

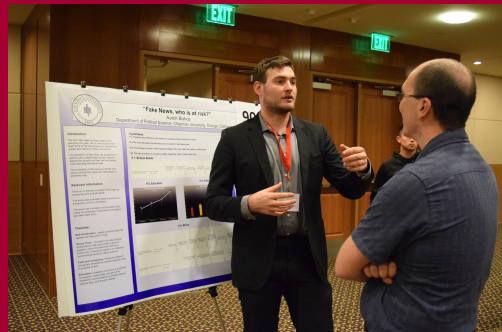
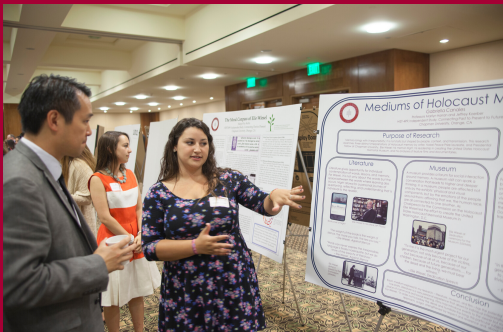
STUDENT SCHOLAR SYMPOSIUM

FALL 2019

WEDNESDAY, DECEMBER 4

FALL SESSION

ABSTRACT VOLUME



Message from the Director



Greetings and welcome to the Fall 2019 Chapman University Student Scholar Symposium! Student Scholar Symposium is sponsored by the Center for Undergraduate Excellence, which is the first stop and the central hub for students to learn about and engage in undergraduate research and creativity activity; and to discover the wide range of prestigious external scholarships available.

The Student Scholar Symposium which is held once each semester celebrates the remarkable scholarship and creativity conducted by Chapman undergraduate students. Our student presenters reflect the diversity of academic and creative disciplines thriving within the Chapman community. Please take some time to stop by and wander through the vast array of student poster presentations to discover the kind of work our students are engaged in here at Chapman. Chapman University Student Scholar Symposium is education in action, a true example that Chapman students are pursuing anything imaginable!

And make sure to save the date for the Spring Student Scholar Symposium on May 5-7, 2020. As research and creativity inquiry has grown across the campus, the Spring 2020 Symposium has evolved into three full days. In addition to the poster presentations of previous years, we welcome the addition of oral, visual, and performing art presentations, allowing our students multiple ways to showcase their research and creative projects.

In addition to all the student presenters and their faculty mentors, I would like to give a special thanks to the CUE Advisory Board for continued support throughout the year.

Enjoy the Symposium

Dr. Julye Bidmead

Director of the Center for Undergraduate Excellence at Chapman University

Acknowledgements

The Center for Undergraduate Excellence gratefully acknowledge the following for their support:

- Dr. Glenn Pfeiffer, Provost
- Crean College of Health & Behavioral Sciences
- Donna Ford Attallah College of Educational Studies
- Schmid College of Science and Technology
- Wilkinson College of Arts, Humanities, and Social Sciences
- CUE Advisory Board

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Schedule of Events

9:30 – 11:00 am	Student Poster Session I	Beckman Hall 404
12:30 – 1:30 pm	Student Poster Session II	Beckman Hall 404
2:30 – 4:00 pm	Student Poster Session III	Beckman Hall 404

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Biochemistry and Molecular Biology

1. *Characterizing the Ganglioside Composition in Extracellular Vesicles Isolated from Caco-2 Human Intestinal Epithelial Cells after Supplementation with Exogenous Gangliosides*

Presenter(s): Jordan Jernigan

Advisor(s): Dr. John Miklavcic

Dietary fats play a role in the development and treatment of chronic diseases. Gangliosides are a type of fat found in all human tissue and can be located within extracellular vesicles (EV), which are vesicles excreted by all mammalian cells for intercellular communication. Though not considered an essential nutrient, dietary gangliosides may alter the content and composition of gangliosides located in EVs. By manipulating the structural composition of EVs, the intercellular communications performed by EVs may be altered. The role of dietary gangliosides with respect to mitigating chronic conditions in the human body remains unidentified. To determine how gangliosides present in the diet influence the ganglioside make up of EVs, EVs will be analyzed for total ganglioside content and composition. An exogenous source of gangliosides will be used to supplement Caco-2 human intestinal epithelial cells. EV isolation from cell media will be completed according in to ExoQuick Ultra manufacturer instructions. Protein markers will be used to verify EV isolation. The purpose of this research is to comparatively quantify if exogenous gangliosides enrich EVs with control EVs, and to characterize the ganglioside content in EVs according to classes of ganglioside. The findings of this study will support future research on the therapeutic applications of dietary gangliosides, as well as the physiochemical properties of fats in the diet in relation to human chronic conditions.

2. *Investigation of Nuclear Translocation as a Possible Mechanism of Action for ca27 Downregulation of the Androgen Receptor in Prostate Cancer*

Presenter(s): Abbigael Eli

Advisor(s): Dr. Marco Bisoffi

Prostate cancer is one of the most frequent cancers in the world's male population. The androgen receptor (AR), which responds to the binding of androgens (for example, testosterone), is a major oncogenic driver in cancer cells. Androgens binding the AR initiate the signal for AR to translocate to the cell nucleus and act as a transcription factor for genes that promote growth and development. In cancerous cells, the AR functions constitutively, always telling the cells to grow and divide when they do not need to be doing so. This project seeks to investigate an inhibitory compound of the AR, ca27, that has been shown in previous studies to downregulate AR expression and activity. The mechanism of action of ca27 is unknown. We hypothesize that it could interfere with AR nuclear translocation. By comparing the presence of AR in the cytoplasm and the nucleus of prostate cancer cells treated with or without ca27, this study will conclude whether or not ca27 affects AR nuclear translocation. Cytoplasmic and nuclear proteins will be isolated from prostate cancer cells and immunologically tested for the presence of AR protein using nuclear protein extraction, sodium dodecyl sulfate gel electrophoresis (SDS-PAGE), and Western Blotting. If nuclear translocation is a viable target for ca27, the Western Blotting results should show a clear and significant difference between the amount of AR protein in the cytoplasm and the nucleus of the prostate cancer cells, with the higher amount of AR protein being present in the cytoplasm. The outcomes of this project will fit into our lab's broader studies about ca27's mechanism of action, but can also impact future studies into novel therapeutic agents and targets in prostate cancer.

Biological Sciences

3. *The Mechanisms of Mud Burrowing in Atlantic Hagfish*

Presenter(s): Keolani Kahale-Lua

Advisor(s): Dr. Douglas Fudge, Dr. Charlene McCord

Hagfishes are elongate craniates that live on the ocean floor and are known for their evasive nature. Their unique locomotive behavior is characterized by anguilliform swimming and expert burrowing in complex environments and confined spaces like carcasses. However, little is known about whether specificity is employed by hagfishes to achieve this optimal ability. In this study, we analyze and propose behavioral mechanisms by which Atlantic hagfish (*Myxine glutinosa*) burrow into gelatin to understand how they navigate in marine mud sediments. Specifically, videos of the hagfishes were collected and all burrowing was quantified by frequency and amplitude of tail beats over time. Our results suggest that hagfishes use a methodical, biphasic approach for burrowing into substrate. High tail beat frequencies and head wagging devolve into body-axis propagation with smaller undulatory frequencies until the animal has completely submerged. Our research coincides with previous literature on the evolution of locomotion in long-bodied aquatic animals. Future experiments are expected to yield kinematic models for these locomotive patterns.

