Fall 2016

Fall 2016 Student Research Day Abstract Volume

Chapman University Office of Undergraduate Research and Creative Activity

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Chapman University Student Research Day

Wednesday, December 7, 2016

Fall Session Abstract Volume

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Office of Undergraduate
Research & Creative Activity

IL•16

Message from the Director

Greetings and welcome to the 2016 Fall Chapman University Student Research Day. This celebration highlights the breadth and depth of scholarly research and creative activity conducted by Chapman undergraduate and graduate students. It is a truly exciting day to learn about, explore, and appreciate the efforts that students and faculty have put into a wide variety of research and creative projects across the campus. It is my hope that all members of the university community can engage in and benefit from the Chapman University Student Research Day.

To students--take a look at the impressive range of projects in which your classmates have been involved over the past year, and become inspired to continue or participate for the first time in research yourselves during your time here at Chapman University.

To faculty--recognize the hard work of the students you have mentored, taught, and supervised, and celebrate the culmination of their efforts in a professional presentation setting.

To all--enjoy learning about this unique aspect of a Chapman education that allows students to engage in scholarly activity at the highest level: expanding knowledge and pushing at the boundaries of one's academic discipline.

Thanks for coming, and enjoy the day!

Dr. Anna Leahy is Director of the Office of Undergraduate Research and Creative Activity and Associate Director of the MFA program in creative writing at Chapman University.

Keynote Speaker – Nancy Perloff

Nancy Perloff is Curator, Modern & Contemporary Collections at the Getty Research Institute (GRI). Trained as a musicologist and as an art historian, she pursues scholarship on the Russian avant-garde, European modernism, and the relationship between music and the visual arts.

Her exhibitions at the GRI include *Monuments of the Future: Designs by El Lissitzky* (1998–99); *Sea Tails: A Video Collaboration* (2004); *Tango with Cows: Book Art of the Russian Avant-Garde, 1910–1917* (2008–9); and she led the curatoral team for *World War I: War of Images, Images of War* (2014). Perloff is the author of *Art and the Everyday: Popular Entertainment and the Circle of Erik Satie* (Oxford, 1991) and coeditor, with Brian M. Reed, of *Situating El Lissitzky: Vitebsk, Berlin, Moscow* (Getty, 2003). She has written and lectured widely on avant-garde composers such as John Cage and David Tudor. Her book, *Explodity: Sound, Image, and Word in Russian Futurist Book Art,* is forthcoming with Getty Publications in December 2016.

Acknowledgements

The Office of Undergraduate Research and Creative Activity gratefully acknowledge the following individuals and program for their support:

Dr. Glenn Pfeiffer, Interim Provost

Crean College of Behavioral Sciences

Schmid College of Science and Technology

Wilkinson College of Arts, Humanities, and Social Sciences

Schedule of Events

12:00 – 1:30 pm	**Lunch Keynote Speaker**	**Bush Conference Center**
	Nancy Perloff	*Beckman Hall, 404*
	RSVP required	
2:00 – 4:00 pm	**Student Poster Session**	**Sandhu Conference Center**

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Graduate Students

Biochemistry and Molecular Biology

1. **Partial Amino Acid Sequence of Lipid Transfer Protein from Fennel (Foeniculum vulgare) Seeds**
   Presenter(s): Hassan Al-Shiyab and Caroline Aziz
   Advisor(s): Dr. Rukhsana Lalani and Dr. Aftab Ahmed

Fennel (Foeniculum vulgare) is a biennial Egyptian medicinal plant with an aromatic odor that belongs to the family Apiaceae (Umbelliferae). Fennel seeds are commonly used in traditional medicine, as they are known to have anti-inflammatory, anti-fungal and anti-cancerous activities. The major constituents of the fennel plant are sugars, minerals, essential fatty acids, proteins and fibers. Although, there are numerous studies on the medicinal properties of essential oils of the fennel seeds, but there is limited data reported on the proteins and peptides. The aims of this project are to fully characterize the primary structure of proteins and to determine their biological activities. We present here the preliminary data on the amino acid sequence of Lipid Transfer Protein (LTP) from fennel seeds. The proteins were extracted in Tris/HCl pH 8 buffer and successfully purified by two-dimensional liquid chromatography (2D-LC), using gel filtration chromatography followed by reversed phase HPLC (RP-HPLC). The purity of isolated LTP protein was determined by the SDS gel electrophoresis. The purified protein was loaded on to the PVDF disc and sequenced by automated amino acid sequencer, model PPSQ-31A (Shimadzu). The partial amino acid sequence up to 23 amino acid residues was successfully established. The amino acid sequence similarity was searched using Protein BLAST, which revealed it to be a lipid transfer protein.

Health & Strategic Communication

2. **Predicting Student Misuse of Prescription Stimulants: Helicopter Parenting, Stress, and Burnout**
   Presenter(s): Devin Velasco, Sam Mountjoy, and Jacob Lopez
   Advisor(s): Dr. Sara LaBelle

The purpose of this research is to investigate the relationships between helicopter parenting, stress, burnout, and recreational prescription stimulant misuse among college students. Reports of Adderall and other stimulant usage within college campuses are becoming increasingly commonplace. It is estimated that in the United States, 6.9% of all college students have used prescription drugs for nonmedical purposes (McCabe, Knight, Teter, & Wechsler, 2003). While many studies have investigated the academic reasoning for their misuse, little has been done in examining the predictors of misuse for recreational purposes. Desantis and Noar's (2008) findings suggest that a considerable portion of students use stimulants for the additional energy and the ability to enhance the effects of other substances, such as alcohol. For our study, we define misuse as using prescription stimulants that are either not prescribed or

in a way not prescribed for prescription holders (i.e., altering dosages or taking in alternative ways). Using the theory of planned behavior (TPB) (Azjen, 1991) as a theoretical base, this study examines an individual's perceived helicopter parenting, stress, and levels of burnout as possible predictors for college students' willingness to use prescription stimulants for recreational purposes. The TPB is a comprehensive framework used to explain behavioral intentions by taking into account an individual's attitude toward a behavior, subjective norms, and perceived behavioral control. The TPB has been used extensively to predict behaviors in areas such as smoking, drinking, exercise, and substance use. In our study, a survey was administered through social media channels at a medium-sized private university in Southern California. It is predicted that students will report higher levels of prescription drug misuse if they report a high levels of stress and burnout, and indicate that their parents are helicopter parents.

3. College Student Perceptions of Prescription Stimulants as Appetite Suppressants
Presenter(s): Mackenzie Bates, Alysia Hendry, and Holeka Inaba
Advisor(s): Dr. Sara LaBelle

The purpose of this study is to explore the effects that attitudes and subjective norms have on college students' intentions to misuse prescription stimulants for appetite suppression. Current research has investigated the prevalence of prescription stimulant misuse in various contexts and especially on college campuses across the country (Jeffers, Benotsch, & Koester, 2013; Jeffers & Benotsch, 2014), but little is known about student intentions to engage in this behavior for appetite suppression specifically. Medical doctors and researchers alike report the dangers and health risks of prescription stimulant misuse (Center for Behavioral Health Statistics and Quality, 2015), but this behavior remains prevalent across the United States. Therefore, this quantitative survey study uses the Theory of Reasoned Action (TRA; Ajzen & Fishbein, 1969) as a theoretical framework to investigate students' subjective norms and attitudes towards misusing prescription stimulants typically used to treat AD(H)D, such as Ritalin or Adderall, for appetite suppression. As data collection is currently in progress, participants are being recruited from a subject pool in communication courses across a medium-sized private university in Southern California. As TRA predicts, we expect to find that the more positive attitudes college students have, and the more accepting they perceive their friends and family to be, about the misuse of prescription stimulants for appetite suppression, the more likely they themselves will have the intention to engage in this behavior. Our findings will help to further support of TRA's predictive powers. In addition, the results of this study will help to inform future health campaigns on useful strategies for influencing the intention and ultimately, the behaviors students enact regarding prescription stimulant misuse for appetite suppression.

4. Misuse of Prescription Stimulants for Academic Purposes
Presenter(s): Pat Phornthanavarsit, Elisa Kanter, and Alexa Ferrante
Advisor(s): Dr. Sara LaBelle

The misuse of prescription stimulants among college students has been a growing problem in the United Stated. This includes the misuse of amphetamines and other stimulants medications for ADHD treatment. Even though past studies have provided some understanding regarding the prevalence of non-medical use of prescription stimulants, it is important for us to investigate further in order to understand college students' behavior and academic beliefs. Therefore, the purpose of this study is to examine how college

students' academic beliefs relate to their misuse of prescription stimulants. Specifically, this study focuses on how academic entitlement, academic self-efficacy, and learning orientation are related to college students' misuse of prescription stimulants. In terms of the methodology, we will conduct an online survey that measures Chapman University's undergraduate students' level of academic entitlement, academic self-efficacy, and learning orientation. Thus, we hypothesized that as student's self-efficacy increases, they are less likely to misuse prescription stimulants. Additionally, there will be a positive association between student's entitlement and the misuse of stimulants. Last, as learning orientation increases, students are less likely to misuse. On the other hand, as goal orientation increases, there will be an increase in stimulant misuse among college students.

Undergraduate Students

Art

5. **African American Culture in Historical Art Museums: Remembering a Buried Tragic Past**
   Presenter(s): Lana Sarkisian
   Advisor(s): Dr. Wendy Salmond

The transparency of reality reflecting in art often represents a false tragedy in African American history because of the lack of preservation and representation due to a predominantly white dominion, ultimately leaving the veracity of their history to consign to oblivion. There is a common thread of forgetfulness with the retrieval of art in today's society that embodies the African American community. Although artist Fred Wilson does not explicitly assert his assessment to the lack of black representation on account of cultural differences, he vocalizes how African American culture is indoctrinated to the public in a white, supremacist national narrative which labels misconceived notions of African culture. The purpose of historical museums is to teach visitors culture through historical truth. In spite of that, many art institutions have alternatively debased African American culture because of the founding board's predominantly white background. To change the ideas curated by museums, Fred Wilson, an art activist, recontextualizes objects to highlight cultural differences through the utilization of installation framing. By juxtaposing Western imperialism's flawed depiction of African culture to the authenticity of their traditions, Wilson confronts history and racial biases by recognizing the need to reveal and advocate the tragedy and truth of African American culture.

6. **The Faults of Art Restituion Post-World War II**
   Presenter(s): Rosita Saul and Bryleigh Blais
   Advisor(s): Dr. Wendy Salmond

A number of high-profile lawsuits are currently underway in Europe and the United States, suing for the restitution of art works seized by German forces from Jewish families during World War II. The case of the Kraus family and their painting-"View of a Dutch Square"- confiscated by the Nazis in 1941, raises

particular questions about restitution laws. Our project traces the provenance of the painting from the Kraus family to its present owner, the Cathedral Association of Xanten, and shows how the restitution process fell apart when the Bavarian government, charged with the responsibility of returning stolen art to its rightful owners, failed to follow through on its commitment, even returning missing art pieces to the very Nazis who stole them. The current case for restitution of the painting, brought by the Kraus' grandson, John Greykowski, is important because across Europe families have been devastated by the lack of efforts to return works of art to their rightful owners. This case study demonstrates just how difficult restitution can be when the parties involved are not willing to follow the laws set forth by art restitution.

7. **The Invisible Artist: Reframing William Holman Hunt's Work through 15th c. Netherlandish Art**
   Presenter(s): Jessica Bocinski
   Advisor(s): Dr. Wendy Salmond

William Holman Hunt, a 19th century English artist and founding member of the Pre-Raphaelite Brotherhood, opposed artistic convention in an attempt to restore a 15th century Netherlandish tradition of religious didactic painting that fostered a spiritually transcendental view of the world. An inability to understand the way of seeing presented in William Holman Hunt's works made him the subject of both 19th century and modern criticism, and has limited the perception of his works. In order to reframe our understanding of Hunt's works, they must be viewed through the new perspective afforded by a parallel comparison to 15th century Netherlandish art.

Biochemistry and Molecular Biology

8. **Comparison of the Flexural Rigidity of Fixed Porcine Pericardial Tissues Using the Three Point Bending Test.**
   Presenter(s): Miles Ahles
   Advisor(s): Dr. Elaine Schwartz

Understanding the mechanical properties of tissue is vital to improving the performance of bioprothetic heart valves. Heart disease is the leading cause of death in the United States and other developed countries. Bioprostetic heart valves are increasingly being used to replace damaged heart valves or for patients with congenital heart defects like aortic bivalve. Heart valve leaflets undergo both tensile and flexural deformation during the cycle of a heartbeat. To better understand the flexural deformation of the gluteraldehyde fixed pericardial tissue used to make valve leaflets, the three point bending test was used. The three point bending tester, or flexural rigidity tester, was developed as a nondestructive test method to calculate the flexural elastic modulus of different fixed pericardial tissues. In this paper, samples of fixed tissue were tested on the flexural rigidity tester and the flexural modulus of the different sample groups was compared. The three experiments performed tested the difference between the pericardium of different species, the collagen orientation of the tissue, and the difference between defective and normal tissue. The results showed that the different fixation methods had an effect on flexural stiffness.

They also showed that the effect of tissue orientation was dependent on which fixation method was used. However, neither of these results were statistically significant due to large variations in tissue stiffness. Defects also seemed to have an effect on flexural stiffness, but again the results were not conclusive. Error analysis of the test method revealed that most of the error was a result of feature tracking and problems with tissue bending in other directions during tissue testing. The flexural stiffness from this testing could be used in computational models to predict tissue wear.

9. **Synthesis of CN2097 Using Fmoc/tBu Solid Phase Peptide Synthesis (SPPS).**
   Presenter(s): Perrin Guyer
   Advisor(s): Dr. Rakesh Tiwari

CN2097 is a cyclic peptidomimetic compound binding to PDZ domain of PSD-95 scaffolding protein that has been proven to be useful in both the induction and maintenance of Long-term-potentiation (LTP) which helps in memory and overall enhances BDNF induction and TrK B signaling. The long-term objective of this project is to develop a compound for treatments to minimize neuronal damage resulting from strokes or traumatic brain injury and may also be therapeutic to ameliorate multiple sclerosis and Parkinson disease. CN2097 was synthesized using Fmoc/tBu solid phase peptide synthesis (SPPS). In this method, peptides were synthesized using fmoc-valine-wang resin followed by a coupling and deprotection cycle to assume PDZ binding motif on solid phase. Similarly, polyarginine peptide was assembled using Rink amide resin with the help of Fmoc-Arg(Pbf)-OH, HBTU, and DIPEA. Twenty percent Piperidine in N,N-dimethylformamide (v/v) was used for deprotection of fmoc group during synthesis. The peptide was cleaved from the resin using a freshly prepared cleavage cocktail (95, 2.5, 2.5, v/v/v, trifluoracetic acid, triisopropyl saline, water) followed by centrifugation and purification using HPLC and MALDI mass analysis. The final lyophilized samples were dissolved in water to oxidize to initiate disulfide linkage formation to obtain CN2097peptide.

10. **Exploring the Pro-oxidant Potential of the Diarylpentanoid ca27 in the Prostate Cancer Cells**
    Presenter(s): Rima Sanyal
    Advisor(s): Dr. Marco Bisoffi

Prostate cancer, or prostatic adenocarcinoma has been shown to thrive on the high concentrations of androgen secreted by the testicular and adrenal glands. Curcumin analog and diarylpentanoid ca27 (5-bis(2-hydroxylphenyl)-1,4-pentadien-3-one) has been shown to induce reactive oxygen species (ROS) which have been shown to down regulate the androgen receptor in prostate cancer cells. Curcumin, ca27, and various other analogs with different side groups at different positions (ortho-meta-para) on the aryl rings were used to treat LNCaP prostate cancer cells to determine the amount of ROS induced. LNCaP cells were incubated with the compounds at two concentrations, with DMSO as a control and hydrogen peroxide as a standard ROS. ROS induction was determine by dichlorofluorescein (DCF) mediated fluorescence. DCF data was normalized using Hoechst dye. Our preliminary data shows that at high concentrations analog ca27, ca27/OH- (ca27 without OH groups), and ca95 induced a marked amount of ROS compared to ca27 and Curcumin. Analogs c65, c58, and c27 also showed higher levels of ROS than Curcumin at both high and low concentrations. We expect that our structure activity relationship (SAR)

studies will identify the pharmacophore with the highest potential to induce ROS followed by androgen receptor down-regulation as a therapeutic strategy against prostate cancer.

