer et al. 1997). These waste audits were originally conducted to quantify and understand the impact of a district-wide education and infrastructure based recycling program. Implementing this school recycling program did not significantly impact campus diversion rates, however individual diversion rates at six of the ten schools increased. The success rates varied depending on a mixture of known and perceived variables. Among these variables, absence of time or interest in fostering a campus recycling culture, staff, student, and parent turn-over, and misunderstandings about the audit process proved to be the most impactful upon diversion rate. Despite the statistically non-significant improvement upon the diversion rate, implementing school recycling programs positively impact students and the campus diversion rate by providing access and awareness to sustainability. Future studies may consider conducting more waste audits over a longer study time-frame to investigate the impact of an established district-wide recycling program over time.

Poster No. 138: "Performance of growth between Diploid and Triploid Brown Trout (Salmo trutta) in hatchery setting" by Erik Storey.
Mentor: Sean Anderson, Associate Professor of ESRM (Environmental Science and Resource Management)

Abstract:
Triploid Brown Trout (Salmo trutta) have just started to be used by fish hatcheries in California. In an attempt to prevent genetic interaction between wild and hatchery stocked trout (Council 2008). These fish are similar to the fertile diploid brown trout, with slight differences between the fish. Recent research states that triploid
trout grow at a faster rate than diploid trout and hold the promise of preserving wild stocks of fish. Working at the Fillmore Fish Hatchery in California I compared hatchery performance (growth, feed conversion and mortality) of diploid and triploid Brown Trout (Salmo trutta). I monitored growth of 17,000 diploid and 22,000 triploid trout over 210 days. Mortality of triploid trout was higher (.056%) than diploid (.048 %). Triploid brown trout also had a lower rate of growth at (55%) than diploid trout (84%). Based on the study diploid trout out performed triploid trout.

Poster No. 139: "Impacts of Population Density, Ground Permeability, and Land Use on Water Quality within Ventura County Sub-watersheds" by Alyse Bader, Jonathan Fausto, Aimee Riegner.
Mentor: Brett Hartman, Lecturer of ESRM (Environmental Science and Resource Management)

Abstract
Past research on the Ventura County sub-watersheds has shown there is a direct correlation between the water quality and its surrounding land use, population density and ground permeability. In this projects, the relationship between social variables (land use, population density and ground permeability), and stream pollutants (trash level, dissolved oxygen levels, turbidity, total coliform, and total ecoli) were evaluated. The reason for choosing Ventura County was because in 1998, 2002 and 2006, the Santa Clara River was declared impaired; being placed on the Clean Water Act 303(d) list of impaired water bodies (Board, 2010). The Santa Clara River (SCR) is 83 miles long, and is one of the most dynamic river systems in southern California (USGS, 2015). The river drains the coastal mountains of the Transverse Ranges, north of Los Angeles, flowing west onto the Oxnard Plain and into the Pacific Ocean (2015). From January 2009 to January 2014, the Santa Clara River and its major tributaries were tested for multiple pollutants, by members of Ventura County Coastkeeper. From this data, we identified exceedances of the Total Maximum Daily Loads (TMDLs) and tested for correlation with three separate variables; land use, population density, ground surface permeability.

Poster No. 140: "Change in Greenness Overtime Due to Erosion Control Structures: Andes Mountains, Bolivia" by Christopher Wells, Ryan Summers.
Mentor: Brett Hartman, Lecturer of ESRM (Environmental Science and Resource Management)

Abstract
Gully erosion from rapidly moving water in areas with steep slopes is the main cause of land degradation and groundwater depletion in the Andes Mountains, Bolivia. Similarly, areas that are harder to access are more prone to have continuous and increased degradation and depletion due to lack of erosion control mechanisms. The degree of land degradation was determined using change in Normalized Difference Vegetation Index (Delta NDVI) by showing the change in greenness overtime between 1986-2009. NDVI calculates greenness by —taking advantage of the specific reflective characteristics of plant material. Transects of various lengths (min- 2000m max- 12,000m) starting from a centerline of the main, secondary roads and Ranchos were looked at inside and outside of the project area. Points along the transects were sampled every 200m by extracting the mean Delta NDVI value of a 3x3 grid using a bilinear interpolation. Certain areas along transects were masked out to prevent overlapping sampling. The Delta NDVI values showed that as distance increased from both the main and secondary roads the greenness decreased. However, sample sights beyond a certain point no longer followed this pattern as other factors that influence greenness other that erosion control mechanisms take hold. For Ranchos, greenness changed inversely in closer distances, starting low and increased until a certain point. After that point greenness followed the same pattern as the roads, decreased with distance.

Poster No. 141: "111 Years of Change in CSUCI's Long Grade Creek" by Evangeline Forster, Brandon Blair, Taylor Dranow.
Mentor: Brett Hartman, Lecturer of ESRM (Environmental Science and Resource Management)

Abstract
Long Grade Creek has been affected by changes brought about by agricultural activities, population increase, and infrastructure improvements. This creek flows through the California State University of Channel Islands (CSUCI) campus. In 1932, the California state acquired 1500 acres to build Camarillo State Hospital. When the hospital was built the flowline of Long Grade Creek was relocated. The land was then obtained by the
California State University (CSU) system in 1996. The purchase included hospital buildings, land surrounding it, and a section of Long Grade Creek. After several years of renovations, the CSU system officially opened CSUCI. Additional flood control was installed. The area adjacent to parking lot A3 was restored as mitigation for construction of the University Glenn Housing Complex. We overlaid USGS historical topographic maps and aerial images from 1904 to 2012 demonstrating how much Long Grade Creek has altered over time. This data shows changes in the creek source due to headward erosion, and changes in stream confluence points to stream grading and meander. Finally, through vegetation mapping we classified the plant species in the creek. This project can be used as a basis for future student research projects.

Mentor: Donald Rodriguez, Professor and Chair of ESRM (Environmental Science and Resource Management)

Abstract
CAR-LESS California is an inter-agency project designed to improve seamless and sustainable access to parks and protected areas via alternative transportation systems (ATS) for everyone, especially low-income communities with low vehicle ownership. As California adds 400,000 to 500,000 residents annually, a cultural shift toward choosing public forms of transit is essential for preservation of California's natural and cultural resources while also improving access for all populations. This project was designed to gauge public interest within the Los Angeles area for accessing public lands via public transportation. The results of 55 telephone interviews conducted with service providers in the greater Los Angeles area reveal the level of interest in utilizing public transportation to access public lands and protected areas.