4. *Fishing for Evolution in the Galapagos; A Study of Hagfish Species Diversity and Behavior*

Presenter(s): Zachary Baker

Advisor(s): Dr. Douglas Fudge

The study of new subspecies of hagfish is necessary for understanding the morphology and behavior of hagfish in the wild. The research is based on film recorded with go pro systems mounted to a BRUV and various traps used on an expedition to the Galapagos. The expedition collected film on 5 days of the trapping experiments. Hagfish are found on the ocean floor and can be separated into two main families, *Myxine* and *Eptatretus*. Video analysis of the collected film was accomplished first in order to gain a better understanding and mark what was going on. Any interesting point in the film was cataloged in an excel spreadsheet and a time-stamped photo was taken. Hagfish naming and Galapagos mapping followed the completed video analysis as it was necessary to use the information found in the video breakdowns to compare with the collected data found in spreadsheets from the expedition. Every species was identified via body markings, coloration, size, gill apertures, and genus. A map of the Galapagos was then created to identify the spots where hagfish of specific species were caught. This information can be used to identify areas of interest for future expeditions and to increase the public understanding of hagfish diversity.

5. *How Degrees of Freedom Affects Sense of Agency*

Presenter(s): Akima Connelly, Jungsu Pak

Advisor(s): Dr. Uri Maoz

The rubber hand illusion is an experimental paradigm that induces a sense of agency over a rubber hand. This can be achieved through congruent and synchronized tactile stimuli on the rubber hand and the participant's hand. Along with tactile stimulation, proprioceptive feedback can be used to create the same sense of agency over a robotic arm. However, little has been known about the different degrees of

freedom of movement in the robotic arm and their influence on sense of agency. We are using the WidowX by Trossen Robotics, which is a 6 degrees of freedom robotic arm built with an Arduino interface, and vive lighthouse sensors, which are used to track movement of the arm. Unity3D is used to communicate between the motion tracking and the Robot arm. Both a questionnaire and time perception (intentional binding) are used to measure participants' sense of agency. We hypothesize that certain arrangements in the degrees of freedom will lead to a stronger sense of agency over the action of the robotic arm.

Chemistry

6. *Biodegradable Plastic Synthesis Using Metal-Free Catalysis*

Presenter(s): Roxanne Naumann

Advisor(s): Dr. Allegra Liberman-Martin

An alternative monomer for standard plastic polymer formation is proposed and explored through the aid of metal-free hydrogen bonding catalysts such as silanols and boronic acids. Additionally, a nucleophilic carbodiphosphorane catalyst is pursued with the end goal of producing a viable polymer for biodegradable plastic formation.

7. *How to Lessen the Effects of the Opioid Crisis Abstract*

Presenter(s): Nayiri Alexander, Makena Augenstein, Angelina Sorensen, Ellen Chun, Chella Garcia, Anna Green

Advisor(s): Dr. Carter Berry

One of the most common opioids prescribed by doctors to patients experiencing significant levels of pain is morphine, yet it comes with high addiction rates due to its addictive and euphoric properties. Pain relief occurs by direct binding to the opioid receptor while the addictive properties are primarily linked to additional release of dopamine. We aim to chemically alter the structure of morphine to change the way it binds to an opioid receptor to relieve pain without causing the addictive high. We hypothesize two methods to decrease the addictiveness of morphine: decreasing the pKa of morphine via fluorination or hydrogenation to break a pi bond. Fluorination decreases the pKa; morphine will not bind to an opioid receptor unless in an acidic environment. Injured and inflamed tissue are acidic while uninjured tissue is neutral. Fluorinating morphine increases binding affinity to opioid receptors in injured tissue while decreasing affinity in uninjured areas. If the morphine does not bind to receptors in the brain, the patient will not experience the addictive high. Hydrogenation will break the double bond on the bottom ring of the morphine molecule. This increases flexibility and makes morphine less likely to be in the exact conformation necessary to bind to the receptor. We will use gas chromatography, mass spectroscopy and recrystallization to isolate, identify and purify the synthesized molecules. Once we have each molecule, Nuclear Magnetic Resonance (NMR) will allow us to measure binding affinity to the receptor, pKa and provide structural data. Based on the results of this experiment, we hope to modify a morphine molecule that is less addictive through reduced dopamine release but is still capable of pain relief through binding to the receptor.

8. Computational Investigation Into the Factors Precluding Catalytic Turnover in $\text{Ca}(\text{NTf}_2)_2$ Mediated Sulfur(VI) Fluoride Activation

Presenter(s): Brian Han, Matthew Nwerem

Advisor(s): Dr. Maduka Ogba

Nitrogen-containing sulfur(VI) compounds are commonly used in the pharmaceutical industry to combat bacterial infections. Synthesis of these compounds is typically facilitated by nucleophilic attack of a sulfur(VI) chloride pre-cursor by an amine nucleophile. However, the relative instability of sulfur(VI) chlorides makes selective synthesis challenging in the presence of competing nucleophiles, and hence precludes late-stage functionalization of complex natural products. Sulfur(VI) fluorides have become an attractive alternative to the chloride analogs given the increased selectivity that can be achieved with these precursors. Our collaborators succeeded in synthesizing nitrogen-containing sulfur(VI) compounds under mild condition using a myriad of sulfur(VI) fluorides in the presence of amine nucleophiles and mediated by calcium triflimide – $\text{Ca}(\text{NTf}_2)_2$. This contrasts conventional methods where strong base/nucleophiles with elongated heating process were required. However, the mechanism for sulfur(VI)-fluoride activation using $\text{Ca}(\text{NTf}_2)_2$ is not known, and in most cases, stoichiometric calcium triflimide is required for the transformation. In my research project, we used quantum mechanical calculations to shed light on the reaction mechanism for $\text{Ca}(\text{NTf}_2)_2$ mediated sulfonyl-fluoride activation and specifically, to elucidate the factors preventing catalytic turnover of $\text{Ca}(\text{NTf}_2)_2$. In this poster, we present (i) the computed resting state and the pre-activation Ca^{2+} complexes prior to sulfur(VI) fluoride activation; (ii) the product Ca^{2+} complex and corresponding ligand exchange equilibria required to regenerate the pre-activation Ca^{2+} complex; (iii) our current hypothesis for the origins of inhibition in this reaction.

Communication Studies

9. Robotic Bar Tender

Presenter(s): Brian Katz

Advisor(s): Dr. Austin Lee

How can current bars take advantage of current technology to minimize cost of labor while maximizing customer interests and profits? The robot bartender project intends to revolutionize and reshape customers restaurant and bar experience while reducing the heavy workload of current drink service employees. We hypothesize the ubiquitous institution of a robotic bar assistant will improve three key issues with the current market; long wait times, profit loss from drink ingredient inconsistency, and customer-employee interactions. By reevaluating and redesigning the role of the human workforce, the robot bartender, will help produce the highest standard of hospitality. The implementation of robotic bartender will revolutionize the drink ordering and creation process. The consistency in ingredient use will improve customers trust and minimize product loss from over pouring. Lastly, the implementation of a Robot Bartender will allow the employee to focus more on customer experience, satisfaction and less on tedious bartending tasks. Some of these tedious tasks may include: sweeping and mopping, wiping down the bar/counter tops, washing and putting the glasses in the dishwasher, and pouring drinks for the customers. Each of these tasks are simple tasks that can be completed by a robot bartender. We plan to evaluate current bar procedures through qualitative and quantitative data. We may incorporate a small survey for individuals ages 21 plus. The survey will help us determine whether or not individuals who go to a bar have a preference on being served by a robot bartender or a human bartender.