11. **Manual and Automated Solid Phase Synthesis of Peptides for Breast Cancer Cell Targeting**
    Presenter(s): Savannah Carlson
    Advisor(s): Dr. Kamaljit Kaur

Four peptides were synthesized using solid phase peptide synthesis. The two target peptides synthesized were based off Peptide 18-4 and its negative analog. Each were synthesized once manually, and once using an automatic peptide synthesizer. Peptide 18-4 has a high affinity for breast cancer cells, allowing it to be used to detect circulating tumor cells (CTCs) in blood (Kaur et. al, 2015). Manual solid phase peptide synthesis is performed by anchoring the first amino acid to resin and coupling each amino acid individually until the target sequence is achieved. To synthesize the peptides automatically, the automated Tribute Synthesizer was used. Wang resin and Fmoc protected amino acids were used on a 0.3 mmol scale for synthesis of all four amino acids. To analyze the success of the peptide synthesis, mass spectrometry was used to determine if the synthesized peptide has the correct molecular weight. Reversed Phase-High Performance Liquid Chromatography (RP-HPLC) was used to analyze the relative amount of the correct peptide in the synthesized sample. Due to greater potential for human error, the two peptides synthesized manually were not the correct molecular weight. It was determined that the peptides synthesized manually were missing amino acids. Using the Tribute synthesizer, Peptide 18-4 and its negative analog were successfully synthesized. Automated peptide synthesis was found to be faster and more successful than manual peptide synthesis. Citations Chan, W. C., & White, P. D. (2000). Fmoc solid phase peptide synthesis. Oxford University Press. Etayash, H., Jiang, K., Azmi, S., Thundat, T., & Kaur, K. (2015). Real-time Detection of Breast Cancer Cells Using Peptide-functionalized Microcantilever Arrays. Scientific reports, 5.

Biological Sciences

12. **Sea Surface Temperature Rises Shift Migration Patterns Due to Ecosystem Changes**
    Presenter(s): Alexia Skrbic
    Advisor(s): Dr. Hesham El-Askary

The continuing climate change is negatively impacting ecosystems, specifically oceans which are declining and food webs are being altered by the increase of greenhouse gases. The increase of the carbon dioxide and other greenhouse gases is increasing sea surface temperature of the world's oceans. Certain organisms lower on the food chain like phytoplankton and zooplankton are directly affected by the warming which alters how they process nutrients and their productivity. The limited amount of these primary producers in the oceans and specifically the location they inhabit directly affects all the organisms above them on the food chain. Several marine animals like sharks that filter feed on these organisms and in recent years, an increase in shark sighting near shores on the coast of California have given rise to questions on why this is occurring. Using remote sensing images, it is possible to look at how these sharks

and even other marine organisms' migration patterns are changing due to the rises in sea surface temperature due to global warming. Currently, the research has begun looking at the coast of California using the program Giovanni and looking at time averaged maps of sea surface temperature and phytoplankton absorption. The results so far have shown that there is a direct relationship in the sea surface temperature increases and the receding to closer to shores of phytoplankton in the last 10 years (2006-2016). Future research will look into these patterns and its direction relationship to the exact migration patterns of sharks. Additionally, research will look into how these relationships are applicable to other areas and marine organisms in the world oceans.

13. **Indirect Effect of Deep Peat Warming on Humic Substance Reduction in a Minnesota Peatland**
Presenter(s): Jessica Rush and Emily Hanna
Advisor(s): Dr. Cassandra Medvedeff and Dr. Jason Keller

Peatlands store one-third of terrestrial soil carbon and play an important role in global greenhouse gas emissions. In peatlands, microbes decompose organic matter releasing CH_4 and/or CO_2 as byproducts. Recent evidence suggests that humic substances may serve as an organic terminal electron acceptor for microbial respiration which may limit the production of the more potent greenhouse gas CH_4. This project aims to explore the role of humic substance reduction in a northern Minnesota peatland. We quantified humic reduction throughout a soil profile (10-20 cm, 75-100 cm and 175-200 cm) within 10 plots that were experimentally warmed at varying temperatures from 0-9oC above ambient temperature as part of a larger climate change experiment (the SPRUCE project). Specifically, we measured electron shuttling capacity, which indicates degree of humic reduction, as well as production of CH_4 and CO_2 in soils collected from these experimental plots and incubated at a constant temperature (18 oC) in the laboratory for 6 weeks. Humic substance reduction occurred at deeper depths (75-100 cm and 175-200 cm) but this process was not important at the shallower depth (10-20 cm). Across all depths, there was no evidence for indirect temperature effects as a result of the climate change experiment. Due to the capacity for humic reduction and suppression of methanogenesis, humic substance reduction may be an important mechanism regulating CH_4 emissions from peatland ecosystems.

14. **Sneaky Survival: Evolutionary Loss of Predator Defenses Associated with Precise Predator Avoidance in a Peculiar Sea Hare**
Presenter(s): Alex Himstead
Advisor(s): Dr. William Wright

Despite their lack of a protective shell, soft-bodied gastropod molluscs such as nudibranchs, sea slugs, and sea hares have persisted and radiated across evolutionary time, arguably because they have evolved multifaceted chemical defenses. Sea hares possess an additional defense mechanism known as sensitization, which is a simple form of learning involving an increase in amplitude of defensive behaviors for hours or days after a noxious stimulus. Previous research has shown that these chemical and cognitive defenses are compromised in one sea hare, Dolabrifera dolabrifera; ink glands are drastically reduced, and sensitization is absent. We hypothesized that this species compensates for its diminished defense mechanisms by avoiding predator species. We observed the movement patterns of several small (30-300 individuals) populations of Dolabrifera in tide pools of Punta Culebra, Panama during a 10-day field study,

and found that movement in these populations was very precisely correlated with the stage of the tide (r = 0.99). Furthermore, we found that Dolabrifera foraging duration decreased the closer that their emergence (as permitted by the tide) was to sunset (r =0.97-0.99). Such incredibly precise tidal and diurnal rhythms suggest that this peculiar sea hare has traded the chemical and cognitive defenses of its relatives for an entirely different anti-predator strategy, avoidance. Dolabrifera effectively avoid high tide and nocturnal predators by this strict movement schedule. Paradoxically, we were unable to positively identify a single predator species!

Business

15. Business Relationship Networks And Bankruptcies: A Big Data Investigation
Presenter(s): Angela King
Advisor(s): Dr. Darcy Fudge Kamal and Dr. Cristina Nistor

I look at how social influence in the Thoroughbred Horse Industry network can influence the value for goods at auction. Firms going through a bankruptcy are forced to sell off their goods while the network of social connections is affected by the news of their impending bankruptcy. I analyze whether the network takes into account that these firms will not exist in the future. I use clustering analysis to find network patterns in which account for the differences in network structures related to the node deletion from 2010-2014.

Chemistry

16. HPLC-MS/MS Assay for Urinary Metabolites as Biomarkers for Kidney Rejection
Presenter(s): Craig Lund
Advisor(s): Dr. Kym Faull and Dr. Daniel Wellman

One of the primary risk factors of a kidney transplant is acute rejection. Early stage detection of kidney rejection remains a top priority to increase transplant outcomes. The purpose of this research project was to develop a high-performance liquid chromatography-tandem mass spectrometry (HPLC-MS/MS) assay for the quantitation of specific urinary metabolites that could serve as biomarkers of kidney rejection. Specific metabolites of interest included trimethylamine (TMA), trimethylamine N-oxide (TMAO), taurine, creatinine, kynurenine, tryptophan, in addition to the immunosuppressant drug mycophenolic acid (MPA) and its metabolite mycophenolic acid glucuronide (MPAG). Analysis of TMA required derivatization with ethyl bromoacetate to form ethyl betaine bromide. Multiple reaction monitoring (MRM) for each metabolite was obtained by the use of Agilent Technologies 1290 Infinity HPLC, Imtakt Schertzo C18 3µm columns, and an Agilent Technologies 6460 Triple Quadrupole ESI-LC/MS. All of the generated standard curves contained an R^2 value at or greater than 0.92. We then applied this assay to longitudinal samples from a case study of a single patient who underwent a kidney transplant, rejection of the transplant, followed by another transplant. The data displayed a significant drop in the concentration of tryptophan and an increase in creatinine, kynurinine and TMAO concentration during rejection. We also observed

increased concentrations of taurine, creatinine, kynurenine and TMAO directly following a transplant. This preliminary data provides promise for future studies involving targeted metabolites as biomarkers for kidney rejection.

17. **Photochemical Degradation of Oil in Seawater**
    Presenter(s): Daniel Chang, Tiffany Bui, Amy Lam, and Matt Eclevia
    Advisor(s): Dr. Warren de Bruyn

Salt Marshes are wetlands at the interface between terrestrial and marine ecosystems, and are key transformers of carbon as it is exported and exchanged in a number of forms including dissolved organic matter (DOM). Southern California salt marshes are unusual in that they are often impacted by oil seeps. Little is known about the contribution of oil to the DOM pool in these systems. The goal of this project is to use optical properties of DOM to track the transformation of oil in these systems to help assess the contribution of oil to the DOM pool. A range of oil products dissolved in artificial seawater were irradiated for 6 to 8 hours in a solar simulator and optical properties of the solutions were monitored as a function of irradiation time. Optical properties include absorbance, fluorescence, associated indices, and three dimensional excitation emission matrix (EEM) spectra (excitation 400nm - 240 nm; emission 830nm-248nm). In general, fluorescence and absorbance decay exponentially with irradiation time and the higher density oils degraded faster than the lower density oils. The primary oil EEM peak shifts to longer excitation wavelengths and shorter emission wavelengths as the oil decays. In the future the effects of bacteria on the degradation rates of oil in seawater will be examined.

Communication Studies

18. **Accelerating CI Adoption: Understanding the Strategies Behind Expediting Diffusion**
    Presenter(s): Kyle Herron
    Advisor(s): Dr. Kerk Kee

The National Science Foundation (NSF) has been championing the development of cyberinfrastructure (CI) for more than a decade. CI, made up of interdependent technologies, remote instruments, big datasets, dispersed experts, and diverse intuitions (Kee, 2015), provides a platform for researchers to keep up with computing demands of modern sciences and big data. In spite of the NSF's promotion of e-science research, contemporary approaches towards CI have not been prevalently utilized across all disciplines. Through the lens of the Diffusion of Innovations Theory (Rogers, 2003), this study examines how to promote and accelerate CI adoption and diffusion. Using the Grounded Theory Approach (Corbin & Strauss, 1990), the researchers conducted 30 interviews and discovered prominent themes. In doing so, the researchers developed an understanding of how attitude, opinion leadership, resources and age expedite CI adoption and diffusion. The analysis led to an extensive array of pragmatic strategies that organizations can implement to successfully accelerate CI adoption and diffusion.

19. Understanding the Human Factor as a Dimension of Cyberinfrastructure
      Presenter(s): Lydia Benjamin and Jamie McCain
      Advisor(s): Dr. Kerk Kee

For over a decade, the National Science Foundation has been funding the development of cyberinfrastructure (CI) to accelerate and promote breakthrough research. CI represents a new generation of innovation that is multidimensional, involving material objects, behavioral practices, and philosophical ideologies. The material objects of CI consist of networks, hardware, software, and big data. In addition, the behavioral practices are composed of project-specific computational tool production and collaboration of dispersed multidisciplinary experts. Another dimension of CI are the philosophical ideologies. These are represented through developing computational tools as fundamental to science and open-source data sharing. However, limited research has been conducted to describe other possible dimensions of CI, such as the human factor. This study uses the analysis of more than 60 interviews within the Extreme Science and Engineering Discovery Environment (XSEDE) community which revealed the importance of the human factor as an additional dimension of CI. This poster builds upon Dr. Kerk Kee's multidimensional approach to understanding CI in order to highlight the necessity of training, facilitating, and support of CI users.

Computational Science

20. Don't "Thread" On Me: A Journey Through Multi-Threading and Its Wonders
      Presenter(s): Carlos Leyva
      Advisor(s): Dr. Michael Fahy

In the late 1960's, threads or tasks, as they were first referred to, made an appearance in OS360/Multi-Programming(MVT). Originally intended for the larger machines of the 360 family, threads were intended to have a positive impact regarding multi-processing by allowing computers to have human-like behaviors of multi-tasking. The beauty of multi-threading is its ability to open new tasks, or threads in the same memory space as the previous thread before it. Think of it as someone/something multi-tasking. The brain is equivalent to the one memory space where the threads are being started. The threads themselves are the tasks that we are doing. So a person can listen to music, walk and talk, all at the same time. The human brain literally started three different threads that make completely different actions within one space without affecting each other. We use threads throughout our lives daily such as the system in your phone. Your phone is running different applications at once as well as the applications themselves. Another example is Tomcat, which is a web server that uses the TCP protocol to get client requests sent to the server and have a response sent back to the requesting client. I will be showcasing the magnificence that is multi-threading in a simulated Arcade game that I have made myself using threading to create three different processes on the same space. I do hope to also include other examples that are not video games to see them in action in more than one real life situation.

21. Ordinem
Presenter(s): Ceferino Malabed, Shevis Johnson, Andrew Thomas, and Albert Pierce
Advisor(s): Dr. Michael Fahy

Ordinem is an event coordination platform specifically for universities and the organizations a part of that university. It will allow organizations such as clubs and Greek life to register their events with the administrative account (the University). Then, students will be able to attend those events and be rewarded for doing so. The main goal of Ordinem is to ease the event coordination and planning processes of a University.

22. Searching for Current Climate Change Information Using Social Media APIs
Presenter(s): Courtney Bonilla
Advisor(s): Dr. Michael Fahy

Between 2000 and 2010, our rates of greenhouse gas emissions have more than quadrupled from the previous decade. If our emissions continue to raise at this rate, the world will be at least 4C warmer than it was before the Industrial revolution. This warming not only brings consequences to Earth's chemistry, but also causes us to suffer economically, socially, and biologically. For this reason, it is important for us to keep up to date with the latest news related to climate change in order to stay informed and to increase our efforts to combat global warming. One way to do this is through social media. With the use of social media API's, this project will allow users to search Twitter for current climate change information, as well as to find out how to get involved, by searching for events on Facebook. The end result of this project will be useful for educating the public in all the aspects of climate change and for bringing people together during this crucial time.

23. Project DrumpfBot
Presenter(s): Matthew Shiroma and Ryan Britton
Advisor(s): Dr. Michael Fahy

Everyone is exposed to social media, from messaging friends to reading up on news articles. With the media becoming a central aspect of everyday life, we aim to create an application that allows people to easily see the latest news feed. Our project, coined DrumpfBot, is a Twitter application that periodically retweets popular tweets associated with popular trends in the United States. DrumpfBot is going to check the Twitter stream for the most commonly used hashtags. With this information, it will create a list of the top ten most popular hashtags and store this information in a file. From the hashtag that is currently the most popular, it will do a sentiment analysis on each individual tweet to see which is the most positive, and then retweet that tweet. This project explores concepts like the Twitter API and server and client communication. We are also using this opportunity to test our understanding of the topics we are learning in Data Communications and Networking. Over the course of a few weeks, we hope to have a Twitter program that acts as a timeline of current trends. We are expecting it to retweet trending tweets every 30 minutes, with our program running on a separate computer. We also hope other people will follow this account in order to have the latest trends easily streamlined to them.

24. Understanding the Framework of Online Multiplayer Games
Presenter(s): Perry Sidler
Advisor(s): Dr. Michael Fahy

There are over 144.9 million daily active online gamers in the world as of April 2013, per Statista. The purpose of this project is to explore the framework of online multiplayer games by creating a multiplayer, multithreaded, network-based game. The game, Blackjack, consists of a server and 1 to 5 clients that communicate via TCP with a tick rate of 30Hz. The server and clients use multithreading to allow for the game logic to run concurrently with the netcode. For the clients to find the IP address of the server, the server will send out a UDP broadcast to all computers on the subnet. The clients listen for the broadcast on a pre-determined port. Once the broadcast is received, the clients will then stop listening for a broadcast and make a connection to the server.

25. Program Providing Information On Current Weather Conditions in Given Cities
Presenter(s): Sean Keelan, Alec Reyerson, Megan Boyd, and Elia Eiroa Ledo
Advisor(s): Dr. Michael Fahy

Various applications and methods exist by which individuals retrieve information on the weather conditions of a given city or region. This information can be utilized for preparations in traveling to these areas, for event planning, or other purposes. Such preparations allow for greater living comfort and economic convenience. OpenWeatherMap, Inc. provides tools which programmers can use to create applications or programs which provide information on weather conditions. The program, designed by this team using Python 2.7, utilizes OpenWeatherMap's "Current weather data" API, gathering data in the JSON format and outputting information on a city's weather conditions. Data is gathered from OpenWeatherMap's API, and modified by functions found in the main Github repository to make information more readable for users. The program will ask the user to input a city name, whose weather is checked in the API. Then, the program returns the data, collected in a Python dictionary, which contains dictionaries itself, and selects certain data for the user to read. This data will include the city's name, country, current weather (e.g. clear sky, light rain, broken clouds, etc.), minimum, maximum and current temperatures in Fahrenheit and Celsius, wind speed and direction, humidity, times for sunrise and sunset, and other features. This program will offer users another resource from which they may retrieve their data on the weather.

26. Magic Mirror
Presenter(s): Aaron Weinberg, Kevin Hewit, and Andrew Krager
Advisor(s): Dr. Michael Fahy

The central research question we are posing with this project is, how interconnected people are today, and what it means to be interconnected. In everyday life, everyone caries or has at an arm's reach, a phone, table, laptop, or another personal electronic device. Some people even have tech on them, like watches, google glass, and many other wearable technologies. Things that in the past may not have been "high-tech" are now quickly becoming much more technical. For example, there are refrigerators that can send you a picture of the inside of your refrigerator and tell you what is in it. Our project, the magic mirror, seeks to delve into the interconnected world and ask if these high-tech versions of devices we use daily,

are necessary, helpful, or just fun. The idea for this project came from reading a blog by someone who built the first magic mirror. He seemed to do it as a fun side project, but ended up starting something that people around the world have latched onto, and begun developing themselves. Our group plans to build the mirror, following certain guidelines laid out in his blog, but adding our own ideas to the mirror along the way. The final project will be a functional mirror that we plan to give to people and have them test the way they interact with it in their lives. This will help us determine the necessity of the mirror, weather everyone should have one, or if it is more of a novelty idea. We believe that the mirror will make certain aspects of life easier, but in the end, be more of a novelty, hobby project, while still challenging us to learn throughout the build and design process.

27. Android Chat Application using TCP

Presenter(s): James Senior
Advisor(s): Dr. Michael Fahy

For my project, the basis I am going to follow is to create a desktop and mobile application for android with the ability to communicate together. For example, one user enters a username into a GUI, and it will connect to the other user instantly and they will be able to chat back and forth. After finishing the main concept, I will continue to add features such as unique codes per user for security, and possibly games or picture chat. The network protocol I am going to implement is TCP. I am going to write the android app using Java and a server in Python. The application will also implement SSL encryption. This application will be both reliable and efficient. I believe I will I will learn a lot from this project and it will exercise many interesting topics included in computer science. The users will have the ability to chat back and forth until one decides to disconnect.

28. Multi-Threading: An Application of Effective and Efficient Data Communication

Presenter(s): Shereef Abdel Rahman Khafagi and Hein Thu
Advisor(s): Dr. Michael Fahy

This project focuses on the application of multi-threading to effectively communicate data between a server and multiple clients efficiently and reliably. In today's society people expect instantaneous, correct results and fast download speeds when using programs and developers have to deliver on that. We explore this via a game called "Salem Witch Trial" where a server not only connects 9 clients together per game, but also manages multiple games while listening and handling data reliably and efficiently. We identify the best method of delivering on this expectation, and by managing the number of users with a set of handlers and listeners in groups, the server insures data is communicated with the right clients even while multiple packages are being sent and received simultaneously.

English

29. A Comparison Between Second and Third Wave Feminism, and the Women Who Contributed
Presenter(s): Allison Camp
Advisor(s): Dr. Lynda Hall and Gerald Hicks

This project will focus on chosen women from the last century who have made a positive or negative impact on the development of feminist culture. This projected will be presented through a series of articles, including an introduction and conclusion. The articles will be focused on Amy Poehler and sexism in the entertainment industry, Hillary Clinton, surrounding women's advancement in politics, Betty Friedman and her influence by writing the book The Feminine Mystique, and finally Phyllis Schlafly and Gloria Steinem, and their individual experiences with the Equal Rights Amendment. In these articles, the focus will not only be on famous feminist, but will also include research and interviews with women who have lived during the second and third wave of feminism. By examining the events that have happened since the 1950's, these articles will examine both second and third wave feminism, and how the second wave influenced the third. Through the interviews conducted, the articles will be able to present this comparison through the eyes of women, and feminists. This poster will have visual influences in the form of photojournalism, and highlighted quotes said by the women mentioned above. It will also include mainstream women who have experienced similar situations and trials.

30. Radical Gay Voices from the Diaspora: The Poetry of Assotto Saint
Presenter(s): Daniel Mata Di Giuseppe
Advisor(s): Mildred Lewis and Dr. Lynda Hall

Assotto Saint's Spells of a Voodoo Doll: The Poems, Fiction, Essays, and Plays of Assotto Saint is a unique anthology of work that integrates themes of queer identity, colonization, immigration, and race. At the center of this anthology are the interstices which Saint navigates with his poetry in relation to his own cultural history. The construction of the poet's multiple identities, which make up the whole of his experience as a gay, black immigrant, invites the reader for a redefinition of what being and belonging really mean within the context of displacement and modernity. By examining these themes using postcolonial theory and hybridity, this paper seeks to prove that the poet's identity, or rather, the constitution of his identities, as an unstable construct, merely reflects the poet's real experiences and trauma, which are subverted in the poetry itself. The anthologized poetry in Spells of a Voodoo Doll, its stylistic conventions as well as its overt sociopolitical polyfunctionality, reveals the intricate process of the construction of identity with respect to the negotiation of cultural hybridity and what this means for the poet. Studying Spells of a Voodoo Doll as third literature, or the literature of "the Other," in terms of the intentional relationship between authorship and the production of text (Said), this project will examine the creation of new "territories" for the promulgation of divergence within the gay black community (Steward) by paying close attention to the Latino-Caribbean literary tradition and migratory experience in the United States. Therefore, this paper also has implications for understanding the ways in which the larger body of queer Latino-Caribbean literature and the queer Caribbean community deal with modernization in terms of cultural production.

31. Haruki Murakami and the Symptomatic Treatment of Japanese Societal Issues
Presenter(s): Jennifer Totoki
Advisor(s): Dr. Lynda Hall and Dr. Rei Magosaki

Following the 1995 Aum Tokyo Gas Attack, author Haruki Murakami delivers his critique on the Japanese response to the event and his opinions on the direction they should move in as a society in several of his subsequent literary works. By examining two of Murakami's pieces, Underground (1996) and Kafka on the Shore (2002), certain themes within Japanese society are revealed. Murakami's main critique is society's collective tendency to ignore serious problems without questioning or understanding the cause of the issue. While the Japanese response to the attack was to demonize the Aum cult and to perceive it as a separate evil entity that will be adequately brought to justice in the courts, Murakami wants the Japanese to reflect on the ways in which their society as a whole have participated in the creation of the cult and the cause of their motives for their actions. As is stated in Underground and expressed through Kafka's embodiment of characteristics from both the Japanese populace and the Aum leader, Shoko Asahara, Murakami calls for Japanese society to recognize that the good and evil, right and wrong, and innocent and guilty binaries do not exist. This project will also point out how Murakami's message is not meant solely for a Japanese audience, but also for a foreign readership since self-reflection within society is necessary in all communities. Photographic coverage of the Aum gas attack and pictorial examples of Kafka on the Shore will be used to visually enhance this project.

32. Play the Paper->Forms of Time in The Witcher 3: Wild Hunt
Presenter(s): Jimmy Evans
Advisor(s): Dr. Lynda Hall

It is undeniable that new media has influenced the way we express ideas. This paper, if can really even be called that, focuses not just on that evolved expression of ideas in the internet age, but on the evolved experience of ideas. Operating first and foremost from Bakhtin's theories of the dialogic self, it uses form to understand forms: the argument is told through the procedural rhetoric of a game. The hypertextual document makes massively popular and critically aclaimed open-world role-playing game The Witcher 3: Wild Hunt its subject. Using Bakhtin's understanding of the chrontope, the paper identifies a multifarious and kaleidescopic spacetime(s) involved in the narrative experience of The Witcher 3, conflating it with the experience of the reader as they "play" the paper. Ultimately, this paper reveals how a dialogic self navigates existence in a hypertextual world, just as the player-character must grapple with the problems of being and morality in the maddening branching narratives and sidenarratives of a carnivalesque game world.

33. Occupying the Third Space: Vietnamese American Hybridity and The Struggles of Western Assimilation
Presenter(s): Julie Linh Nguyen
Advisor(s): Dr. Justine Van Meter

After the Vietnam War ended in 1975, over 800,000 people emigrated from Vietnam between 1975 and 1995, with more than half resettling their uptorn lives in the United States. People move to America in hopes that it will live up to its reputation of being a melting pot, but the multitude of immigrants struggling

to establish an identity and assimilate into Western culture prove that America's melting pot still has unresolved issues. Many Vietnamese immigrants lack a sense of belonging, even after moving away from Vietnam and trying to establish a life in America for many years. Homi K. Bhabha explains in his theory of hybridity that it is a place where neither the one nor the other exist, but where a new, third space is created for the displaced to figure out their identity. Although Vietnamese people immigrated to the United States over forty years ago, literary work by Vietnamese American writers, Andrew X. Pham, Hieu Minh Nguyen, and Le Thi Diem Thuy, convey that many Vietnamese Americans are still struggling in this third space with their hybrid identities. This paper delves into the works of these writers and brings awareness to issues that Vietnamese Americans face in hopes of creating safer, more tolerant and inclusive spaces for them and other minorities. The scarcity of representation of Vietnamese American issues and culture in mainstream media, academia, and modern society proves that these works and authors deserve to have their voices heard in order for fellow Americans to be accepting and respectful of Vietnamese American backgrounds.

34. Coming Out
Presenter(s): Peggy Wood
Advisor(s): Dr. Myron Yeager

"By linking their love to the past he linked it to the present" (Forster 745).
E. M. Forster's *Maurice* is a widely read and taught text that features homosexuality in Edwardian England. The focus of this thesis is an in-depth analysis of Maurice's character, with a specific focus on the character's coming out process. The coming out process is still a significant issue in today's world. Hate crimes, ostracism, and many other negatives can be associated with the coming out process that is not entirely different from what Maurice faced. This statement is easily supported by historical accounts and modern day research studies. "Written during 1913 and 1914, immediately after Howards End, and not published until 1971, Maurice was ahead of its time" in showing how difficult and frightening the coming out process can be, but also showed that "love between men can be happy" ("Maurice"). To support the claims made in the analysis of this character's thoughts and behaviors are a number of contemporary psychological studies. The research studies used primarily focus on the subject of coming out; these studies have found that the coming out process has various stages leading up to, around, and after coming out. In many ways, Maurice reflects these stages and experiences. "By linking their love to the past he linked it to the present," in the same way that the characters found a base for their love, we as readers can find a discussion and critique of today's notions of sexuality rooted in a longer narrative (Forster 745). Essentially, the importance of this analysis is that it links the past experiences of the fictional Maurice to present day experiences of real people and, by doing so, supports the reason for the text to continue being taught and read.

35. The Taming of the Homosexual in Looking
Presenter(s): Richie DeBiase
Advisor(s): Dr. Myron Yeager

Although the legalization of gay marriage is a significant step toward sexual equality, it does not signify an eradication of all homophobia, nor does it tackle the reinforcement of heteronormativity. As Hugh Stevens quotes Edmund White, "Gay subculture… is merely defensive, a ghetto created by prejudice and likely to dissolve once gays are integrated into the mainstream" (82). Through the characters' struggles in HBO's television series-turned-film, Looking, assimilation reveals itself as a form of cultural erasure: it limits the

expression of queer identity by rendering homosexuality invisible. It also traps members of the queer community into operating under traditional, heteronormative standards through the guise of social acceptance. Patrick Murray, the main protagonist in Looking, perpetually balances himself between following heteronormative social scripts, as instilled in him by his mother, but also queer, "perverted" behavior, which his queer friends constantly cajole him into. His dichotomous identity represents yet another extension of the homosexual "closet" and contradicts the illusion of widespread sexual equality. Instead of facing a limited amount of choices, he is suddenly given the responsibility to handle a multiplicity of them - a predicament that is transgressively restrictive. The filmic shot composition perpetually surrounds Patrick with his environment and his peers to recreate his idleness, which I plan to incorporate into the poster. Patrick is also a gay, white male. As a gay white male writer myself, I think it is crucial to acknowledge the abundance of white characters in the media. Ignoring them, however, is not the issue. They should be as vulnerable to critical review under those racial, sexual lenses in the same way that less privileged, non-white, non-male characters are typically subjected to as well.

36. The Fashion Industry, Power Dynamics, and BDSM Theory
Presenter(s): Tzuni Lopez
Advisor(s): Dr. Ian Barnard and Dr. Lynda Hall

For my research, I am analyzing the relationships of power within the fashion industry through the lens of BDSM theory. In doing so, I hope to illustrate the complex power exchanges that occur in the fashion market, both through the consumption of clothing by buyers, as well as through the consumption of fashion media by a broader demographic. For the research methodology of my project, I am undertaking a heavy amount of research in BDSM theory, and assessing the rhetorical strategies employed in various forms of marketing media to comprehend my subject. I expect that my research will, ultimately, show that the fashion industry is far more nuanced than it is given credit for. On a very simple level, it will show that fashion is a relevant piece of culture that is deserving of academic study. On a more complicated level, it will undermine many of the biases that mainstream culture holds against the fashion industry and the individuals who take part in it; generally speaking, fashion consumers are thought of as powerless sheep that are ruled by flimsy trends and shallow social values. This research will empower fashion consumers, and validate their experiences and decisions in how they choose to perform their identity. It will reveal the medium's ability to act as a rebellious force for social change.

Environmental Science and Policy

37. A Comparison of the Effects of Climate Change on American Fish Species
Presenter(s): Allison Scavo
Advisor(s): Dr. Rakesh Tiwari

Climate change has initiated a trend of increased global temperatures. However, the effects of this climate change are not experienced uniformly around the globe. Previous studies assessing the potential effects of climate change on global fisheries predict large-scale redistributions in fisheries catch and increased vulnerability to the fisheries. Thus, it is of extreme importance to better understand the effects this global

change on marine fisheries. In this paper, we have analyzed the changing climatic parameters effecting the waters off of the eastern and western coasts of the United States during years 2005-2014. Such parameters include ocean temperature, chlorophyll-a concentration, and salinity. Specifically, we have studied the impacts of such parameters on the fish landings along the American coasts. Long-term trends indicate that parameters show positive and negative correlations with different species of fish catch. These trends allow for the comparison climate change's effects on the fish species of the east and west coasts of America. The comparison of the east and west coasts show the effects of ocean circulation on the parameters of climate change as well as fish catch. The landings of the numerous studied fish species are expected to demonstrate different reactions to the various changing climatic parameters.

38. Greenhouse Gas Fluxes from a Sediment Augmentation Project at Seal Beach National Wildlife Refuge
Presenter(s): Kyvan Elep
Advisor(s): Dr. Jason Keller, Dr. Cassandra Medvedeff, and Glenn Woerndle

Coastal wetland ecosystems efficiently store a vast amount of carbon despite their relatively small areal extent. Emerging carbon markets raise the possibility that coastal managers could capitalize on this carbon sequestration potential to drive wetland restoration and conservation efforts. However, soil carbon storage can be offset by the release of greenhouse gases like methane, nitrous oxide, and carbon dioxide, and there is a critical need to quantify the flux of these greenhouse gases to fully understand carbon sequestration in restored and managed wetland ecosystems. Seal Beach National Wildlife Refuge is home to a pilot sediment augmentation project where ~10 inches of dredge material were added to 10 acres of salt marsh as a potential management technique to allow the marsh to persist in the face of projected sea level rise. We measured greenhouse gas fluxes from the site where the augmentation took place and a control site in the same wildlife refuge. Samples were collected from both sites before and after the sediment augmentation. Pre-augmentation data from both sites 2 months prior to the project, suggest that the flux of methane and nitrous oxide are minimal and not likely to offset soil carbon sequestration. Additional samples collected 4, 6, 7, and 8 months post-augmentation suggest methane and nitrous oxide production do not increase following the thin layer sediment augmentation. Carbon dioxide emissions from the augmentation site are also significantly lower than the control site, likely because of decreased plant biomass as the augmentation site. No significant fluxes of greenhouse gases may indicate that sediment augmentation is a good candidate for wetland restoration and conservation without any negative impact on climate change. Ongoing work includes porewater samples that have been collected to explore their chemistry in relation to gas fluxes.

39. Correlating Arsenic Bioaccessibility & Bioavailability through In Vivo Rat Exposures
Presenter(s): Tessa Oliaro, Fernando Silva, and Matthew Gothong
Advisor(s): Dr. Christopher Kim

Toxic metal(loid)s such as arsenic pose environmental hazards to human and organisms' health in many locations throughout Southern California where metal mine tailings are located near residences and ecosystems. However, the relationships between the geochemical/physical properties of airborne dust particles and the bioaccessibility/bioavailability of potentially harmful elements in the particles has not yet been clearly established, precluding a basic understanding of the potential correlations between dust

composition, speciation and particle toxicity, thus impairing risk assessment efforts in mining-impacted regions. The bioavailability of inhaled arsenic is largely dependent upon two factors: the size and solubility of the arsenic-bearing particle. The size of the particles dictates how far into the lungs and other tissues the potential arsenic-containing particles will be lodged, while the solubility determines how rapidly and completely the arsenic is absorbed into the bloodstream and through the other organs. Our research aims at determining the bioaccessibility and bioavailability of mine tailings samples in the respirable (i.e. ≤10 µm) size range. Rats were exposed to an acute dose (1000 µg/m3) of airborne particles from two mine waste sources from the Marigold East gold mine in California for a period of 3 hours, then sacrificed immediately after exposure and after 1 and 7 days post-exposure, with results compared with a control group that was not exposed. Arsenic concentration was measured in the urine, feces, blood, and a range of tissues (heart, liver, kidneys, etc.) and analyzed for the application to human health risk.