10. *Self-Transcendent TV Show's Effects on Interconnectedness and Altruism*

Presenter(s): Emma Psomas, Lauren Thomason, Brooklyn O'Neill

Advisor(s): Dr. Sophie Janicke-Bowles

Entertainment media has been conceptualized to be hedonically pleasing or eudaimonically meaningful. Recent theoretical research has differentiated between two types of eudaimonic media: self-focused meaningful media and self-transcendent media (Oliver et al., 2018). The latter oftentimes includes stories that address difficult aspects of the human condition such as life struggles, death and suffering (Oliver & Bartsch, 2011; Oliver & Raney, 2011), which have been associated with feeling mixed affect, reflective thinking and satisfaction of intrinsic needs. In turn, self-transcendent media involves stories that portray characters being grateful, kind or modeling the appreciation of beauty and moral excellence, which has been associated with interconnectedness and altruism. Oliver et al (2018) argues that the former narratives are more self-focused, whereas the later are more other-oriented. To date, no research has explored this theoretical differentiation empirically. Therefore, the current study explored if eudaimonic media indeed can be conceptualized on a continuum of self-vs.other focus and differs on specific outcome variables, which themselves are either more self-focused (i.e., reflective thinking, satisfying intrinsic needs) or other-focused (interconnectedness, altruism). An experiment was conducted with over 120 participants who watched one out of two previously identified high self-transcendent (Fixer upper, Chicago Fire) or low self-transcendent TV shows (NCIS, One Tree Hill). Differences between the high and low self-transcendent TV groups will be explored in terms of their tendency to elicit feelings of self-focus or other-focus, self-transcendent emotions and experiences, reflectiveness, need satisfaction, altruism and connectedness. Findings will inform the theoretical conceptualization of eudaimonic media within the scholarship of positive media psychology, content creators and media professionals in their ability to manipulate audience experiences, and audiences by better understanding the effects of mainstream media can have on the consumers.

Computational Science

11. *Twitter Translate: A Cross-Lingual Sentiment Analysis Tool and Twitter Client*

Presenter(s): Dan Haub, Vincent Jodjana, Peter Chen

Advisor(s): Dr. Michael Fahy

Without a doubt, Twitter is a global phenomenon with nearly 80% of all users being international. As a result, Twitter users speak and tweet in a wide variety of languages. These languages include English, Chinese, Spanish, Japanese, and many others. Our project, Twitter Translate, will allow users to cross language boundaries by automatically translating all tweets into the user's desired language while providing information about the original language. In addition, Twitter Translate will also perform sentiment analysis on search terms per language to compare preferences among speakers of various languages for a given idea. Then, for each search term, twitter translate will examine the relative frequency of tweets measured as a proportion of twitter users that speak a given language to the number of tweets that language group has produced over some length of time. This functionality will give the user insight into what speakers of each language on Twitter tweet about and how they feel about it compared to speakers of other languages. Ultimately, this functionality will be the biggest part of our research as it permits the development of statistics that compare trends and sentiment of various languages for many search terms. We expect Twitter Translate to be a user-friendly Twitter client that intuitively allows users to perform the actions described above.

Computer Science

12. FoodApp

Presenter(s): David Ulriksen, Gregory Albarian, Alexander Vajiac

Advisor(s): Dr. Michael Fahy

When choosing a place to eat, many search the restaurant and base their decisions on the rating and reviews it receives. The purpose of the project is to find the closest restaurants to the user, and pick which would be the best deal. In addition, there is a feature in which to find the closest source of free food. Once the location of the user is found, restaurants within a certain radius are analyzed for their star rating, review number, and price. Those that are closed and/or not considered cheap are discarded. From the remaining, the review rating is multiplied against the number of reviews, then everything divided by the price rating multiplied against. The top three options will be returned as the results, with their store hours and distance shown. User chooses if results are sorted based on distance or score. Finding restaurants should be easy. Properly finding the number of reviews might be difficult, due to limitations in the API. We might run into problems with finding free food, due to not knowing what to expect with the app.

13. Urban Enigma: A Step Towards Data Protection for Individuals

Presenter(s): Gregory Tyler, Megan Walley, Cam Wang, Jacob Baker

Advisor(s): Dr. Michael Fahy

Urban Enigma is a solution to a new problem that has arisen with the growth of the internet: personal security and control of private information. As internet traffic gets easier to read and be picked up by different organizations from around the globe, concern for privacy rises. Internet users have become a source of information - everything from what websites people use to what items they shop for to who they send emails to and what those emails contain. Software out there exists to protect you from some of this, but those companies still save user data and there exists the potential to sell it, if they aren't doing so already. The goal of Urban Enigma is to help internet users protect their data completely on a network and application level. Designed to be click-to-install, Urban Enigma will be available for anyone that wants to guard the data leaving their computer. Urban Enigma consists of a docker container running OpenVPN and an Amazon AWS server running openVPN, to help encrypt and secure the user's personal information, like usernames and passwords and sites visited. With the addition of a bind9 DNS server to AWS, Urban Enigma will also protect the user at a metadata level, helping to hide websites and searches. The last major component of Urban Enigma is a personal email server to shield email contents. Together, these components help protect the user from unknowingly being taken advantage of and becoming a product for others in the future.

14. Restaurant Vibes Program

Presenter(s): Haley Anderson, Aimee Bowen, Alejandro Ferrer-Peasley, Elise May, Alexis Veliz

Advisor(s): Dr. Michael Fahy

The "Restaurant Vibes" project collects information on a specific restaurant of the user's choice from Yelp and Instagram. The program makes it more convenient for users to choose a restaurant without the hassle of researching different restaurants on different sites, instead they are able to search a restaurant and

instantly have images from Instagram and reviews from Yelp, indicating the quality and mood of each restaurant search. We aim to utilize the concept of communication between processes, in order to access Instagram and Yelp's API's to obtain their reviews and images based on the search terms. Web API's of social media networks have been proven to be a relevant and increasingly important form of data access. They allow for easy extension of already existing applications with valuable new functions that help solve a specific problem that consumers face. After authorization from Instagram and Yelp, we will prompt for user input, collect the results from both networks using TCP, and then display the results to the user. The expected output will be a list of the top reviews for the restaurant, as well as images that are associated with the restaurant displayed on a GUI.

15. *Experience Capture: A Proof of Concept Implementation of a Non-Event Centered Data Capture Framework*

Presenter(s): Jonathan Burns

Advisor(s): Dr. Michael Fahy, Dr. LouAnne Boyd

Process data capture is used to obtain information about a running computer process for analytical purposes. Various frameworks exist for meeting research needs in digital game analytics, including serious game analytics. Common frameworks use the abstraction of an event-based model to handle data capture and analysis. An event-based model identifies events happening instantaneously, and those over an interval. After the events are sent to a database, the events and relations between events can be analyzed to gain insight. This data capture process is being developed and tested on simple client games, such as a reaction time game, and later will be applied to research involving neurodiverse populations and serious gaming. Existing research behind process data capture is brief, using research studies from the early 1990's. This project explores the possibilities of a framework that could capture and handle large amounts of data in a general setting. The majority of the research encompassed by this project is finding a way to build a better tool for high volume data captures. The expected results of this project is being able to provide a framework through which the collection of data would be more consistent, and easier to define and implement. Rather than relying on events to provide data, data would be generated from each frame, providing both more information, and more detailed information.