40. Effects of Simulated Physical Weathering on the Bioaccessibility of Arsenic of Mine Tailings
Presenter(s): Justin Cooper and Nicolette Burtis
Advisor(s): Dr. Christopher Kim

Gold mining throughout the western United States has released potentially toxic metal(loid)s into the environment, resulting in a number of contaminated areas surrounding historic mine sites. Often times, these waste materials are left untreated once the mining is complete. One of the toxic metal(loid)s present in these wastes is arsenic, which can pose harmful health effects towards residents living nearby and visitors. At this point, there is a lack of thorough understanding of the long-term fate of arsenic in mine tailings or the health consequences that could develop due to the weathering and dispersion of tailings over time. Mine tailing samples collected from Empire Mine in Grass Valley, CA were first passed through a series of stainless steel sieves and separated into a series of size fractions ranging from coarse (>2.8 mm) to fine (≤20 µm). Select size fractions were pulverized using a ring mill and the reactive surface area measured of both the ground and unground samples using BET analysis. Next, in vitro simulated gastric fluid (SGF) extractions were performed on the ground and unground tailings to determine and compare arsenic bioaccessibility. The change in the amount of bioaccessible arsenic between ground and unground samples decreases with increasing distance from the mine site, and how it is impacted by the type of mine were studied. In addition, the changes in bioaccessibility between unground and ground materials decreased with decreasing initial particle size. Comparing the ground and unground samples allows a better understanding of the long-term risks of arsenic in tailings over time.

Film

41. The Progression of Racism in Animal Movies: From Dumbo to Zootopia
Presenter(s): Hannah Sturhann, Hunter Turney, and Isabella Cato
Advisor(s): Dr. Julye Bidmead

The purpose of our research project is to identify the ways in which racism is developed over the course of Disney's film history. We will explore how time period and current events affect the racist content of

five different films, which are spread over the extent of Disney's legacy. We hope to reveal that Disney has, in fact, become more progressive and less racist as it has aged. We will be drawing examples from a variety of movies, spanning between the years 1941 and 2016. In "Dumbo", we will focus on the crows, who are made to represent African Americans. Next, we will discuss the two Siamese cats in "Lady and the Tramp", which are designed to imitate the stereotype of Asians. In "The Jungle Book", we will examine the apes, which designed to mock African Americans. From "The Lion King", we will focus on how the hyenas have street-style voices and how the villainous characters, like Scar and the hyenas, have a darker fur color than all the other animals. Finally, we will compare these examples to "Zootopia", which is significantly more progressive. We believe that we will find that throughout the years, Disney has become steadily less racist, with "Zootopia" actually sending out an anti-racism message. However, we in no way believe that racism will be eradicated altogether; rather, it will be less blatant. In conclusion, we will delve into the racist roots of animal movies and investigate the small changes in such outward racism, ending at "Zootopia". The plot of "Zootopia" is centered around a discrimination against predators in a predominantly prey city, implicitly indicating the discrimination against people of color in a white-society. Disney's progression from outward racism in Dumbo to the recent underlying anti-racism message in "Zootopia" is a positive development that the company will hopefully continue in all of its future movies.

42. The True Identities of Disney's Male Villains
Presenter(s): Xinyi Zhang
Advisor(s): Dr. Julye Bidmead

Male villains in Disney movies have been portrayed as the exact opposite to the masculine princes. It is also interesting to see that their characteristics and their power not only illustrate their roles as the minorities in human society, but also reveal their occupations as sorcerers or alchemists, who were often associated with the word magic from the Renaissance period. The purpose of this project is to explore the identities of these male villains and the reason why they are feared by the general public in Disney fairy tales. The research will be done through comparing Disney movies with the descriptions of magic-related occupations from books or analysis of the Renaissance period. This project is very important because it will demonstrate a strong relationship between the old ideals and current pop culture.

Food Science

43. Effect of Dried White-Button Mushrooms as an Antioxidant in Raw Beef Patties
Presenter(s): Natalie Tom
Advisor(s): Dr. Lilian Were

About 31.6 billion pounds of beef is wasted per year and one of the key contributors to this waste is lipid oxidation. Beef patties are unable to attain a long shelf life, because lipid oxidation deteriorates the beef due to the production of unstable free radicals. 1% of Agaricus Bisporus (white-button) mushroom powder that was oven-dried or lyophilized was added to the beef patties as a natural antioxidant to inhibit the production of unstable free radicals. The beef patties were stored in the refrigerator at 4°C for a span of 12 days and various tests were performed every 3 days for a span of 12 days. The antioxidant capacity of

these ground beef with white-button mushrooms was analyzed using Thiobarbituric Acid Reactive Substances (TBARS) that quantifies MDA, a product of lipid oxidation. Moisture and color tests were also performed to analyze the effect of mushrooms on the quality of the raw beef patty. It was determined that all beef patties with 1% added mushroom powder had significantly lower TBARS values than the control throughout the span of 12 days. The TBARS value for the 2% salted samples was about 0.10 higher than the 1.5% salted samples on DAY 12 of testing. For 1.5% salted samples, the redness (a*) color in the negative control was significantly more red with a maximum redness intensity of 13.28 compared to all samples with mushrooms which had a maximum intensity of 11.818 through the span of 12 days. There was no significant difference in redness (a*) with the 2% salted samples. Agaricus Bisporus mushrooms act as an antioxidant and extends the shelf life of raw beef patties, while not compromising the overall color and moisture of the product.

Honors

44. Dress in Drag and Do the Hula: Disney's Enforcement of the Gender Binary and Transphobia
Presenter(s): Hannah Teves
Advisor(s): Dr. Julye Bidmead

The purpose of this project is to identify and analyze elements of transphobia, gender stereotyping, and antagonism towards those outside the gender binary in popular movies and media produced by The Walt Disney Company. Regardless of the results of this project, if we wish to create a peaceful world where our media reflects that peace, it is necessary to learn the extent of prejudice and discrimination in popular culture, beginning with the media that shapes American childhood: Disney. A major component of Disney's worldwide popularity has been its apparent ability to appeal to all audiences, regardless of gender, race, or religion. In reality, however, the messages found in Disney movies and products are regularly alienating and disrespectful; when the false idea of a gender binary is imposed, it harms everyone. In order to properly test my theories and evaluate the true effects of Disney's enforcement of the gender binary, I examine patterns of stereotypes and transphobic jokes in Disney movies. I also interview and discuss the effect of Disney with transgender and non-binary subjects. The information uncovered in this project will be a crucial part of developing future forms of media that are inclusive of all people, rather than only those who adhere to the gender binary.

45. "Clearly You've Never Been to Singapore;" Examining Diversity in Disney's Pirates of the Caribbean
Presenter(s): Jessica Johnson
Advisor(s): Dr. Julye Bidmead

Walt Disney's theme park attraction Pirates of the Caribbean and the films it inspired has become an international success since 1967 when the attraction was first opened in Disneyland. Since then, versions of the attraction can be found in four out of the six international Disney Parks, and the five-part film series is one of the highest grossing franchises of all time. This widespread success from around the world begs

the question of how both the attractions and the films present racial diversity. The "Pirate universe" is set in the Caribbean islands in approximately the early 1700s, a time when international seafaring travel, trade, and exploration were common and widely utilized. The films feature characters from a variety of backgrounds, including island cannibals, a bayou priestess, a Spanish femme fatale, Singaporean scalawags, the British Royal Navy, and many more. This study intends to determine the ratio of white to non-white actors featured in the film series, as well as weigh the importance of each of their roles to the overall story. Specifically, this study will examine if non-white characters fall into traditional Hollywood stereotypes repeated throughout the medium's history. Additionally, using the Disneyland Pirates of the Caribbean attraction, I will determine how many (if any) non-white animatronic figures are featured in the attraction, as well as mark any significant changes made to diversify the other three versions of the ride. This study aims to determine if this Disney creation represents the international market it appeals to, or if it lacks just as much diversity as many of the Disney company's other films. If proven otherwise, especially in the still-evolving film franchise, Pirates of the Caribbean could mark a progressive step forward for the company as a whole.

46. Through the White Man's Eyes
   Presenter(s): Dory Ann Carter, Sharon Tang, and Taylor Killefer
   Advisor(s): Dr. Julye Bidmead

As society progresses, it continues to construct the definition of womanhood both physically and emotionally. These constructions can be found intertwined within the works of Disney films from past to present, and unfortunately, their destructive effects have transcended from the screen into our reality. Our project aims to pinpoint, analyze, and comment on the traits of womanhood that Disney has set as our societal precedent for women in real life. We will discuss multiple Disney films that fabricate the full "ideal woman" as defined by this corporation and examine the effects this has on women and girls around the world. By highlighting the collective negative impact that these popular films have on women, we expose Disney's narrow definition of womanhood and bring awareness to the need for diversity among women characters.

47. Making Royal Progress
   Presenter(s): Kaitlyn Raymundo and Ashley Musick
   Advisor(s): Dr. Julye Bidmead

Disney Princesses have been role models for young girls since Snow White and the Seven Dwarfs was first brought to the big screen in 1937. Since then, Disney has done it's best to create more progressive princess protagonists - the most recent examples being Rapunzel, Merida, and Tiana, and hopefully Moana. Through our research, we hope to compare past and present Disney heroines in order to determine whether or not Disney's portrayal of female protagonists has evolved since Snow White, using concepts such as race, religion, sexual orientation, lookism, ageism, etc. To accomplish this, we will analyze the princess's overall image, such as aspects of her physical appearance and costume, her actions or lack thereof, dialogue and song lyrics, the presence of and interaction with a love interest, and many other forms of representation. We expect to find that the modern princesses are more diverse, active, and independent than those of the past.

Integrated Educational Studies

48. The Prevalence of Test Anxiety and Its Cognitive Effects on Students with Disabilities
Presenter(s): Genevieve Stothers
Advisor(s): Dr. Noah Golden

The important field of study regarding children and adults with disabilities who experience test anxiety continues to be grossly overlooked. The most common methodology used to study this phenomenon is self-assessment tests. After extensive investigation, results indicate that worry is more prevalently felt by students with disabilities when compared to emotionality. Worry may present itself as fearful anticipation and, in extreme cases, complete panic whereas emotionality is the physical manifestations of test anxiety. Unfortunately, there is a large gap in research since virtually no studies exist that document test anxiety experienced by younger elementary students with disabilities seeing as they are unable to participate in self-assessments without individual aid. By interviewing three mild to moderate elementary teachers, I uncovered a common pattern not found in current research-younger students with disabilities experience emotionality more when compared to worry. Thus, over the course of approximately 60 hours of observation, I studied the manifestations of test anxiety in second and third grade, mild to moderate elementary students. Overwhelmingly, my research confirmed that these young students do present test anxiety in the form of physical manifestations rather than worry. Most students presented with symptoms such as sitting on the edge of their seats, swinging their legs, kicking their feet against the chair legs, incessantly tapping their pencils on the desks, and even crying on certain occasions. Only two out of 12 third graders seemed to be inhibited by their extreme fear of failure. My extensive research has only begun to fill the current gap in this important field. Ultimately, understanding the prevalence of this problem and the cognitive and physical effects of test anxiety in younger students with disabilities will allow researchers, educators, parents, and students to discover potential solutions.

49. Just Another After-School Program? A Cross-sectional Look to Whether Access to Educational Resources and Mentorship Via Casa de Amistad Improves Students' Academic Outcomes in Solano Beach Elementary School District
Presenter(s): Katie Page
Advisor(s): Dr. Sandy Oliver Lopez

Since beginning in 1997, Casa de Amistad's academic mentoring program has grown from serving three students on its first night to over 230 underserved children and teens and their parents annually. Students participating in Casa de Amistad (Casa) are from school districts throughout coastal North County San Diego. In the past 16 years, teachers in the district have noticed an increase in homework completion and classroom participation, as well as an improvement in grades and test scores among students who participated in Casa. This study was designed to further research the performance and needs of Casa's students in an effort to refine and grow the program. After the 2014-2015 academic year, 185 parents and 143 students were surveyed, collecting information including annual household income and education level from the parents and difficulties or successes at school from the students. We predict the research will show that Casa has a positive effect on students' academic performance, specifically in math,

science, homework and test taking. Applying appropriate statistical methods initial results indicate the following: ● There is a strong linear relationship between parents' education level. ● Parent 1 and 2 education, individually, were also highly correlated with annual household income. ● 61.5% of students who only receive help from Casa do not struggle with their homework ● Of the students who struggle with homework, only 12.8% have Casa as their only source of help. ● Of the students who struggle with science, only 20.8% have Casa as their only source of help ● Of the students who struggle with math, only 13.5% have Casa as their only source of help.

Mathematics

50. A Machine Learning Approach to Heuristic Based Search Algorithms
Presenter(s): Alexander Madden
Advisor(s): Dr. Peter Jipsen

Computer science has played a major role in the advancements of many fields, but there are still many areas of everyday life that can be improved by innovations in artificial intelligence. One of these fields is public safety. In any building, there are designated exits and assigned pathways to get to safe areas. However, these pathways do not account for every possible threat. For example, if there is a fire directly blocking the known exit pathway, how does one exit the building? Artificial intelligence can be directly applied to this problem. A* (A star) is a search algorithm that uses heuristics to make decisions on which nodes of a graph to search. By using fuzzy logic techniques, a modified version of A* (A star) can be used to adjust exit plans and provide a safe and quick route to leave the building. The adjusted algorithm can be applied to any blueprint or floor plan, and can even be applied to buildings with complex layouts. The adjustments made to A* include a new heuristic that accounts for danger and obstacles and a multi-level search pattern that can be applied to multiple floors. With further adjustments to this program a machine learning algorithm could be implemented to not only provide safe and quick exits, but it would adjust the path if the danger moves or a new threat appears. The system could also be implemented into hardware that contains a camera, using image processing to make decisions and improvements to the data.

Music

51. Animation and Orchestration: Waltzing Through the Music Behind Disney's Gender Roles
Presenter(s): Madeline Barrett and Hannah Ceriani
Advisor(s): Dr. Julye Bidmead

Disney characterizes gender through instrumentation and lyrics of the music in the animated films. Our project will analyze the impact of auditory elements on how the characters in Disney films are represented and how the characterization of gender roles has changed throughout the last eighty years. Selecting one song from each of twelve films released from 1937 to 2013, we will analyze each song as it correlates with the actions happening on screen in relation to gender. We will be analyzing elements of music such as

mood, tone, and orchestration in conjunction with the lyrics of the songs to determine the role the music has on the portrayal of gender in each film. This research contributes to the area of knowledge that looks at Disney critically and the effect it has on it's audience by analyzing music and it's effect on gender portrayal. Our research involves listening to each song, analyzing musical elements by ear, looking at the lyrics, and watching the song in context of the film. Our project will analyze the impact of auditory elements on how the characters are represented throughout the last eighty years. We expect to find that male and female characters are portrayed differently through the music. The instrumentation will differ based on who is on screen at any given time, and which character the lyrics and music are referring to. In addition, we are hoping to find musical motifs suggested when a certain character is referenced.

52. "A Flower Which Blossoms and Fades": Depictions of Tuberculosis in 19th-century Opera
Presenter(s): Daniel Goldberg
Advisor(s): Dr. Jessica Sternfeld

The Romantic period in art and music was a time that focused on the regular person (as opposed to the lofty or religious topics of earlier eras) and had a fascination with nature, emotion, and death. One of the most common themes used to explore the theme of death was disease. Tuberculosis was especially common at the time and therefore found its way into many works of art. In opera repeatedly, the same type of person is the victim of tuberculosis; the disease is always demonstrated by the character, but is also explored though a series of metaphors. This character is always a woman and these "tubercular heroines" always are young, beautiful, frail people who need to be protected. This is the case in La Bohème by Puccini, La Traviata by Verdi, and Les Contes D'Hoffmann by Offenbach. Because the victim is always a frail, fragile girl, tuberculosis can be read through a feminist lens as being an anti-female theme. Why is this the case? What are some of the ways tuberculosis is demonstrated in the text and in the music, and what metaphors convey the romantic understanding of tuberculosis? In Verdi we see the metaphors of flowers and farewells; similarly in Puccini the metaphor of flowers is used but there are also the metaphors of light, temperature, and color to convey the symptoms shown with tuberculosis. In Offenbach the use of flowers as a metaphor appears, but this opera points in an even greater anti-feminist and anti-disabled way by always putting the woman under the control of a man and by constantly making fun of the disabled. In all of these stories the heroine is a young beautiful woman who falls in love but eventually faces her demise at the hands of disease.