16. *Utilizing Network Functionality to Design Multiplayer Games*

Presenter(s): Nate Everett, Ayra Tusneem, Samantha Webster, Will Crewe, Nicole Chu

Advisor(s): Dr. Michael Fahy

Multiplayer games are becoming a powerful tool with purposes in both education and entertainment. Games like Kahoot have revolutionized the approach that educators can taking in providing different media platforms for students to learn material. As technology becomes a larger source of these services, many students feel more comfortable using online collaboration methods that are fun and even competitive. This project seeks to implement network functionality including socket connections, TCP client-server communication, Internet Protocol addressing, and HTTP at the application layer to allow Chapman students to play our game, Keck AtTech which takes a computer science play on the classic game Pac Man. Players will either be a student (Pac Man) or a professor from the department (a Ghost). The player's objective is to collect all of the $O(n)$ tokens (pellets) meanwhile maneuvering around the Keck 156 classroom. The professor's objective is to chase the students while yelling different important

concepts of computer science at them. If a student is caught, they must answer a question respective to the professor who caught them, for example Dr. German may prompt the student to recite the formal definition of Big-O notation. The purpose of this game is to provide an educational but fun game for computer science students to play, while also helping our own team understand and apply concepts of multi-layer networks.

Economics

17. Effects of PMI and GDP Changes on Stock Market Prices

Presenter(s): Charley Renna

Advisor(s): Dr. Oliver Lopez

In an effort to learn more about the impact of certain economic variables on the stock market, I chose to analyze the impact that the Purchasing Managers' Index and U.S. Gross Domestic Product have on three major stock indices: S&P 500, Dow Jones Industrial Average, and Nasdaq 100. The PMI is an index of the direction of economic trends in the manufacturing and services sector. Released on the first business day of every month, it consists of a diffusion index that summarizes whether market conditions are expanding, staying the same, or contracting. An index level greater than 50 percent suggests that the manufacturing sector generally expanded relative to the previous month, and an index level less than 50 indicates contraction. The index is weighted by each industry's contribution to U.S. GDP. The purpose of the PMI is to provide information about current and future business conditions to company decision-makers, analysts, and investors. For my project, I will be looking at the monthly change in PMI relative to 50 compared to the percent change in closing prices for each stock index. Using this information, I will build a regression model to investigate their relationship. I will also be examining the relationship between U.S. real gross domestic product and stock closing prices. Since real GDP is a good indicator of economic growth, I would expect to see a significant positive result when GDP is regressed against each index. My hypothesis is that there will be a direct linear association between change in PMI and percent change in closing prices. Rstudio will be utilized to graph and discover the linear regression equations. The goal of this research is to determine if the PMI can offer real-time intelligence that indicates faster or slower growth before government data does, allowing analysts and investors to make more informed, timely decisions about different stocks and to predict future changes in prices.

English

18. Expressivist Composition vs. Academic Composition

Presenter(s): Karina Trejo Melendez

Advisor(s): Dr. Ian Barnard

The field of Rhetoric and Composition is constantly challenging institutionalized forms of teaching. The purpose of this IRB approved study is to analyze how students feel about freewriting prompts and restrictive academic writing prompts. It is probable that the answer seems simple and that students would choose expressivist writing over academic writing because it is perceived as an easier form of writing. However, students are accustomed to traditional thinking and writing forms and have a harder

time composing without any limitations. The study population and methodology are as follows: English 103 first year students at Chapman University were given both expressivist and academic writing prompts. They then completed two anonymous surveys, one in the beginning of the semester and one towards the end. My research questions were: Do students feel more confident and comfortable writing expressively or academically and which form do they think teaches them the most? Are these feelings influenced by their previous writing experience? In Rhetoric and Composition, expressivist pedagogy puts the student at the center of teaching. It encourages students to explore their creativity, imagination, and self-reflection. This teaching pedagogy is very successful at helping students develop critical thinking skills and cognitive and moral development. Expressivist pedagogy is freeing and can give students more confidence in their composition, but I hypothesized that students would still lean on what they have been taught and the results were conclusive. The majority of students felt more confident and comfortable writing academically but the subset that did not do as well in English dDr. Uring high school felt more confident and comfortable with expressivist composition. English and Rhetoric educators can use the study results to inform their curriculum, improve their teaching practices and student writing outcomes.

19. Student Disposition Toward Discussing Race in the Classroom

Presenter(s): Natalie Salagean

Advisor(s): Dr. Ian Barnard

Discussions of race in the classroom have always been fraught. How do we broach such sensitive topics? How do we create an environment in which students feel both safe and comfortable discussing race on both a personal level and at a systemic scale? How does a student's race factor into the conversation? And how does the instructor's race factor in as well, or in conjunction with a student's racial identity? As a nonwhite Latinx educator, I designed a research study which examined the impact my own race and ethnicity held in the classroom. In this study, students were given surveys which gauged their interest and comfort level in discussing race and their own racial identities. Reflections based on readings in the class, which tackle race dynamics within the Black Lives Matter movement and border crossings, were utilized to examine students engagement with discussing race and their willingness to engage with their own racial identities as an audience. This study focused on three case studies of students of different racial backgrounds a self-identified white student, a self-identified nonwhite and nonLatinx student, and a self-identified nonwhite Latinx student. This study examined the impact a student's race and ethnicity had on their level of comfort and engagement with discussing race and ethnicity in the classroom, and furthermore, how having a nonwhite Latinx professor affected these students engagements specifically.

20. Dear Diary, It's Okay if No One Reads This

Presenter(s): Giovanna Zavala

Advisor(s): Dr. Jan Osborn, Dr. Lynda Hall

This project is an examination of diaries and the role they occupy in a larger discussion of marginalized expression (mainly female expression), both in literary and rhetorical studies. Beginning with my sister's diary and moving on to a few more well-known names (Plath and Woolf among them), I first establish the complication of writing a paper that is both a scholarly work and a diary itself. Playing with this form, I pose a few questions: What is a diary (as defined by its keeper and by the dominant culture we participate in)? and, What can be gleaned from a reclamation of the word and the form for both literary and rhetorical studies? Using feminist, structuralist, and reader-response critical theory to answer these questions, I aim

to broaden the definition for what a diary is, to legitimize the form, and in doing so, to establish the literary and otherwise academic community as one that everyone has the ability—and the right—to participate in.

21. “Carnivore Incarnate:” Lycanthropy & The Queer Other in Contemporary Fiction

Presenter(s): Hollis Rigney

Advisor(s): Dr. Justine Van Meter, Dr. Lynda Hall

As far as monsters go, werewolves are not what they used to be. No longer a terrifying, violent, formless beast wandering unexplored forests, the werewolf has evolved into an attractive man with anger issues and a tendency to transform into a wolf. From the werewolves of Ancient Greece and medieval France to the werewolves of contemporary literary texts and the werewolves of television and films (e.g. Twilight, Harry Potter, True Blood, Teen Wolf), lycanthropy has drastically changed. Werewolves, once framed by senseless violence and inhumanity, are now central figures in our paranormal literature and film. Even more significantly, they are shown to be capable of self-analysis and are allowed to assert or reject their identities as hybrid, human/non-human figures. As with any other mythological monster, the werewolf is representative of cultural fears of Otherness, specifically the non-human/animal Other and self-loss through physical transformation. In the contemporary world, the werewolf has become associated with cultural fears of queerness, non-normative sexuality, and the virality of Otherness. My research investigates literary representations of the werewolf, both historic and contemporary, through the use of queer theory and postcolonial analysis. Ultimately, I aim to establish the importance of research into other sociocultural images that surface in our contemporary literature, as well as the importance of research into contemporary work overall, especially popular young adult fiction and other genres which are often regarded as non-academic literature. Additionally, I aim to reveal the social consequences of the Othering of queer identities and experiences through the cultural use of Othered queer figures such as the werewolf. The primary literary texts that I will address in this research include: “Bisclavret” by Marie de France (c. 1160-1215), selections from *The Bloody Chamber* by Angela Carter (1979), *Harry Potter and the Prisoner of Azkaban* by J.K. Rowling (1999), and *Twilight* by Stephenie Meyer (2005).