Peace Studies

53. Content Analysis-Holocaust Victims' Portrayal in Film
Presenter(s): Andrew Calloway and Megan Ernst
Advisor(s): Dr. Lisa Leitz

This research will be a content analysis examining how Holocaust victims are portrayed in historical fiction films. Historical fiction films provide entertainment, but they can also bring up stereotypes and convey political ideologies. The present stereotypes and associated national myths can emerge into popular

culture, as Jerry Lembcke (1998) demonstrates with the popular notion that Vietnam Veterans were spat upon by peace activists. Using the media culture paradigm to bring up "questions of identity, of what we feel and think we are, and how we define and position ourselves in relation to others…" (Cottle, 2010:25-29), we examine ten films, paying particular attention to this media's depiction of race and ethnicity. Our research questions are: What are the dominant themes portrayed in several historical fiction films based on the Holocaust? How are the Holocaust victims portrayed in these films? Could historical fiction films and their portrayals of Holocaust victims be reinforcing ideas of racial dominance? Or do the films challenge stereotypes? This research paper will show if the films are enforcing positive and/or negative images in the understanding of historical events. The ongoing research is expected to find any commonalities in the ten films such as racial slurs used, the fate of the Holocaust victim at the end of the film, and concentration camp the victim is placed in, and data will be provided in charts and tables.

54. Observing Military Video Displays' Effects on Attitudes
Presenter(s): Rebecca Wilson
Advisor(s): Dr. Lisa Leitz

During the U.S.-led wars in the Middle East following the terrorist attacks on September 11, 2001, popular and political rhetoric has focused on a need for civilians to "support the troops," but little research has examined the effects of the rise in displays of patriotism or military veterans in public life or their effects. Although attention has increasingly been given to American militarism, little research has systematically explained the effects of these military displays. The goal of this research is to fill the hole in literature and research about military displays' effects on attitudes. In order to test for the effects of seeing displays of the military or of veterans in American life, we conducted a pilot study on Chapman University's campus in which subjects view a video of a military display or a control video and then take a survey. The survey asks demographic questions, questions about U.S. foreign policy and related issues, and attitudes about the military. This research is still ongoing, but we hypothesize that viewing videos of military displays will increase militarism and pro-war attitudes in participants.

55. Ku Klux Klan and Black Panther Party: Racial Disparity in the Media
Presenter(s): Rebecca Wilson and Taryn Honeysett
Advisor(s): Dr. Lisa Leitz

The goal of this research is to better understand how the depictions of violence by the Ku Klux Klan and the Black Panther Party differed in the newspaper coverage. In addition, we want to understand what this data says about how racial prejudice was or was not incorporated (by news reporters, photographers, interviewers, etc.) when framing violence in news media. In order to test the theory of media framing, a theory that hypothesizes that the media uses its platform to explain a situation in a biased way, we did a content analysis of newspaper articles from 1972-1982 from major newspapers. The articles include a sample of 60 articles about violence enacted by the Ku Klux Klan and Black Panther Party that have more than 250 words. In order to examine the articles for differing depictions of terrorism by the Ku Klux Klan and Black Panther Party and possible inclusion of racial prejudice, we examined the amount and type of language used to describe the violence, physical attributes, and ideology of either party.

Pharmacy

56. Structural Study for Ca 2+ Hypersensitivity of Mutant SK Ion Channel
Presenter(s): Benjamin Whitmore
Advisor(s): Dr. Miao Zhang and Dr. Young Woo Nam

Small conductance Ca2+ - activated potassium (SK) channels play a vital role in regulating excitable cells in both the central nervous and cardiovascular system. In animal models SK channels have been linked to the pathophysiology of neurological disorders such as ataxia and alcohol use disorders. Genome studies have also associated single nucleotide polymorphisms in the SK coding region, with cardiovascular conditions such as arrhythmias and hypertension. SK channels are transmembrane proteins activated exclusively by elevated intracellular levels of Ca2+ ions. The sensitivity of the SK channel to Ca2+ binding results from interaction with calmodulin (CaM), a Ca2+ binding protein. The Ca2+ binding protein calmodulin (CaM) interacts at the calmodulin binding domain (CaMBD), located at the C-terminus of the channel. Along with Ca2+ ions, CaM induces a conformational change to allow activation and opening of the channel. A region of the channel (E404 - M412) that is critical in regulating Ca2+ sensitivity of SK channels has been identified through our previous work. A mutation can be introduced at location 408 of the region and Ca2+ sensitivity of the channel is increased approximately four-fold.

57. Structural Basis for the Positive Modulation of SK2 Channels by Riluzole
Presenter(s): Sara Siwiecki
Advisor(s): Dr. Miao Zhang and Dr. Young Woo Nam

Riluzole, the only FDA-approved drug for Amyotrophic Lateral Sclerosis (ALS), works by modulating multiple drug targets, including small conductance Ca2+-activated potassium (SK) channels. However, the functional binding site of riluzole in any of its drug targets is still unclear. Here we determine the binding pocket of riluzole in SK2 channels through crystallography. This study investigates whether this binding pocket of riluzole in SK2 channels is the functional binding pocket through which the drug exerts its effects. With combined techniques including site-directed mutagenesis and electrophysiology, we proved that the binding site identified by crystallography is indeed the functional binding pocket. Mutations A477V/L480M, which mimic the corresponding residues in SK4 channels, were introduced into SK2 channels to test whether these mutations increase the channel's sensitivity to riluzole. The mutant channel was then co-expressed with calmodulin (CaM). Inside out macro-patch recordings were performed to measure the SK2 current as a function of riluzole concentration (μM). Dose response curves for the potentiation of SK2 channel activity were constructed. The half maximal effective concentrations (EC50), were significantly different between the mutant and wild type channels. As a result, the binding site identified by crystallography is indeed the functional binding site through which riluzole exerts positive modulation of SK2 channels.

58. Investigation of the Cellular Mechanisms Involved in Innate and Acquired Resistance to a Molecularly Targeted mTOR Inhibitor

Presenter(s): Rebecca Witt, Ramina Nabiee, and Parvin Mahdipoor
Advisor(s): Dr. Hamidreza Montazeri Aliabadi

Cancer is the second leading cause of death among Americans, and even with recent advances in diagnosis and early detection, and development of potent molecularly-targeted drugs with a much more acceptable safety profile compared to cytotoxic drugs, survival rates in advanced disease have not been improving at desired rates. Tenacity of cancer cells seem to be due to two major mechanisms: their significant heterogeneity at the onset of treatment, and the inherent plasticity (genetic instability) to adopt to environmental conditions and exogenous agents. Cancer is known as a heterogeneous disease. Extensive genetic diversity has been confirmed not only among different types of cancer, but also within a single tumor as the diversity in the biomarkers. This inter- and intra-tumor heterogeneity is a major challenge in cancer treatment which cause the initial irresponsiveness to the molecularly targeted drug. This study aims to analyze the heterogeneity and plasticity among a small panel of breast cancer cell lines as a reaction to exposure to everolimus, which could lead us to identification of the proteins that play major roles in drug resistance in cancer cells. After initial evaluation of the LC50, we exposed four different breast cancer cell lines to high doses of everolimus (selective mTORC1 inhibitor), and collected the survivors. We also exposed the cells to and gradually increasing concentrations of the drug over time, to afford the cells the opportunity to adapt. After confirming resistance induction, we analyzed the protein expression profile of the resistant cells compared to the untreated population, using an in-house designed microarray and real-time PCR analysis. Our result has revealed adjustments in protein expression that could lead to identification of new targets to overcome resistance to mTOR inhibitors.

Physics

59. Linear Feedback Stabilization for a Continuously Monitored Qubit

Presenter(s): Taylor Patti
Advisor(s): Dr. Justin Dressel

In quantum mechanics, standard or strong measurement approaches generally result in the collapse of an ensemble of wavefunctions into a stochastic mixture of eigenstates. On the other hand, continuous or weak measurements have the propensity to dynamically control the evolution of quantum states over time, guiding the trajectory of the state into non-trivial superpositions and maintaining state purity. This kind of measurement-induced state steering is of great theoretical and experimental interest for the harnessing of quantum bits or "qubits", which are the fundamental unit of the emerging quantum computer. We explore continuous measurement-based quantum state stabilization through linear feedback control for a single quantum bit. By applying a time-varying Rabi drive that includes a linear feedback term, we show that the fixed points of the continuous measurement may be relocated. Analytical derivations of Itô Stochastic Master Equations being ideal models, we employ them to derive the projected ensemble average while utilizing numerical simulations to characterize the stability of the set of possible fixed points, as well as their modified collapse time-scales. We include the effects of realistic experimental non-idealities, such as environmental energy relaxation, dephasing, time-delay, and inefficient measurement. Ultimately, we discuss potential experimental implementations from collaborating universities.

Political Science

60. What Presidential Qualities Matter?
Presenter(s): Anna Amanda Carlsson
Advisor(s): Dr. Ann Gordon

The purpose of this paper is to research the correlation between traits in a candidate and how much that trait contributes to their voting behavior. Common traits associated with a presidential candidate includes honesty, morality, and leadership. The question then becomes, how much do these traits tend to matter to the voter? My theory is that democrats will tend to vote for a candidate that displays higher qualities of honesty whilst republican voters will tend to vote for a candidate displaying stronger leadership qualities. With access to the ANES times series sheet, multivariable regression and frequencies, it will help find correlations, if there are any, and what traits tend to matter to democrats versus republican voters. Previous studies done by researchers like David Glass found evidence of democratic voters focusing more heavily on a candidate's personal attributes compared to republican voters. There has been evidence to support that character traits tend to matter more when running for the presidency compared to running for the Senate. Few studies have really been able to solely focus on the three common sought out traits of a presidential candidate that matters to voters so my intent is to clarify and further discuss why that is.

61. Masculine and Feminine Candidate Traits and the Electorate
Presenter(s): Bennett Tuleja
Advisor(s): Dr. Ann Gordon

Psychology research has exemplified that leadership is revered largely by society a masculine trait. It is not surprising to find that past studies surrounding the issue of what characteristics the American people look for in a Presidential candidate find that more masculine characteristics, in particular strong leadership qualities, have an impact on how Americans vote. However, in the ever changing political landscape of the United States, especially given the furthering of women in politics, these masculine tides are seemingly bound to change. Hillary Clinton, for instance, embodies this change as she is the first woman to hold a major party's nomination for the presidency. Utilizing data from the ANES Time Series Study of 2012, I intend to analyze whether the Presidency, as perceived by the public, has remained a masculine institution or if those traits the American public desires in a President have changed in their masculine-feminine polarity. If past research holds true, my research would show that leadership is the most influential candidate characteristic on voting decision. To put this into terms used in the ANES, the "Feeling Thermometer" used to measure public perception and favorability of candidates, should exemplify the leadership characteristic as having a positive and significant impact on the candidate feeling thermometer. To view the significance of the leadership characteristic on the feeling thermometer in a more comprehensive manner, I will also be comparing the impact that feminine and gender androgynous characteristics have on candidate feeling thermometers. This research forecasts the direction we will be headed in as an electorate as it will give key insight as to whether society has changed in the values and characteristics we desire in our nation's highest office or whether the realm of politics remains a man's world.

62. Can Polarized Political Opinions Work Together?
Presenter(s): Brandon Francisco
Advisor(s): Dr. Ann Gordon

One might assume that the officials people elect retain the confidence of their constituents, but how accurate would this assumption be? Using individual and cross-national level data collection from the 2012 ANES election study, this analysis conducts an inquiry of American public opinion on the approval or lack thereof in the ability of the President to carry out his duties, the President's treatment of foreign relations, and judgment of congress' ability to perform justly and competently. This analysis produced surprisingly polarized results. While the U.S. population supports both the effectiveness of the President and his foreign relation arrangements, there is a staggering lack of confidence in Congress and its members' capability to carry out its responsibilities. While there is a majority population who supports the executive office, data shows that 62% of people find that Congressional politics are not satisfactory compared to the 32% of Americans who are supportive of the legislative assembly's performance. These findings from the ANES study are similar in both Republicans and Democrats. As a government body, Congress is widely accepted as having the closest relationship to the people because American citizens directly elect its members, yet Americans consistently express their disapproval. This poses two questions: Why are lawmakers not cooperating with their representative citizens in an effective manner? And are the American people demanding impossible tasks both domestically and abroad? For polarized political opinions to function together concessions by both parties are required. If reasonably proposed enterprises and their plans are welcomed, the country and its sense of well-being will be restored.

63. Taxes and American Hypocrisy
Presenter(s): Brandon Best
Advisor(s): Dr. Ann Gordon

When faced with conflicting values regarding taxation and government involvement, a significant part of the population that will change their view on government programs as soon as they fall under their protection, throwing away positions that they have held so passionately for so long. Older citizens are stereotypically strongly against raising taxes and are for defunding other social programs besides social security and certain medical aid. Younger citizens' views stereotypically revolve around expanding government programs in order to assist more of the population rather than the elderly. Various political journals and the ANES 2012 surveys will be used to get diverse responses between the genders, ages and political parties in an attempt to interpret the common and differing ideals between all groups. I will make an attempt to explain the reason behind these groups' ideas when it comes to taxation and increased funding for social programs and why most people seem to change their opinions as they get older. Most common political prejudice dictates that republican voters are vehemently against social welfare programs, but at the same time the largest government program, Social Security, is available solely to elderly citizens; who tend to be republicans. Other citizens are adamant about their personal positions and hold that same level of determination through countless arguments and attempts to show alternate ideals until they are faced with an issue that directly effects them, in which case people tend to change their viewpoints to better themselves. The factor that changes people's opinions on taxes and increased government aid for social programs is age.

64. <u>Regulation Preference Paradigms of Financial Markets</u>
      Presenter(s): Derek Hart
      Advisor(s): Dr. Ann Gordon

The emergence of a powerful financial sector in recent years has been both a blessing and a curse in the eyes of many Americans. The analysis in this essay provides key insight into the relationship between preferences on market regulation and the financial markets, specifically following a time of turmoil. Furthermore it analyzes the nature of citizens regulation preferences to determine if they are cyclical in nature, or if increased regulation is an upward trend here to stay. Within the analysis, this paper also addresses the different preferences between those who are and are not involved in the stock market and what these presences reveal. Understanding these relationships are critical to understanding the future of policy making and what is in store for the financial sector. This research utilizes the American National Election Studies data over a number of years in order to detect trends in preferences, and reveal substantial insight into the future of these preferences. Due to the fact that the financial industry represent 7% of GDP at 1.23 trillion dollars and effects every persons life in some way or another, this essay is critical for each and every person to read.

65. <u>The Effects of Different News Mediums on American Political Participation</u>
      Presenter(s): Jacob Hutchinson
      Advisor(s): Dr. Ann Gordon

How do different news mediums affect political interest and participation? This paper examines how differing levels of consumption in the three main news mediums affects levels of political interest and participation in American society. I use a causal research design with simultaneous equation modeling of 3-wave panel data from the American National Election Study (2012-2013) to examine how different levels of internet, television and print news consumption affect the political interest and participation of Americans. I expect that internet news is less likely to encourage political interest and participation than print or television news. I also expect that the younger a person is, the more likely it is that they will get their news via the internet. Lastly, I expect that the more a person reads news in any form, regardless of its accuracy, the more likely it is that they will be interested in and participate in politics. The overall intent of this is to show how Americans consume their news based largely on demographics and that each medium has a specific impact on political interest and participation. Based on previous research, it is highly likely that internet consumption will prove to be at its highest levels ever and as such, the impact of the Internet on politics should theoretically prove to be at its highest level ever as well.

66. <u>The Influence of Public Opinion on Capital Punishment in the United States</u>
      Presenter(s): Jennifer Meza
      Advisor(s): Dr. Ann Gordon

The death penalty is a state matter and it is currently legal in more than half of the states in America. There is no common region in which all these states are located as they are spread out all over the country. So what predicts favor or opposition of the death penalty? What do all the individuals in favor of or in opposition to the death penalty have in common? This paper, using the American National Election Studies (ANES) of 2012, will examine what political ideology the people in favor of the death penalty hold

and what factors may have influenced their political views and general opinions. Most of those in favor of the death penalty hold more conservative values and this paper will provide analysis on what these conservative values are. There are clusters of states with the death penalty and states without, but they are mostly dispersed all over the country. The demographics - such as, education level and age - of the individuals whose data is peculiar or statistically significant is examined in this paper. The surveys analyzed by Murray showed that the public does not know actually know much about the death penalty. However, it is the public's perceptions and opinions of capital punishment that are keeping the death penalty alive in the United States. My findings may be useful in predicting whether or not more and more states will soon move towards abolishing the death penalty.

67. The Effects of Race and Ethnicity on Voter Turnout
Presenter(s): Morgan Vanetti
Advisor(s): Dr. Ann Gordon

Throughout previous local and national elections, there has been a varying gap of voter turnout among many different groups and communities of voters. In the United States, race, age and educational experience play a significant role in voter turnout. If the variables of Latino, African American, and Hispanic ethnicities are crossed with variables of voter turnout, there will be a definite variance in levels of participation. Age and educational experience are two of the strongest predictors of voter turnout, but on top of that, minority percentages of participation add another layer of decreased turnout. National Election Surveys show that immigrant families and other minority communities are not always as well-informed about current political or election-related information and news. The presence of little or no desire to pay attention to these things compounded with certain elections' outcomes mattering little to these communities, there is a very small chance they are going to vote. I expect to see similar numbers between white voters and African American voters and a decrease in the numbers of voters belonging to latino, hispanic and other non-hispanic communities in the U.S.

68. Islam in a Post 9/11 America
Presenter(s): Setareh Motamedi
Advisor(s): Dr. Ann Gordon

The threat of terrorism perceived by the American public has been shaped by a series of traumatic events over the past decade. In the years following the attacks of September 11, 2001, fear of terrorism has extended beyond the threat of terrorist groups. Much of the American public considers not only terrorist groups like al-Qaeda, but the entire religion of Islam to be a security threat. In much of this security discourse, ideas of hatred, violence, and terror have become associated with Islam. This paper considers the degree of public fear of terrorism, as it relates to stereotypes of Muslim people. Drawing on research from the Chapman University Survey of American Fears, we will analyze public approval of increased security and responses to suspicion, in order to evaluate the relationship that exists between fear and the religion of Islam. In discussion of this relationship we will consider the perceived nature of Muslim people among the American public, and the stereotypes which have contributed to the construction of Islamophobia. Though Americans are divided in their feelings towards the religion of Islam, there does appear to be a strong connection between the fear of terrorism and level of trust in Muslim people.

69. Politics of Blackness in America
Presenter(s): Chelsea Davis
Advisor(s): Dr. Ann Gordon

Problematic race relations is no new concept for citizens in the U.S. Many believe that policy making in America is no longer affected by the negative de facto thinking of racism. However, with the current election frenzy and battered social climate, awareness in regards to race and ethnicity has been on a rise. The objective of this paper is to identify the lingering issues in modern society due to the racist origins of the United States and the effects it has had on modern day policy making. The country built on slavery still faces issues regarding the political perception of what it means to be Black in America. The concept of "Blackness" has been a taboo topic of conversation and is often indirectly discussed in the media and behind the closed doors of many American homes. In order to examine the stigma around the concept of "Blackness" and the effects it has in political and social situations, I will examine recent policy changes in America, the emotional and psychological standing of Black Americans, as well recent survey data. In examining the data, I will also criticize the lack of representation and specificity in the survey questions regarding race relations in America. Additionally, I will also analyze literary accounts in order to effectively bridge the gap between policy and the real-life effects it has on authentic beings who are subjected to such policy and the effects it has on their psyche.

70. The Funny Man's Serious Influence Over Political Behavior
Presenter(s): Jack Dilbeck
Advisor(s): Dr. Ann Gordon

The Influence of Stephen Colbert and John Oliver on the Young Vote's Political Behavior The research contained within seeks to identify how the young vote develops certain political behavior based on the evolution of the media and how they obtain their political news. The study will analyze segments of the young vote who utilized Stephen Colbert's show, 'the Colbert Report' and similar television shows as a source for political news, causing both short term and long term effects on the political behavior of the viewers. It will also aim to identify how the other segments of the young vote obtain their political news and if a correlation can be found with their political behavior as well. A hypothesis will then be proposed based on the findings, that will seek to predict where former viewers of the Colbert Report will likely obtain their political news and the proposed effect it will have on future political behavior. The study will utilize data from the American National Election Study (ANES) gathered during the last election that took place for President in the United States. Other sources for this study will include articles from the Journal of Political Behavior, Harvard Law and Public Policy review, and additional sources.

71. Isolationist vs. Internationalist: The Effects of Demographics on Foreign Policy Perspective
Presenter(s): Katelyn Symonds
Advisor(s): Dr. Ann Gordon

Since the end of World War II the United States has played a leading role in global affairs. The world has not only seen the expansion of American policies through globalization, it has also brought world issues to the attention of Washington politicians and American citizens alike, and made foreign policy a leading

topic in recent political campaigns. Foreign policy is a multifaceted and complicated field of opinion with two key philosophies that have battled for dominance over the years; Internationalism vs. Isolationism. However, some research has been contradictory stemming from the ill-informed and "non-opinion" stance of much of the public regarding foreign issues. Contradictory research, from Cold War era to Post-Cold War Era to present, along with recent world changes, new threats and ever expanding globalization, makes it important to update our understanding of the potential influences of public demographics on the opinion of foreign policy. In order to decipher some of the influences behind these two theories, data collected form the American National Elections Survey of 2012 was analyzed for several demographic factors that were tested to determine how much they affect the public's international opinion. Demographic factors ranging from age, political party affiliation, education level, region of habitation, race, gender, and religion were compared to determine which factor had the largest effect on the public's opinion on the United States' far reaching global presence. With issues of foreign policy becoming more prevalent on the campaign trail, it is important to understand the public's opinion regarding the US's role in the world. Understanding the factors of American life that have an effect on the public's ideas around international affairs enables politicians to better design foreign policy plans that garner support from the public.

72. Gun Control is Out of Control
Presenter(s): Michael Taormina
Advisor(s): Dr. Ann Gordon

In recent years, gun control has consistently been considered as a controversial issue among Americans. Many have questioned whether the increase in violence has a direct correlation with minimal gun control laws. I will use the 2012 American National Election Study survey to conduct my research with a concentration on the federal government and how difficult it is to purchase a weapon. Gun control will be my dependent variable and the difficulty of purchasing a gun will be my independent variable. The examinations will include the buyers age, gender, race, party affiliation, and social class. The survey has shown that these variables will have an affect on the purchasing process. My presumed assumption is that the more financially secure and credible you are as a buyer, the easier it is to purchase a weapon. The survey shows how much Americans have trust in others with gun access as well. When the economy is flourishing people tend to feel more safe rather than when we are in a recession and individuals feel the need to protect themselves. My research will show that social class and financial security affects the difficulty in purchasing a weapon.

73. Why Do Americans Distrust the Government?
Presenter(s): Ryan Thomas
Advisor(s): Dr. Ann Gordon

What drives American's distrust in government? The partisan-control theory asserts that partisan control of a given branch of government is the main issue in considerations of support for that particular branch of government. This has been contradicted by the general-cynicism theory which claims that support is driven by the respondent's overall level of political cynicism. With no existing theory prevailing, this paper conducts an analysis of public opinion data from the American National Election Study to assess whether a) gun ownership, b) political ideology, or c) media source drives American's distrust of government. To

test this, this paper will use a combination of multi-variate crosstabs, frequencies, means, and regressions in order to establish exactly what is behind American distrust in government. Beyond the previously listed variables, this paper will test with variables, such as respondent's age, sex, income, education level, urban or rural, and more will also be tested in order to strengthen potentially influential findings. Shedding light on the underlying causes of distrust holds the potential to help foster trust or to more deeply explain political behavior.

74. Campaign Contact: Targeting the Right Audience
Presenter(s): Alisha Greene
Advisor(s): Dr. Ann Gordon

Research has shown that the most effective way to mobilize voters and increase turnout is to campaign using grassroots techniques. Door-to-door canvassing in particular, has the most consistency in mobilizing a voter base. Data from the American National Election Survey from 2012, analyzes the effect personal contact from political parties and other organizations has on the rate of voter turnout. Specifically, it describes both whether there is a significant increase in turnout due to voter contact in certain demographics more than others, and whether there is a difference in turnout based on who voters were contacted by. Information from this research can be used to target the audiences that are most likely to be affected by this kind of campaign outreach. This reduces resources that campaigns need to spend trying to reach a wide-range audience. Instead, campaigns can focus in on the target audiences that will be most affected by personal contact. This will most help campaigns that face budget constraints and have a limited amount of resources to use on voter contact.

75. The Common Enemy
Presenter(s): Matthew Layton
Advisor(s): Dr. Ann Gordon

Congress is the escape goat for almost everyone's political problems. Congress has little success when it comes to their congressional duties. The citizens of the United States do not approve of their lack of success and gridlock tendencies. Congress's behavior tends to create certain questions such as; "Why can't or won't congress get anything done?" The more fascinating question is; If U.S. Citizens hate congress, why do members get reelected" (generally speaking). These questions will be answered through data and research. Data and statistical analysis will be done through ANES2012 on certain survey questions provided. Literature research will be derived from interviews from political science professors and (CA-23) representative, Kevin McCarthy. Majority of the literature research will derive from Homestyle by Richard Fenno and The Personal Vote by Bruce Cain. The hypothesis of "The Common Enemy" is; Members focus on their constituent service instead of their federal service. The members lack of focus federally creates an inability to succeed in congress and their focus on the districts gets the members reelected. The research conducted for the "Common Enemy" will lead to several answers, including a solution to "Fenno's Paradox."

76. Beliefs on Gun Restrictions are affected by Location, Ideology, and Gender

Presenter(s): Syd Kotar
Advisor(s): Dr. Ann Gordon

With a rising amount of gun violence, issues of stricter gun regulations have been brought to the government's attention. Location, gender, and ideology all contribute to how one perceives the individual use of firearms, and believes how much the government should intervene. Location, where one is originally born, grows up, and the place they currently reside all affect how they believe guns should be regulated in the United States. Gender looks at how females versus males view gun control; whether they view it in a positive or negative way can lead to more speculation on how assigning gender roles affect thoughts on social and political issues. Ideology can be affected and shaped by both gender and location, which in turn affect political opinions. This paper will explore the different variables such as the three listed above that affect one's opinions on government intervention concerning stricter gun regulations. The results of data analysis from the ANES 2012 studies conclude that the more conservative one self identifies as, one would want either the same or less government intervention concerning stricter gun regulations. Data also shows that when males and females are compared, males will want either easier access to guns or the regulations to stay the same, while a greater percentage of females want stricter gun control then making it more difficult to buy a gun. By studying the location where one grew up, data showed that people in more rural areas believe in either looser gun regulations or for laws to stay the same. Conversely, data showed that citizens in cities wanted tighter reigns on guns in general. All of these independent variables were shown to be statistically significant when more closely examined from educated hypotheses.

77. American Voter Attitudes Towards Divided Government

Presenter(s): Tyler Ferrari
Advisor(s): Dr. Ann Gordon

Divided government has been a major part of American politics for decades, and it has made governing often difficult at times. Recently, this type of government has proven to be especially frustrating for many voters, so why do they vote to keep this government? Are there partisan reasons for voting for a split ticket, or is the answer more fundamental? This paper highlights the facts and reasons for polarization, ranging from ideology to trust in the federal government as a whole. This paper utilizes the ANES 2012 Study to illustrate that it is not just political ideology that plays a role in determining a voter's preference for divided government. In addition, a voter's trust in the government to do the right thing is a major factor in preference for divided or united government. Divided government is widely popular among the American electorate, and understanding this fact will help major parties learn how to govern more effectively which will make our lawmakers more inclined to do what is best for the country as opposed to what is best for their party.

Psychology

78. Are Bilinguals on the Same Emotional Page as Monolinguals?
Presenter(s): Samira Amirazizi
Advisor(s): Dr. Connie Shears

If emotions are learned through language acquisition in early childhood (Blanchette, 2006), is the first language more emotionally-connected than the second language (Caldwell-Harris, 2015). We hypothesize that valenced stories (negative or positive) would have a similar response time and comprehension accuracy for bilingual participants (versus monolingual) in comparison to neutral stories. Previously, readers were more accurate responding to questions following positive vs. negative stories. However, this data was only analyzed for monolingual, native English speakers. Using archival data, we test the differences between native English speakers, native English speakers with a second language from birth, and native English speakers who had second language expertise later in life, for comprehension across positive, negative, or neutral valenced stories. Differences between monolinguals and bilinguals in the comprehension of English stimuli may provide evidence for comprehension of emotional language unique to bilingual participants.

79. Is Attention Deficit Disorder a Contributing Factor to Alcoholism Risk?
Presenter(s): Alison Stiteler, Laura Eiselman, and Jason Phreaner
Advisor(s): Dr. Steven Schandler

Searching for factors that heightened alcoholism risk, it has been reported that adult children of alcoholics (ACOA) possess high incidence of attention deficit disorders (ADD). However, investigations of alcoholism risk and ADD indicate that, in contrast to the hypoaroused central nervous system (CNS) model of ADD, the ACOA's attention problems represent hyperarousal of CNS attention mechanisms resulting in reduced ability to select and encode relevant information. Subjects were 200 healthy nonalcoholic volunteers. 100 were ACOA and 100 were not adult children of alcoholics (NACOA). Visuospatial processing was assessed using the Brief Visuospatial Memory Test-Revised because previous research finds visuospatial processing particularly sensitive to ACOA/NACOA status. Subjects of each group received either standard testing time or twice this time interval. Compared to NACOAs, ACOAs showed reduced test performance in the standard test time condition. While increased test time resulted in slight NACOA performance gains, ACOAs showed significant performance gains. When provided extended testing time, ACOA and NACOA performance did not differ. As increased focus and testing time produces reduced information processing in ADD persons, these ACOA findings are opposite of findings expected in the presence of ADD. However, increased focus and testing time would improve learning performance for individuals who, due to flooding of information (hyperarousal), require more time to select relevant from irrelevant information. The results show information processing difficulties in persons at risk for alcoholism are not the result of a hypoaroused CNS operating under ADD. Rather, these persons possess hyperaroused attention and processing systems in the CNS. On alcohol exposure, ACOAs may experience a reduction in hyperarousal and normalization of information processing. This model suggests that alcohol consumption may acquire self-medication properties leading to its continued use.

80. The Effects of Temperature on Perceived Social Attitude
  Presenter(s): Aylin Gann
  Advisor(s): Dr. Connie Shears

Temperature is clearly associated with our level of physical comfort, but may also relate to changes in our emotions that underlie how we perceive our social environment (Huang, Zhang, Hui, and Wyer, 2013). When we become cold, do we perceive others as emotionally cold? When we become hot, do we perceive the people we're surrounded by as warm-hearted and wish to spend more time with them? In this experiment, participants complete an IOS scale in regards to another participant before and after a writing activity, which involves watching a video while experiencing another temperature and then writing as much as they choose to do so about the video. Research has supported that when a person is in a warm environment, their descriptions of social situations are more concrete than when in a cold environment (Ijzerman and Semin, 2009). This leads to the hypothesis that when participants experience warmer temperatures they will be more verbose in a free writing task and will perceive their relationship with another participant to be closer. The projected number of participants is 120 across six conditions. Temperature changes of cold, hot, and neutral will be manipulated between tactile and environmental room temperature change by random assignment. Results, however, imply that cooler temperatures lead to more social participants, while warmer temperatures limit a participant's amount of description. IOS scores indicate colder temperatures lead to greater self-other overlap, refuting the hypothesis that when a person is in a warm environment, they will not perceive a closer relationship.

81. Corner of the Mind: At What Cost Do Creative Brains Tell Stories?
  Presenter(s): Francesca Parodi
  Advisor(s): Dr. Jocelyn Buckner

It is no lie that artists are praised for their ability to mold their surrounding world into a work of art. To turn their mere imagination and creativity into something beautiful, something the rest of society is incapable of seeing without a creative's pen annotating the realm. Filmmakers are placed upon a pedestal and complimented for conquering the cinematic universe and theatre performers are distinguished as the warriors and heroes of the acting world. We see the magic and grace in storytelling, we see exactly what we are expected to see, and as humans many of us are blind to intricate psychology in a moment's encounter. It is behind the lustrous veil we are delighted by, that some of the most complex and pained minds of society hide. I would like to take you on a journey to peak behind this facade of glamour, and glimpse into the world of those who are blessed and burdened with a cunning ability. An ability that has driven many artists to the brink of madness and even death. Through careful analysis, interviews, and psychological research, I plan to pave a pathway for audience members to finally understand what lies past a director's vision, a writer's word, and an actor's voice, many of which are plagued with troubled thoughts, anxiety, depressive disorders, and other mental illnesses. It will always remain true that the creative process is not nearly as delightful as the final expression.

82. Optimal Visual Search Elements in Small Scale Map Design
Presenter(s): Steven Karrmann
Advisor(s): Dr. Connie Shears, Dr. Claudine Jaenichen, and Steven Schandler

Redesigning the visual elements of wayfinding information improves retention of complex information (Jaenichen, 2011). Analyzing which design elements, such as color or symbols, result in the optimal processing and retention of information allows for precision in redesign. In an ongoing study, (n = 80) undergraduates were given a series of maps and tasks created to test the efficiency (speed) and effectiveness (accuracy) of colors and symbols in small scale map design as opposed to pre-existing elements (non-colored and numerals). After completing 10 tasks for a fictional baseline map (non-colored and numerals), participants were given a new set of tasks and the same map with either color or symbols introduced while the other element remained constant. Next, participants answered another set of tasks while using either the original Chapman University campus map or a revised campus map with both colored regions and symbolically-represented buildings. Retention was measured when all participants were given a final set of tasks a day later with the same maps they received the previous day. Preliminary analyses show both the colored and symbolized fictional maps as significantly increasing the speed at which the maps were processed and tasks were completed. The colored fictional map has not resulted in faster processing and task completion than its symbolized counterpart. There is no significant difference between the newly-designed and original Chapman campus maps in either speed or accuracy of response. We see that just because two elements increase speed and accuracy separately, does not necessarily mean they further augment speed and accuracy together. These provisional results highlight the importance of thorough design element analysis in information design. While these findings may be of only regional or temporal importance, they do illustrate that optimal elements exist for certain design scenarios and should not be neglected when redesigning for large populations.