22. Multicultural Literature: A Critical Pedagogy Approach to Toni Morrison's 'The Bluest Eye'

Presenter(s): Alana Caires

Advisor(s): Dr. Lynda Hall

The classrooms of the 21st century look very different from those that existed during the 20th century, yet much of the core curricula have undergone little change. Specifically, within the discipline of high school English Literature/Language Arts, teachers continue to use texts that are labeled as “classics” or considered a part of the “Great Books” that are said to express the foundations of Western culture. While these texts present literary merit, they often cater to the white male perspective while neglecting the voices and stories of many other groups that are just as important. Instead of perpetuating an incomplete story, educators should be using literature as a means for students to reflect on and develop their identities and to have a more accurate and critical view of the world around them. Students in high school are in a crucial period of development; they need literature that validates their own experiences and helps them to be more conscious of the structures of power, privilege, and oppression in place so they can resist and dismantle them. In order to do this, teachers must use multicultural literature to better capture the

truth of history and our current reality and reflect the different lives of students. I will use Toni Morrison's *The Bluest Eye* as the primary example of texts of high literary and cultural value that portray marginalized voices and create spaces for conversations about social issues and the self. It is through novels like this that students have the opportunity to see themselves represented, develop empathy for people with identities different from their own, and learn to think critically about the values and problems that permeate our society.

23. *The Conclusion in Which "Nothingness" is Concluded*

Presenter(s): Marissa Rimes

Advisor(s): Dr. Myron Yeager, Dr. Lynda Hall

Samuel Johnson's "The History of Rasselas, Prince of Abyssinia" is ironically most often classified as an "oriental philosophic tale," but is rarely analyzed from the point of view of oriental philosophy. Although Buddhism's ambiguities, inwardness, and nothingness, provoke anxiety in Western critique, Johnson's "The History of Rasselas, Prince of Abyssinia" does something unique from eighteenth-century British thought in that it disavows this Buddaphobia by actively employing a similar line of thought. Through the lens of a Buddhist framework many of the text's renownedly gloomy implications, in regard to its circular structure and inconclusiveness, are freed from the great sludge of nihilism that has built up on its didactic purpose; consequently, a Buddhist perspective begins to reveal how contrary to enlightenment ideals, a lack of absolute truth allows for greater meaning. Timothy Morton's essay "Buddaphobia" explores The Middle Way Buddhist philosophy by Nāgārjuna and its concept of "meontic nothingness" which I will apply to "Rasselas" for the purposes of bridging its philosophical gaps between Western and Eastern philosophy as well as understanding the circular tendencies of the text. Both Buddhism and "Rasselas" share the question of desire and the suffering that results from its wheel of temporary pleasures. I will be investigating the instances in which the philosophy Johnson has imbued the text with and Buddhism can inform each other on the matter and in which areas they conflict. By applying an eastern stream of thought to *Rasselas* I do not mean to propose Buddhism as the solution to happiness. However, I do mean to inspect how a Western conception of happiness is constructed and consequently how an Eastern perspective of it might add to its reality.

24. *Lesbians on the Dance Floor: Social Dance in Queer Fiction*

Presenter(s): Morgan Goodfellow

Advisor(s): Dr. Myron Yeager, Dr. Lynda Hall

An analysis of representations of western social dance in lesbian fiction with the intention of demonstrating how social dance allows the female individual to reconcile their lesbian identity within a larger social system. The experience of lesbian characters in foundational works from the queer literary canon, Radclyffe Hall's *The Well of Loneliness* and Ibis Gómez-Vega's *Send My Roots Rain*, fosters an understanding of the relationship between art, identity, and queer social relationships. Theorist Helen Thomas's work on the body, dance, and cultural theory, as well as Foucault's theories on surveillance, establish an understanding of the individual body as an extension or reflection of society. This critical exploration establishes a deeper understanding of how lesbian heroines navigate sexuality, public identity, and self-regulation within the heteronormative nature of western social dance. Furthermore,

literary examples of lesbian experience in regards to the social dance environment cultivate a compelling argument for the importance of art as a critical aspect of the formation of personal and social identity.

Environmental Science and Policy

25. Influence of Simulated Rain Events and Diurnal Fluctuations on the Bioaccessibility of Arsenic

Presenter(s): Michaela Montgomery

Advisor(s): Dr. Christopher Kim

Many abandoned mines throughout California have residual mine wastes that are enriched in trace metal(oids) like arsenic. The arsenic-bearing particles are subject to weathering that allows for the transport of the contaminated particles into residential areas. The Red Hill Mercury Mine in Tustin, CA has numerous residences surrounding the perimeter of the mine site. For this site in particular, the varying levels of arsenic exposure have not been extensively studied in terms of investigating the changes in arsenic bioaccessibility based on rain exposure and diurnal fluctuations. A sample was collected from transported Red Hill mine sediments (271 ppm initial As concentration) and sieved to the ingestible size fraction ($\geq 250\mu\text{m}$). The sample was rinsed and exposed to varying wetting/drying conditions in an environmental chamber: (1) changing humidity (41-95%) and keeping temperature constant (25°C), (2) changing temperature (21.1-41.1°C) and keeping humidity constant (45%), and (3) fluctuating both temperature and humidity (16.1-27.8°C, 36-95%). The temperature and humidity ranges used for the third experiment are based on weather conditions collected from the Tustin area in October 2017. These experiments demonstrated the effect of humidity and temperature exclusively on arsenic bioaccessibility as well as their interaction. Simulated gastric fluid extractions showed that each experiment generated similar results in which the bioaccessibility declined after rinsing the particles (rain exposure) from an initial gastric As bioaccessibility of 10.6% and gradually began to increase in bioaccessibility through time (0-12 months). These results suggest that the soluble forms of arsenic are effectively rinsed from the particles during rain exposure and that the interaction of temperature and humidity may be an underlying mechanism that leads to a secondary formation of arsenic in the particles through time.

FFC

26. The Great Ancient Melting Pot

Presenter(s): Alexander Moran

Advisor(s): Dr. Eileen Jankowski

Perhaps one of the most well-known facets of ancient mythos is the menagerie of fantastical possibilities brought to the surface by the Ancient Greeks and their seemingly boundless imagination. It's no secret, however, that their culture was also very much so driven by conquest, with the help of ambitious figureheads such as Alexander the Great and Julius Caesar. With that in mind, I cannot help but wonder... did the intermingling between cultures, a given with outwards expansion, influence their own personal beliefs and interpretations? If so, how? Furthermore, how does this reflect on similar developments worldwide? In my project, I shall delve into the context behind the beliefs of Ancient Greece, and determine what was truly original and what is simply an amalgamation of diverse cultural beliefs. Utilizing

scholarly essays and historical literature to my benefit, forming connections and making educated conclusions, I hope to uncover the true nature of Ancient Greek mythology. Specifically, I hope to uncover a grander scheme of social influence through the direct influence that near-east cultures have had on Greek monsters, an incredibly prominent and well-known facet of their beliefs. Surely, it's not just a coincidence that so many ancient cultures based their fantastical creatures on anthropomorphism and animal-like qualities? Using monsters as a lens into the darkness, I believe that I will show the true colors of Ancient Greece's culture, shining light upon cultural melting pot of many different beliefs and perspectives.

27. *The Cult of Zalmoxis: The Dacian Diety That Shocked Ancient Greek Scholars*

Presenter(s): Alexandra Patrascu

Advisor(s): Dr. Eileen Jankowski

Zalmoxis, the supreme god of Dacian Mythology, is a key figure to the development of Romania from ancient to contemporary times. Seen as an all-powerful, celestial god, Zalmoxis is volatile and strong-minded, as unpredictable as the mountainous terrain of Romania where the Dacians lived. The Supreme God, Zalmoxis, developed a cult gathering around itself in providing immortality to its followers as well as imparting an enlightened knowledge of the western world of Ancient Greece. As the beginning of monotheistic religion in Ancient Europe, Zalmoxis exists at the intersection of greek mythology and behaves as a segway towards a more receptive state of Christianity in Romania, prior to the annexation of the Dacian territory by the Roman Empire. The only existing sources of Zalmoxis come from Ancient Greek Scholars—Herodotus and Plato—providing a Greek interpretation of Zalmoxis in an attempt to understand the nature of the Dacian religion that had confused the Ancient Greeks. Herodotus dubs Zalmoxis as Pythagoras' slave in order to establish greek superiority over the barbaric Dacians, since Zalmoxis brought enlightenment in multiple facets to the Dacians. The knowledge of Zalmoxis vanished upon the romanization of the Dacians, due to being fully absorbed by the introduction of Christianity. Despite being a part of an ancient society, Zalmoxis is revoked once more in the contemporary Protochronism movement, in which a few elite Romanian figures believe that returning to the glorious and superior times of Dacia will bring Romanian back as a powerful nation. Understanding the comparisons to Greek Mythology and Christianity seen in the figure of Zalmoxis provides insight into how the Dacian people existed in the ancient world and how that has influenced the religious aspects of the nation of Romania to this day.

28. *Maintaining Self and Society: Tricksters' Reformatory Roles in North American Mythology*

Presenter(s): Aubrey Schwieger

Advisor(s): Dr. Eileen Jankowski

Tricksters are the epitome of the inferior traits of human character. Never leaving the animal state, their psyche is often fixed as an erotic, vain, primitive, and deceitful prankster. Heyoka, the Sacred Clown of the Cheyenne, lives in total chaos: he walks, rides horseback, and speaks backward, he partakes in scatological behaviors, and he even simulates sexual acts in public. The lawlessness of Heyoka's existence serves as a reminder to the tribe of what cultured society should not be: a society without personal responsibility. In various interpretations of the Native American storyline "The Bungling Host", the trickster receives food from the hands of his animal host and proceeds to unsuccessfully gather food in the same manner as they do. His host scolds him and denotes the trickster a fool for reaching beyond himself and his own abilities. To "Know Thyself" was most likely a cardinal principle with ancient hunters:

without first using one's mind, one's actions are just like those of animals. To be human is to think before acting, to practice restraint, and to exist peacefully within a community. Tricksters offer a perfectly grotesque representation of the chaos that stems from a lack of these human qualities and reinforces the need for personal responsibility, rules, and order. I wish to, in my research, further explore the emphasis tricksters place on individual reformation and the well-being of society in mythologies across North America.

29. *Elves in Norse Legend: Traditional Depictions and Tolkien's Reinvention*

Presenter(s): Benjamin Sanford

Advisor(s): Dr. Eileen Jankowski

The representation of elves in literature, film, and general mythology can be traced back to a variety of cultural interpretations. With that being said, the majority of knowledge on elves is derived from Norse legend. Their mysterious nature, indifference to humans, and incomprehensible magical ability stems from Germanic and Scandinavian folklore. Much of what persists from old Norse myth can be accredited to the writings of Snorri Sturluson, a thirteenth century Icelandic historian. Prose Edda, his collection of Norse mythology describes the region's earliest elves. Centuries later, elven adaptations exist in nearly every form of modern media. Among the most notable are Andrzej Sapkowski's Witcher series or Tolkien's Middle Earth, both of which draw heavily from Norse legend. The latter, in combination with Peter Jackson's film series, essentially recreated the elf. After examining the most well known depictions, it is possible to recognize the specific qualities and themes which comprise memorable stories about elves.

30. *Valtýr, the Slain God: An Analysis of the Divinity of Mortality*

Presenter(s): Brian Kirsch

Advisor(s): Dr. Eileen Jankowski

Few things can inspire more awe in the devout than the chief god they worship, such as Zeus or Odin, the mighty patriarchs of their pantheons. Deities such as them are often respected on account of their wisdom, feared on account of their power, and revered on account of their authority. However, in polytheistic cultures, gods are rarely deemed perfect, exhibiting a mixture of virtue and vice that is distinctly human in nature. Indeed, Odin and Zeus share many of these same characteristics. Both command great power and yet practice deception. Both are noble sovereigns and yet commit dishonorable acts. Both form humanity and yet both are often destructive towards their creations. Nonetheless, there is an incredibly important distinction between the two gods. Zeus is considered eternal and nigh-omnipotent, as many gods are. However, for Odin, these human characteristics are far more prevalent as he exhibits the ultimate trait of humankind: mortality. Despite his godhood and position, Odin is severely limited by his ability to die and his explicit destiny to be killed by the monstrous wolf Fenrir during Ragnarok, the Twilight of the Gods. However, also worshipped as Valtýr, the Slain God, this is not Odin's only association with death. In order to gain knowledge of runes, Odin wounded himself with his spear and hung himself from the World Tree, Yggdrasil, sacrificing himself to himself. In doing so, he proves the advantage gained through his mortality. Odin is also distinguished by his ability to grow, change, and improve himself. He is definitively not immortal and, therefore, not timeless. Unlike Zeus, Odin can develop personally due to his ability to age. In comparing Zeus and Odin, it becomes clear that Zeus represents what is beyond humanity, but Odin symbolizes the essence of humanity.

31. *The Choosers of The Fallen: A Comparison Between the Valkyries and Athena*

Presenter(s): Dexter Corley

Advisor(s): Dr. Eileen Jankowski

In Norse mythology, Valkyries are a divine group of women warriors, armed with shields and spears, who would fly over battles on their flying horses. They are the ones that choose who lives and who dies in battle. To expand, during a mortal battle, the Valkyries fly far above and mark specific warriors who they deem to be the bravest and most courageous. This mark will seal the fate of the person who it is given to leading to their death. Once the battle is over, the Valkyries will guide the fallen to two people in which the Valkyrie serve. Freya, the goddess of love, sorcery, war, and death, is the first one the Valkyries bring the fallen too. She lives in a field called Fólkvangr and chooses from the fallen warriors who she thinks is most deserving of a good afterlife. The remaining get taken to Odin, who lives in and rules a place in Asgard called Valhalla. He is a god of war as well as a god of poetry and is seen as a giver of wisdom. Out of the warriors left to choose from, Odin will pick those he deems as the bravest and allow them to live beside him in Valhalla. Though there are vast differences between Norse and Greek mythology, Athena has many resemblances to Valkyries. Though the Valkyries would choose who ultimately dies in battle, they were seen as good in the eyes of mortals as they would send them to a better place and reward them for being brave. Similarly, Athena, the goddess of war and wisdom, would protect the bravest heroes in battle and adventure. Her most famous account of guidance was through Odysseus's journey home, referenced in the odyssey. Like the Valkyrie, she is depicted in armor with a spear and she also watches over battles with the intent of helping the brave. Through the comparison between the Greek Goddess Athena, and Norse divinities Valkyries, the similarities between the positive effects they have of boosting the warriors' bravery in battle can be shown.