Public Relations and Advertising

83. A Cultural Approach to International Branding in France
Presenter(s): Emily Gay
Advisor(s): Dr. Veronique Olivier

International brands are a paradoxal phenomenon in today's global mood. Each brand is engraved with its own cultural emblem, preserving national identity across borders. Concurrently, the entry of such brands into the international space often abstracts lines of cultural distinction, revealing a perplexed brand identity that disengages from its new public. As globalization continues to dominate the market place, it becomes even more vital to lead with an approach that convenes to the multi-facetted position of international brands. This requires a cultural rather than universal approach to branding, recognizing the diverse ways in which people perceive brand and national identity. The purpose of this study is to identify the cultural fundamentals of French society, and to inspire a branding approach relative to this audience that persists within the parameters of cultural relativity. The study will begin with a consideration of the anti-american sentiment in France and will analyze the function of globalization and product perception in this context. Next, the study will explore oppositional binaries such as individualism and collectivism, as well as archetypes of gender identity and local demographics. This work will strengthen cultural knowledge, rendering a holistic approach to future branding styles in France.

Religious Studies

84. The Christian Captain
   Presenter(s): Kasady Liu
   Advisor(s): Dr. Julye Bidmead

Captain America has been a symbol of the American ideal since World War II. Although the character has been around for 75 years, Captain America has made a considerable impact on recent popular culture. Movies like Captain America: The First Avenger and The Avengers have reignited the public's interest in comic book characters. Since Disney acquired Marvel Studios, the comic book film genre has become increasingly popular and widespread. Starting with Iron Man, and more recently, Dr. Strange, Disney's ownership of Marvel Studios brought a significant amount of success to the already popular company. One of the reasons why these Marvel films in particular have become so popular is because they have a certain balance of humor, action, and memorable characters that entertain an audience effectively. This balance is hard to replicate as other studios, like DC Comics, have tried to do. The Marvel Universe is enormous, encompassing many storylines and characters, but in this poster, I'll be focusing on the character of Captain America and how he emulates Christian themes. Captain America has been an American symbol of freedom, and he embodies all of the values and beliefs that the United States was founded on, including Christianity. So, the question is, how is Christianity portrayed in the films Captain America: The First Avenger and The Avengers, and how has that impacted popular culture and its audience?

85. Understanding the Religious Voter
   Presenter(s): Elliot Gardner
   Advisor(s): Dr. Ann Gordon

Religion plays an important role in a large percentage of American voters' lives, making it very important to analyze if, and how, religion influences voting habits. To accomplish this, an analysis of the 2012 ANES is used to study multiple variables relating to religious persons. The first hypothesis analyzed suggests religious people are more likely to vote. This hypothesis is based on statistics from the ANES and from outside literature suggesting that religiosity is among the strongest factors urging people to vote. Secondly, the hypothesis that this demographic is more likely to vote republican is tested. This also uses the ANES and outside literature. Sources allude to the fact that people who say their religion is important to them, vote Republican. However, many different religious denominations have diverse and distinct voting behavior. This is slowly shifting the bias in religious voting statistics, as increased immigration and diversity in the U.S. increases the population and therefore voting power, of different groups. Thirdly, religious men and women are separately analyzed to see which has a higher percentage of voters, and which party religious men and women are more likely to support. The findings will be a strong indicator of how candidates should address and influence religious groups when campaigning. Also, these findings will be important because if proven correct, it will show that religion is a good indicator of political concern and participation.

Sociology

86. Happiness and Financial Status in the Chapman University Undergraduate Community
Presenter(s): Amber Hopkins
Advisor(s): Dr. Sandy Oliver Lopez and Dr. Georgiana Bostean

This research project is designed to discover if a relationship between household income and happiness in the Chapman University undergraduate student population exists. The ultimate goal of this project is to learn more about the Chapman undergraduate community in terms of overall happiness, and general life satisfaction, and the potential causal factors of it. The method for reaching this goal is a short computer-based survey distributed to a portion of the Chapman undergraduate community. Through this survey, participants are asked to rate their agreement with general life satisfaction, happiness, and financial status related statements. The general life satisfaction and happiness statements were constructed with inspiration from a successful and previously established happiness survey by Ed Diener et al. (1985). These general life satisfaction statements are then followed by baseline demographic questions to tie in the potential factors of gender, ethnicity, financial aid, and household income. If successful, this survey will prove to be very useful in its ability to display a variety of things about our Chapman undergraduate community. From the results of this survey, we have the potential to be able to correlate income, gender, and ethnicity, to life satisfaction, overall happiness, perceived importance of financial status, peer pressure in terms of financial status, and happiness here at Chapman University.

87. From Humans to Animals: Subtle Racism Portrayed in People of Color
Presenter(s): Florencia Park
Advisor(s): Dr. Julye Bidmead

It is no surprise that Disney films have few main characters of color and is racist in most of its movies. Despite the rise in representation of people of color in Disney in the 21st century such as Princess and the Frog and Brother Bear, it is still evident that there is racism. In the aforementioned movies, the main characters are changed into animals and stay in this form for the majority of the time during the movie. This is not the case for white characters who never transform into animals, which is considered degrading as humans are "superiors" in society- hence, the domestification of animals such as cats which were feral. Furthermore, these characters of color who change transform as a result of the unknowns, emphasizing the abnormality in a Eurocentric context. Tiana and the prince change due to the "shadow man" who practices voodoo, while Kenai changes as a result of spiritual powers. Besides the process of change, the journey that the main characters goes through continues to highlight the differences of the races from an animal's perspective especially in the treatment. For example, when Tiana was caught by the huntsman at the river she was caged- possibly referencing slavery, whereas the white prince was placed in a hand net. The trivialization of main characters who are people of color through the making them of animals shows that racism still prevails in Disney, albeit more subtle.

Theatre

88. The Business of Theatre: How Creativity, Collaboration, and Communication Infiltrate "The Real World"

Presenter(s): Caroline Hale
Advisor(s): Dr. Jocelyn Buckner

Too often ridiculed as a "dying art", theatre endures a ceaseless struggle for validity among educators, employers, and citizens alike. However, the skills garnered by performers, technicians, and designers through theatrical education span far beyond the final curtain, and are significantly more relevant and impactful than we think. A theatre education means learning about the human condition, communication, gaining self-confidence, expressing creativity, problem solving, and thinking on your feet. In addition, drama techniques have been enormously effective in improving self-esteem and building community. A theatre education is a highly successful catalyst for the development of a "soft skill set." Because our education system is largely geared towards fostering a career path, it becomes crucial that soft skills are developed alongside hard skills. Beyond education, however, the pillars of theatre teaching have firmly stood their ground in the workplace. The Second City, a comedy theatre and improvisation school, emphasizes the often overlooked benefits of utilizing theatre in business. Second City Works, the business arm of the company, highlights the importance of "Yes, Andâ" rather than "No, But" thinking, and enhances confidence, creativity, and collaboration in the office. Through interactive improvisational workshops, Second City Works has taught these principles to thousands of corporate clients, showing leaders how to apply the tools of improv to common business challenges. By utilizing the pillars of theatre education, we can foster creativity, collaboration, and communication in leaders and employees alike, and apply these skills to create the strongest, best possible workforce.

89. Beyond the Stage: The Influence of Theatre in Walt Disney Imagineering

Presenter(s): Cassaundra Soumas
Advisor(s): Dr. Jocelyn Buckner

Walt Disney Imagineering is the head design team behind Walt Disney Parks and Resorts. Their experts and creators spearhead all projects, from shows and attractions to architecture and locations. Their groundbreaking work has put them at the forefront of the Themed Entertainment Industry. While they have become trendsetters in the world of entertainment, much of their foundation is still based in the world of theatre. Through this thesis, I will examine just how much of an influence theatre has had in the foundation of Walt Disney Imagineering. From simple verbiage to designs, theatre is present in many levels. I will be selecting several specific cases within the parks around the globe to go more in depth in my studies, particularly in the importance of a theatrical storyline. By examining the importance of theatre and its influences on Imagineering, I will be able to assess how my own journey through theatre can help me in the future as I pursue a career in the field of Themed Entertainment. Many of the current and former Imagineers have had experience in the fields of theatre, and I hope that through my readings and interviews I will understand just how strongly based in theatre the design of the parks are. I will be able to relate the concepts, core, and ideas of theatre into the daily operations and ideals of Imagineering, and understand how their use of theatre helps them in their advancement and creation of new designs.

90. Breaking Ground: The Representation and Inclusion of Theatrical Artists with Disabilities

Presenter(s): Danielle Williams
Advisor(s): Dr. Jocelyn Buckner

Unfortunately, we live in a society that does not fully support those with physical/mental disabilities. Many people do not understand what it is like to have a disability and all of the challenges that go along with it. This can create negative or apathetic attitudes towards the disabled, and creates an unconscious separation between those who are abled and "other" people who are not. One of the most powerful parts of theatre is its ability to educate audiences and inspire them to leave the theatre with a new perspective in their mind and questions to consider about humanity and society. Theatre can be a powerful tool to move people and tell stories of people with disabilities; advocating for a new level of respect, consideration, and compassion for people who are "different" from the "norm". In this thesis, I intend to recognize and analyze the significant steps that theatre has made in diversifying the art form by seeking to include actors who have disabilities. This includes hiring/casting practices and ways in which productions accommodate those with disabilities. Lastly, by analyzing specific performances, I will argue how their representation provides understanding for audience members and positively influences people's opinions on disabilities. Just as it is important to positively represent different genders, races, and socioeconomic statuses in theatre, it is just as crucial to represent those with disabilities. To accurately paint the picture of society, and to change people's negative and ignorant perceptions of people with disabilities, we must produce theatre that includes them and represents them in a three-dimensional, positive, and respectful way.

91. An Open Call for the Close-Minded: Remedying the Impossible Body Image Standard for Women in the Entertainment Industry with an Emphasis on Weightism

Presenter(s): Ellen Beizer
Advisor(s): Dr. Jocelyn Buckner

Throughout the history of the entertainment industry, female performers have been subjected to an impossible standard with regards to body image and outward appearance. Many women actors find themselves forced to endure rigorous dieting and exercise, painful processes of beautification, and even reconstructive surgery in an effort to achieve and maintain - what the industry perceives to be - the ideal feminine form. Appearance is so intricately ingrained within the industry that often women who possess remarkable talent are passed over for work in favor of the candidate with the smaller waistline or bigger breasts. This superficiality is poisonous to our culture, and to the women who are a part of it - women who must unwillingly conform to either the stereotypical characters that casting directors, producers, and agents tell them are their only options, or else toil to achieve a picture-perfect face and body that can only truly be created through the work of a computer. In this study, I will examine the careers of non-standard but successful performers, the productions that attempt to defy the industry's typical depiction of women, and the scholarly philosophies on the reception of these various influences by the public; I will use my research to determine steps we - as a society - can take in order to disband the impossible physical requirements imposed on women of the industry, and I will culminate it into a one-act play with the goal of accurately representing the struggles of a variety of body types and their psychological effect on female performers.

92. Cirque du Soleil: Uniting the Worlds of Art and Technology
Presenter(s): Garron Rodgers
Advisor(s): Dr. Jocelyn Buckner

Beginning as two passionate street performers in Quebec, Guy Laliberté and Gilles Ste-Croix joined forced to co-found Cirque du Soleil in 1984. Their first endeavor was to create an entertainment offering commemorating the 450th anniversary of Jacques Cartier's voyage to Canada. Over 30 years and more than 30 productions later, Cirque du Soleil has become one of the most successful live-entertainment companies on earth. Known for their lavish spectacles and daring acrobatic feats, seeing a Cirque du Soleil show is a bucket-list item for many people all over the world. The company prides itself on creating high-quality dazzling shows that have succeeded in wowing international audiences on a nightly basis. Cirque strives to innovate and collaborate in each aspect of their productions, an attribute that has garnered them critical acclaim and has managed to keep live entertainment and the art of circus relevant to a generation that has become accustomed to on-screen action and ubiquitous computer-generated imagery and effects. Through this thesis, I will discuss Cirque du Soleil's collaborative process and the ways that the company has managed to stay relevant and successful with our increasingly demanding society and constantly growing expectations. Cirque du Soleil continues to stay ahead of the competition and capitalizes on its unique attributes that sets the company apart from different entertainment companies. By employing technology to reinvent art, the company has, in turn, managed to use this artistic creativity to reinvent technology.

93. Reality, Virtual Reality, and the Real: The Role of Audience as Actor in 21st Century Entertainment
Presenter(s): James Haeck
Advisor(s): Dr. Jocelyn Buckner

As the technological advances of the 21st century have removed human interaction from our social and professional lives, many Americans are turning towards immersive and interactive forms of entertainment. This essay examines how this movement from typical passive media consumption towards active consumption reflects the changing role of live theatre in a 21st century society and how modern media is able to blend the roles of audience and actor into a new singular participant. The proliferation of immersive forms of entertainment in recent times - from video games to immersive theatre - suggests that modern audiences are particularly concerned with play. The concept of play is of particular importance to theater artists, especially actors, who must embrace the freedom offered by play in order to produce an authentic performance. Modern audiences are likewise embracing the concept of play in search of freedom, using their play as a means to escape their increasingly computerized and surveilled world. Modern immersive experiences, especially video games and the burgeoning field of virtual reality, are having an immense impact on live theatre. At this point, the question must be asked, how can live theatre learn and evolve from 21st-century mass entertainment? When audiences want to be immersed in a story, how can theatre continue to stay cutting edge in the face of these new technologies? Close analysis of the mechanics, story structure, and technology of video games and new types of theatre will allow theatre artists to better create plays for the tech-driven 21st century.

94. The Authentic Workplace: Theatrical Practices in the Corporate World

Presenter(s): Katherine Dumas
Advisor(s): Dr. Jocelyn Buckner

"We are beginning to bring our whole selves to work… That type of separation probably never existedâ€¦ Instead of putting on some kind of fake "all-work persona," I think we benefit from expressing our truth, talking about personal situations, and acknowledging that professional decisions are emotionally driven."(1) In her award-winning 2013 book Lean In: Women, Work, and the Will to Lead, Sheryl Sandberg explains the movement in the corporate world to look for emotional intelligence in potential employees before they are hired. Qualities such as this are nurtured and practiced regularly in the world of theatre, as evidenced by the constant expectation for theatre professionals to be expert collaborators. In fact, skills often found in theatre professionals can be extremely helpful in almost any profession - skills including vulnerability, openness, collaborative instincts, and people-centered thinking will help you in any career you may have, in theatre or otherwise. Leaders in the corporate world recognize that one of the keys to effective teamwork is authenticity and the abandonment of individual egos - much like how theatre artists are encouraged to think of "the play" as "something greater than oneself" I argue that by studying and applying the soft skills considered most valuable to theatre professionals, people of any profession have the upper hand within their company or organization. I examine the mission and values statements of professional theatre companies and apply those skills and organizational visions to our twenty-first century corporate world, proposing a series of workshops on empathy, collaboration, and emotional intelligence with foundations in theatre practices. (Works Cited 1. Sheryl Sandberg, Lean In: Women, Work, and the Will to Lead. 2013. 49.)

95. Theatre in American Prisons: How It Is Making a Difference

Presenter(s): Mackenzee Donham
Advisor(s): Dr. Jocelyn Buckner

In The United States, one of the primary purposes of prisons is to prepare the inmates for their eventual release, a process known as rehabilitation. In the criminal justice world, rehabilitation is intended to smooth reintegration into society, and provide skills and incentives to prevent future criminal activity. However, it seems as though our country is failing to fulfill this purpose. According to the National Institute of Justice, 76% of prisoners reoffend within five years of being released. This also contributes to the escalating problem of prison over crowding. This raises the questions: does this statistic simply mean once a criminal, always a criminal? How do we keep American citizens from falling back into prison? Research has shown that in-prison theatre based rehabilitation programs drastically reduce the number of the incarcerated who re-offend. Theatre companies with prison outreach programs such as The Actor's Gang, The Medea Project, and The Strindberg Laboratory are helping to prove that incarcerated individuals who engage in theatre classes, workshops, and theatrical productions are more likely to attain rehabilitation and rejoin society successfully. These companies are helping people, some for the first time, express emotions they never thought they had the freedom or capacity to express, understand new feelings and perspectives, develop empathy, connect with others, and learn discipline and self-control. What about theatre is having such a profound effect on convicts? What is theatre's role in reducing recidivism? This thesis is going to substantiate the need for theatre focused rehabilitation programs in prison as well as in reentry programs, explain the methods taught and used by prison theatre instructors, describe the effects

of these rehabilitative experiences on the individual, and unravel how these programs not only assist the incarcerated, but also how they benefit American society.