32. *Mythological Messengers: A Comparison of Abrahamic Angels and Greek Mythological Messengers*

Presenter(s): Joy Witty

Advisor(s): Dr. Eileen Jankowski

In the Abrahamic Religions, those being Islam, Judaism, and Christianity, angels are benevolent creatures in the shape of humans born to act as a messenger for their god and protect the people of Earth. They are described as virtuous, pure, and carry out their duties with grace. Hermes, in Greek mythology, is the messenger of the Gods entrusted with passing messages between Earth and Olympus; he also guided the dead to their new life in the underworld. This research project, in addition to comparing Abrahamic Angels to the Greek God, Hermes, will discover the wonders of Angels such as their origin, appearance, and their significance to Abrahamic culture. It is argued that Angels have no relation to the Abrahamic God, some believe that they were truly extraterrestrial beings who came here to protect the people of Earth from the "fallen angels." Others believe that Angels did not actually possess wings; painting wings on a glowing figure was simply man's way of showing the creature had the ability of flight. It is taught in Abrahamic religions, that each follower of God has a guardian angel who accompanies them wherever they may go. Muslims believe that they have two angels guarding them, one for each shoulder. And just as Hermes guides people into the Underworld, angels transition peoples' souls from Earth to Heaven as they die. By studying the nature, representation, and stories of messengers in these two diverse cultures answers to what is the importance of a messenger, and what impact have they made on society today can be found.

33. *Mermaids: Making Waves in Greek Mythology to the Shores of Today*

Presenter(s): Magdelyn O'Callaghan

Advisor(s): Dr. Eileen Jankowski

Mermaids are mythological water creatures that live under the sea and have been dated all the way back to 1000 BC. They have the upper body of a human but a lower body of a fish. In Greek mythology, mermaids were often associated with death and misfortune. If angered mermaids could cause events such as shipwrecks, floods, storms, and drownings. Mermaids may not be pleasant to be around, but they are undoubtedly the most beautiful sea specimen. The seduction of men sailors is their most famous quality. Mermaids love music and to sing, this is how they lure sailors to their death. By enticing men with their beauty and delight songs, mermaids are able to distract the sailors from their ship's course leading them straight to a watery death. Not all Greek myths portray mermaids as being beautiful though. Sirens are a type of mermaid which are described to have a body of a bird and a woman's face. In today's time, the most well-known version of a mermaid comes from Disney's *The Little Mermaid*. In this film mermaids still live up to their dazzling beauty but they are shown as kind, elegant and even curious towards the human world rather than wanting to sink passing ships. The modern version of mermaids is the opposite of how they were first told to be. In this project mermaids from Greek mythology will be evaluated and related to modern-day depictions of the sea creatures.

34. *The Representation of Thor in Nordic Mythology and the Marvel Universe*

Presenter(s): Quinn Cho

Advisor(s): Dr. Eileen Jankowski

The Norse god Thor holds a great role of importance in traditional Norse mythology. In the 21st century, his representation in the Marvel Universe stems from the interpretation of his character in Scandinavian folklore, but his figure holds a different role in today's society. To be able to fully comprehend the significance and impact of Thor in Norse mythology and in today's world, scholarly articles, documentaries, readings, and films will have to be closely examined. Figures surrounding Thor such as his father Odin, the Allfather of the pantheon Aesir, and his homeworld Asgard must also be acknowledged and dissected to understand the full context. The book *Norse Mythology* written by well-known author Neil Gaiman contains many stories involving Thor, such as the theft of his hammer. Thor's relevance and portrayal in the modern-day world is much accredited to the Russo brothers, who directed and oversaw many of the Marvel movies, most notably *Avengers: Infinity War* and *Avengers: Endgame*. Marvel as a company managed to create their own universe and culture that the majority of the world is aware of, with an audience spanning all ages anywhere from children to adults. Through comparing and contrasting Thor's mythological and modern-day Marvel depiction, it is possible to recognize similar themes and characteristics that draw parallels between the two storylines that are several centuries apart.

35. *Queer Identities in Old Norse Culture*

Presenter(s): Samuel Wilson

Advisor(s): Dr. Eileen Jankowski

LGBTQ+ identities are often thought of as a modern concept, and while the specific terms that are used in the modern day have been around for a relatively short period of time, the expressions of gender and sexuality that are today considered part of the LGBTQ+ community have existed for as long as humans have. They took many forms in the cultures they were a part of, but often, these ancient nonconforming practices were altered, subdued, or altogether erased to conform to changing ideas of what was "right".

In Old Norse society, gender and sexuality were more complicated than what is usually taught. In many ways, they conformed to our modern expectations of what would have been acceptable; sexual relations between men carried with them negative consequences, and gender roles divided men and women securely into different societal positions. However, there was also a concept of a third sex that held a special societal role, and there were certain homosexual dynamics that were accepted within society, as well. These nonconformative aspects of Ancient Norse society were so prevalent that they even encompassed some of the most powerful gods of the Nordic pantheon. Odin's very existence was an expression of a third sex that was defined by both male and female characteristics. Within his own myths, Loki broke gender roles and gave birth to a child while still retaining male characteristics. These aspects of Old Norse culture were erased over time to fit better with a more "acceptable" version, but my research into the evidence we have offers insight on what these ancestors of modern LGBTQ+ identities were like.

36. *Dragons: From Deities to Evil Serpents*

Presenter(s): Sophia Lucas

Advisor(s): Dr. Eileen Jankowski

When someone thinks of a dragon, they often imagine the East Asia dragon or the European fire breathing dragons slain by heroes. While completely different creatures in their meaning and abilities, they get lumped into the same category in the English language because of their serpent-like appearances. In the 9th Century BC, the Chinese dragon made its' first written appearance in Yi Jing, an ancient Chinese divination text. The dragon was viewed as a benevolent god that brought rain for good harvests. A major distinction between Eastern and Chinese dragons was that the Chinese dragon was not in a specific myth or tale, it was a symbol and a deity to the Chinese. In this research project, the Chinese dragon will be compared to Fafnir the dragon in Norse mythology, and St. George and the Dragon. Fafnir appeared in written form in the 13th century in the Volsunga Saga. Fafnir was a man driven by greed and killed his father to gain his treasure. In doing so, Fafnir turned into a dragon that guarded his treasure only to be slain by Sigurd. In St. George and the Dragon, the dragon spewed venom and poisoned the countryside's water supply. My research aims to explore the commonalities between these creatures that do not seem to have much in common at all in order to reveal the important themes in ancient folklore.

37. *A Templar in King Arthur's Court: Connections Between Knights Templar and King Arthur and the Knights of the Round Table*

Presenter(s): Sophia Axiotis

Advisor(s): Dr. Eileen Jankowski

The legend of King Arthur represented an idealized society in Medieval Britain, later spreading its influence to France and beyond. The Anglo-Norman societies saw him as an ancestor of their own great kings after he was incorporated into *Historia Brittonum*, a reconstructed examination of English history, although he remains part of an originally Celtic myth. The myth was reawakened when a call for valor, morality, and the idea of "rightful kingship" began to rear its head as Europe prepared to launch a physical and religious assault on the Holy Lands. My research examines the relationship between the centuries old myth of King Arthur and the Knights of the Round Table with the monastic military order of the Knights Templar, also known as the Order of the Temple of Solomon. Founded in the early 12th century by Hugh de Payens with the initial intent of protecting Christian pilgrims against robbers after Europe's narrow

success of the first crusade, the Knights Templar were the first of their kind, satisfying a growing need for a qualified militia in Jerusalem. Eventually, this order gained respect and power throughout Europe before their inescapable demise. Both of the Knights Templar and King Arthur's round table became symbols of justice and chivalry, bringing the legend from Celtic myth to Christendom, reborn with Hugh de Payens band of monastic warriors. They grew to share many goals with the Knights of King Arthur, developing a pursuit in line with the search for the Holy Grail.