96. Turning Revolutions into Revelations: Using Musical Theatre in an American History Curriculum
Presenter(s): Megan LaForge
Advisor(s): Dr. Jocelyn Buckner

The 2016 Tony Award-winning Hamilton: An American Musical has started a revolution not only in the theatre community but in the classroom as well. Now, history teachers around the country are using the Broadway hit as an educational tool to help students become more engaged with subjects such as the American Revolution and the founding of the National Bank by bringing historical figures to life through Lin Manuel Miranda's songs. I am exploring how Hamilton has created such a booming interest in the once-looked-over life of historical figure, Alexander Hamilton, and how it is possible to obtain this attention for all of US history. From this analysis, I am then creating an American History curriculum using relevant musical theatrical productions about a significant historical time period or people in this period as part of the teaching materials. Such musicals will include Parade, 1776, and Bloody, Bloody Andrew Jackson, which all paint a picture about our nation's past in unique ways. I argue that a curriculum for high school US History class involving relevant theatrical productions about the time period will help students learn about the humanity of our past beyond the confines of a textbook, leading to a better appreciation of and a willingness to learn about history and the arts. The humanizing of these incredible historical figures will not only help students form a deeper connection with the past, but also help them realize that they too have the ability to make a positive impact on this nation.

97. Writing for Stage and Screen: A Writer's Production Journey
Presenter(s): Monica Sullivan
Advisor(s): Dr. Jocelyn Buckner

Playwriting is my personal passion, and it is my goal post-graduation to seek a staged production of my work. However, the path to professional production can be long, unclear, and daunting for a new playwright. When there is no pre-existing prestige to burgeon commissions, a playwright must become their own advocate. There are many different avenues into productions: letters of inquiry, submissions, contests, and self-producing. I will examine in depth how a playwright in today's theatre sphere can see their work be realized from page to stage. My second passion, scripted television, has more in common with playwriting than one would think - many playwrights write for television as their primary supportive career, and write plays in their free time. I will explore how a person delves into the business of writing for television and everything it entails.

98. **From Facts to Theatrical Figures: Creating Climate Conversations Onstage through "The Drought Project"**
Presenter(s): Monica Furman
Advisor(s): Dr. Lisa Leitz

Does theatre have the power to educate and inspire a community to action on issues that are difficult to understand? By using theatre techniques from Augusto Boal and Moises Kaufman and combining them with social change theory from Erika Summers-Effler, this interdisciplinary study examines how and why real issues and data translate to the stage. Through the use of personal experience, interviews, documentaries, and literature, The Drought Project became much more than a show; the information gathered turned into a resource guide for a new way of sustainable living for the ensemble, which they aimed to pass on to the audience through the three performances from November 7-9. We predicted that an entertaining show with the utmost highest stakes would grab at the consciousness of our audiences; this would prompt them to take specific individual actions more than just scientific evidence or a major news story, from calling their local government representatives to steps on creating a community compost program. Thus, we would spark micro-social change, a term Summers-Effler states is at the root of change, as individuals stand in solidarity with similarly "emotionally-positioned individuals." By creating a lot of individual micro-social change impacts at the grassroots level, we aimed for the singular to evolve to a bigger impact.

99. **Working and Winning: An Examination of Women's Labor through a Theatrical Lens**
Presenter(s): Lena Romano
Advisor(s): Dr. Jocelyn Buckner

For many centuries, the public sphere has been reserved for men, while the private or domestic sphere has been open only to women. This firm line has been blurred in recent years, and I intend to examine the changes in women's labor over the past five and a half decades by analyzing three plays that were written during key times over the past forty years. Each of the three plays deal with women's labor in different forms and the implications and views of each of these labor practices. I argue that there is still inequality in women's labor and that there is a double standard at play in the gendered division of labor, both in the private and public sphere. The plays I am analyzing are Top Girls (1982) by Caryl Churchill, Nickel and Dimed (2002) by Joan Holden and Sweat (2015) by Lynn Nottage. I compare and contrast these plays, and the representations of labor on stage, and by using theatre as a reflection of society, I intend to mark the changes of views and access for women and labor over the past five and a half decades and through many social and political changes. I couple these plays with research on the views of labor through the decades, taking into account class, race, sexuality and age as factors in the societal acceptance or disapproval of different forms of labor. These plays present different interpretations of what constitutes labor and explore what work women have historically had access to and been denied. While views of women in the workforce have changed and are changing, there is still a stigma associated with any domestic labor that is not deemed productive by a capitalist society. Labor and work affect everyone in different ways, and in this essay I strip away the hierarchy that has been placed on labor in order to better understand each form of work in its own way and acknowledge its importance and significance in society.

100. The Forgotten Story of African- American Women Playwrights
Presenter(s): Shannon Corenthin
Advisor(s): Dr. Jocelyn Buckner

As a SURF participant, I studied the plays and production histories of Black women in American theatre, the impact they have had on society during the last century, and the influence they continue to have on today's theatre. Women's contributions frequently go unacknowledged, and those of women of color even less so. By reading plays written by these women, in addition to critiques, analyses and theoretical essays about these plays, I gained a clearer understanding of the history and legacy of their work. I also explored how Black women have used theatre to comment on issues such as economic disparity, sexism, racism, and the overall struggles of women in the black community. After gaining a better understanding of the position of Black women in American theatre, I applied this research as the director of Lynn Nottage's POOF!, a demonstration of obstacles women of color face in society, in October 2016. Nottage is one of the most influential women of color in theatre today, and her recognition is possible because of the league of women of color before her who attempted and succeeded at making their voices heard. This play was produced in conjunction with two other works directed by my peers and SURF fellows, Lena Romano and Rose Mackenzie, to create a three show festival highlighting women playwrights over the course of the last century, and their varying treatments of the theme of domestic violence, an issue that continues to impact women's lives. The productions of these plays was followed by an open discussion with the audience. Through our research, the three of us will made clear the agency of women who face economic, racial, and sexual hindrances in theatre.

101. Performing Queer Femininities
Presenter(s): Rose Mackenzie
Advisor(s): Dr. Jocelyn Buckner

The narratives we play out on stage are coded by the intersecting identities of gender, sexuality, race, class, ability. Throughout nearly the whole canon of Western theatre, these narratives comply with cis-hetero-patriarchal norms; and to pursue noncompliance, our narratives must complicate and contradict the prescriptions of uniformity. Through an interdisciplinary, multi-genre analysis of queer femme performativity, I will argue for the centralization of femininity and the celebratory affirmation of queerness as the solution to disparate patriarchal oppressions which subjugate queer femme bodies and silence our voices. I will expound upon this claim by case studies in two different aspects of queer femme performativity: stage plays (Gina Young's Femmes: A Tragedy) and performance art (Leah Lakshmi Piepzna-Samarasinha). According to a recent study (2016) by J. Walter Thompson Intelligence (a research, innovation, and data analytics agency), only 48% of U.S. Generation Z (ages 13-20 in 2016) identify as exclusively heterosexual, compared to 65% of U.S. Millennials (21-34). Throughout this study, the data indicates a trend: divergence from cisgender and heterosexual normativity and a diversifying of the relationships young people have with their sexual and gender identities, expressions, and explorations. Theatre, as a means of cultural production, has significant, widespread impact, and has historically served as the genesis of many developments in public discourse. As suggested in the shifting statistics of the JWT study, the U.S. is experiencing an upswing in queer identity, and the theatre must find a way to represent these diversifying narratives of sexuality.

102. Theatre and Leadership, the Perfect Marriage

Presenter(s): Sam Schlernitzauer
Advisor(s): Dr. Jocelyn Buckner

As my four years at university are ending, I begin to critically think about my choice of study and ask, "did I make the right decision?" I am choosing to not go into my field which I spent the last four years studying, devoting my time to, and learning about and instead pursue my new-found passion for leadership. Often when I explain my point of view and career path, I am met with concerned looks and shock and awe that I was a theatre major in the first place. Many times, this look of contemplation is met with the follow up question of "why study theatre," especially if one is not going into acting or directing. This question of "why study theatre" often leads me to question and analytically break down why society should continue to teach theatre in schools and why as I student I should continue to study the subject. I begin to ask myself many other questions like, "why is theatre relevant now,"how can one benefit from a theatre education, "how can I apply my theatre education to another position," etc. Throughout this thesis, I will argue that theatre is a relevant and important topic to study. I will show how others like myself can utilize their theatre training to help benefit them, no matter what subject or path they follow, by transferring these theatre based concepts to my leadership development. I will be asking about why society should continue to study theatre and what benefit comes from continuing theatre. Furthermore, I will be asking how leadership and theatre are intertwined and utilizing other actors and actresses as my examples to show that the skill sets are a perfect marriage and that theatre is universal.

103. Making Big Screen Dreams a Reality: The Business and Logistics of Pursuing a Film Acting Career

Presenter(s): Sierra Green
Advisor(s): Dr. Jocelyn Buckner

Many young actors have aspirations to pursue careers in film and television, but when it comes to navigating the world of agents, demo reels, headshots, networking, and submitting for auditions, they don't know the logistics of how to get there. My goal is to create a user-friendly, concise and informative resource for actors who are starting out in the industry that they can use to inform and guide their journey. Using books like Brad Lemack's The New Business of Acting: How to Build a Career in a Changing Landscape, websites like Backstage.com as well as interviews with professors and recent graduates with experience in the industry, I will outline the steps of self-promotion that a budding actor can take to pursue their goals of acting in film and television in Los Angeles. These steps include how to develop your own acting reel, the breakdown of what makes a good headshot with real headshot examples, how to make a distinctive and professional resume, where to look for auditions, and how to research and contact managers and agents in the industry. Additionally, I want to outline the process of joining various acting unions like SAG-AFTRA (Screen Actors Guild - American Federation of Television and Radio Artists). Along with my research paper, I plan to begin the development of my own demo reel and website that I can present along with my research as examples of real-world application of these tools. As an aspiring film actor myself, I plan to use this research and my demo materials to propel me into my acting career, as well as to help other young actors who are also beginning their journey into the industry.

Interdisciplinary

104. **Cognizing Property**
Presenter(s): Mary Jean Howard and Trent Gerdeman
Advisor(s): Dr. Bart Wilson and Dr. Jan Osborn

Can the law better reflect the way humans cognize property? There's a dissonance between the way humans cognize property and the way the law resolves property disputes - often the legal system ignores the location of a found item in a thing someone can call MINE. We use classic property disputes over found objects to establish our hypothesize that, if our minds locate property in a thing, whoever has property in a thing has property in all things found in it. To test our hypothesis, we plan to conduct an experiment in Chapman University's Economic Science Institute during the 2017 spring semester.

105. **French Women in Art: Reclaiming the Body through Creation**
Presenter(s): Liatris Hethcoat
Advisor(s): Dr. Veronique Olivier

The research I have conducted for my French Major Senior Thesis is a culmination of my passion for and studies of both French language and culture and the history and practice of Visual Arts. I have examined, across the history of French art, the representation of women, and concluded that until the 20th century, these representations have been tools employed by the makers of history and those at the top of the patriarchal system, used to control women's images and thus women themselves. I survey the history of representations of women in art, which are largely created by men - until the 20th century. I discuss pre-historical portrayals in the form of fertility figurines, the representation of Marie Antoinette, Queen at Versailles during the late 18th century), by portraitist Elisabeth Vigée Lebrun, and depictions of women in impressionism, a male-centric modernist art movement of the mid-19th century. The remainder of my research centers on female French artists and their work (e.g.; Louise Bourgeois, Annette Messager, Agnés Varda), emerging in the 20th century, grounded in writings by French theorist Hélène Cixous, who calls for "l'écriture feminine," or female writing - women writing their own stories. I argue that, finally, proper representations of women are created due to the fact that women themselves are creating them, with feminist intentions or not. The common denominator in these women's work is the authenticity of communicating their own experience. My research concludes with the debate of post-feminism; whether we live amongst gender-equity, or whether work still needs to be done to achieve it. In conclusion, my intention is to show how and why the art historical canon is flawed, to introduce audiences to women creating their own representations, and to examine our cultural landscape regarding gender representation and how women may identify and create as a result.

World Languages and Cultures

106. **Images of Sexually Deviant Women in French Film**
Presenter(s): Lara Fox
Advisor(s): Dr. Veronique Olivier

This research explores representations of sexually deviant women in French film beginning with the New Wave film movement of the1960s and continuing to present day. This work examines the extent to which the gender of a film's director affects the presentation of female nudity, infidelity, homosexuality, BDSM, and pornography onscreen. Through the lens of scholarly articles of film theorists and feminists such as Laura Mulvey, Simone de Beauvoir, and Hélène Cixous; and of both feministic and anti-feministic works of famous French directors such as Jean-Luc Godard, Catherine Breillat, and Emmanuelle Bercot, this capstone work identifies filmic triumphs and failures of French feminism. Furthermore, by applying feminist film theory, it analyzes which cinematographic, rhetorical, and narrative techniques best serve to liberate women onscreen and tell the stories of their sexuality accurately and honestly in the hopes of creating a reference point for future feminist filmmakers. The probable conclusion of this research is that in most every instance, with few notable exceptions, only a female director can truly express the sexual lives of designated at birth females (DABF). It is important to note that this work excludes an examination of transsexuality in French film, due to a lack of existing scholarly works on the subject, and focuses exclusively on representations of the DABF sexual experience.

107. **French Vacation Time and its Effect on French Culture**
Presenter(s): Bailey Martz
Advisor(s): Dr. Veronique Olivier

The concept of vacation time is one that has been adopted by and tailored to many different countries throughout the world. It came about relatively recently, mostly within the last hundred years. The French in particular have created a fascinating culture of vacation that is unrivaled by any other nation in the world. This culture was first rooted in the interwar period by the Popular Front government, and has since experienced a tumultuous evolution that continues to this day. Almost one hundred years after the government first mandated employee vacation time, in 2016 the French government passed a law that edited and revamped the rules about vacation. Vacation time has proven to benefit workers in a multitude ways, but are the French truly better off - physically, psychologically, and economically - for taking more of it than the majority of other cultures in the world? Physically, workers who take more vacation time are less prone to stress and serious diseases. Psychologically, people who vacation are more satisfied with their lives and happier as a result of it. Economically, the French have proven that quality of work trumps quantity in terms of remaining a force to be reckoned with in the global marketplace. The science of happiness, however, begs a question that has a debatable answer: are the French truly happy compared to similar nations that provide their citizens with less vacation time? This examination of French vacation time seeks to unveil its mystery by articulating the history of the phenomenon and answering the question of whether or not the French are better off for it by examining the multiple ways that success is defined through a French lens.

108. **The Myth of France as a Country Without Racism 1920-1969**
        Presenter(s): Mya Fenderson
        Advisor(s): Dr. Veronique Olivier

My research project for the semester is the myth of France as a utopia that is free of racism between 1920 and 1969. Amongst many African Americans, France is a country without racism and has served as a refuge from American racism for blacks. This idea came from African Americans who lived in France and experienced a much better life than they had in the United States. After the First World War, France became the host of artists, writers, and famous African American musicians to include Josephine Baker, Ada "Bricktop" Smith and Eugene Bullard. During this time many African-American newspapers in the United States published articles glorifying the lives of African Americans in Paris. The end of the Second World War brought more African American to France. Although they took advantage of better lives in France and the escape from racism in the United States, there were many people suffering from racism in France. In my research, I learned that racism indeed existed in France, but not against African Americans. North Africans, in particular have suffered racism in France and also in their countries of origin due to French Colonialism. During the Algerian War, which was fought over Algerian independence, there was a massacre of French Algerians in Paris which was covered up and kept secret for many years. Even though there were prominent African Americans living there at the time, there were government censures preventing them from publicizing the racism. All the while, the French condemned racism in the United States while believing that racism to be an American problem.

109. **In Contradiction with Culture: A Study on French Vegetarians**
        Presenter(s): Robert Schumaker, Jr.
        Advisor(s): Dr. Veronique Olivier

This paper examines the relationship between modern French vegetarians and the vast French culinary tradition. Historically composed of meat, dairy, and animal by-products, French cuisine is at odds with a growing trend to become vegetarian or vegan, a movement which embraces greener and more compassionate ethics. The research is divided into three sections: animal rights, ecology, and personal health, these being the most popular reasons one adopts a vegetarian or vegan diet. In each category, the French tradition is contrasted with the behaviors and thoughts of French vegans or vegetarians. The purpose of this project is to highlight how French vegans and vegetarians are veering away from what has been popular cuisine, and to show how French vegans and vegetarians may be creating new traditions and new forms of cuisine. With the World Health Organization declaring many types of meat carcinogenic, the recommendation to eat more plant-based has followed. Therefore, it is important to understand how the French vegan and vegetarian movement fits in with the wider global movement to consume less meat and dairy products. Research methodology includes examining studies of French vegetarians conducted in English and in French, comparing articles published in newspapers, analyzing statistics related to diet and health, and gathering information from French animal liberation organizations like PETA France and L214. Ultimately, the expected conclusion of this research is to find how France is either moving away from and/or holding onto its longstanding culinary history as the animal liberation movement gains momentum.

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