Health & Strategic Communication

38. Assessing Communication Strategies to Panther Athletes

Presenter(s): Preetha Raj

Advisor(s): Dr. John Miklavcic, Dr. Nasira Burkholder-Cooley

This research will assess which point in the season an athlete is most likely to change dietary behaviors and abide by general nutrition guidelines. The purpose of this project is to improve methods of communication to student-athletes in order to improve their health and athletic performance during athletic training. The beginning of this project will include research of public health communication strategies and behavioral analysis of student-athletes. A survey will be created based on research to track measurable health behavior changes and will categorize all athletes based on gender, age, sport, and position. A nutrition presentation will be made to address concerns of athletes as well as introduce basic sports nutrition principles. This presentation will be presented to individual teams in a 45-minute session. Athletes will be given this survey prior to the in-person presentation to assess their knowledge of nutrition material and their existing health topics. Survey results will be used to make a quantitative analysis of data collected. Student-athletes at Chapman University would be more likely to change dietary habits prior to their official season. Additionally, student-athletes will be further motivated to make positive dietary changes after attending an in-person presentation on nutrition topics.

Health Sciences and Kinesiology

39. Evaluation of Tumor Necrosis Factor Alpha in Sleep-Deprived Menopausal-Induced Rats and the Impact on Bone Health

Presenter(s): Nicole Ellsworth, Dwight Curry, CJ DeLeon

Advisor(s): Dr. Frank Frisch

Post-menopausal osteoporosis as a consequence of estrogen depletion is a growing concern for women in the United States. As more women take on executive positions and experience sleep deprivation, there is the potential for up regulation of pro-inflammatory cytokines, such as tumor necrosis factor alpha. It follows that the homeostatic imbalance of osteoclastic and osteoblastic activity leads to a greater risk of disease. Bisphosphonates generally, and Zolendronate specifically works by decreasing the number of osteoclasts. This current study investigated the impact of Zolendronate on the concentrations of tumor necrosis factor alpha-type (TNF α) in 32 ovariectomized Wistar rats. Throughout a five week period of sleep deprivation cycles, the concentrations of TNF α were collected and examined. It was originally hypothesized that the sleep deprived group of rats would have the highest concentration of TNF α due to

the biological stress associated with insomnia. However, TNF α levels were significantly higher in the Zolendronate group than both the control and sleep deprived groups, as well as the sleep deprived with Zolendronate groups ($p < 0.01$). We ascribe this to bisphosphonate induced transient fever seen in Zolendronate usage in previous studies (Zicuonzo, 2003). It is also suspected that the low concentrations of TNF α in the sleep deprived groups are seen due to the short time frame of this experiment along with a challenged immune system in the animals. With a longer period of sleep deprivation, it is possible that the hypothesized cytokine levels would be reached.

40. Chapman Athletes and their Relationship with Sleep

Presenter(s): Maija Girardi

Advisor(s): Dr. Oliver Lopez

Sleep is a vital component in everybody's life regardless of their school, professional, and social schedules. However, athletes tend to balance several schedules and have pressure to perform at their highest ability in all of them. I wanted to dive deeper into the relationship that athletes have with sleep while in season and out of season. Being an athlete myself I tend to hear of athletes that put off sleep in order to perform well in their athletic and academic rigor. I used Chapman athletes as my sample group because of the fact that they are DIII athletes, which I interpret as them being more focused on their academics. I draw this conclusion because DIII schools are unable to give athletic scholarships, meaning that the athletes must rely on their academic performance in order to maintain the scholarships received. This puts more pressure on academics while still having the pressure of athletics affecting their everyday lives. I split the athletes into two groups: in season and out of season. This will help me analyze sleep habits separately and draw conclusions based on the two categories. I also analyzed the amount of cardio involved in their sport, which will allow me to determine how the amount of physical involvement impacts their sleep schedules. Lastly, I asked them about their caffeine consumption. By discovering how much they rely on caffeine on a day to day basis I can predict if they are lacking sleep or not. The results of this experiment may educate Chapman athletes of the importance of sleep because they will see how little or how much sleep they and their peers are getting. I will also compare sports teams against each other to find out which sports get the most sleep and the least sleep. The teams can then take what they want out of that information. I am hoping to find a trend of success with the amount of sleep each team gets. For example, if I find that the baseball team sleeps the most on average, I can correlate that to their title of national champions. Sleep is vital and by finding sleep habits of athletes I hope that it will

Music

41. Music as Fiction: The Influence and Application of Postmodern Narrative Theory on

Composition

Presenter(s): Devon Ryle

Advisor(s): Dr. Jessica Sternfeld

There's a significant history of debate amongst composers on how large a role story should be allowed within a musical work. Throughout Western music history, one can observe the significant catalogue of materials which incorporate either adapted or originally conceived narrative elements for musical interpretation, particularly in the Romantic Period of art music. However, in the twentieth century, or Modern Period, composers abandoned narrative, moving away from or even rejecting its incorporation,

such as in the case of a rabid Pierre Boulez; now, in the Postmodern Era, we find composers that grew up in a postmodern world absolutely submerged in narrative media, from literature to film to video gaming and to television. Storytelling is an intrinsic aspect of all walks of life from marketing to finances; being able to notice patterns and consistencies reflected in the stories we share become basic instinct for the postmodern citizen. How has this trait to recognize and seek patterns resembling narrative in all things affected the composers of today? To answer this question, I posit the Barthes Codes of Narrative Theory and go over popular formats for analyzing narrative structure in various media. Then, I apply these theories to different examples of recently produced musical works and compare them. Borrowing the empirical method, three types of samples will be tested, one with clear cohesive story elements (an analogue narrative composition), another with vague or minimal elements (an abstract narrative), and lastly a piece with no intended narrative content whatsoever (the format narrative composition). Each of these selections demonstrate factors that not only a composer, but an audience utilizes to interpret narrative significance as is desired by the average listener.

42. *Praising God around the World: Christian Worship Music as an Individual and Collective Experience*

Presenter(s): Divya Putty

Advisor(s): Dr. Jessica Sternfeld

The artists “Bethel” and “Hillsong” are frequently recognized by Christians living in America. But what about the names “Bridge Music India” or “Sinach”? These names would be most likely unknown in the states but celebrated in India and Nigeria. While each stems from vastly different cultural backgrounds, they all serve the purpose of creating a space for people to connect with God and each other through musical worship. Drawing on four different pieces of worship music and their use in live services, this article analyzes the effects of worship music, specifically their lyrical and musical content, on the individuals participating in these services. We will see that, on a personal level, individuals experience an awareness of the presence of a higher power, an ability to release current emotional burdens as well as celebrate the unchanging character of God. On a corporate level, people experience a powerful uniting with those around them as they declare the presence and love of this God. I will also argue that this practice can look different within various communities. Thus, the various environments and socio-economic standings of these individuals will also be taken into account when considering how worship music impacts them. From these experiences, I will argue that worship music is more than just singing songs on a Sunday morning for individuals - it is a form of individually and communally practicing awareness and interaction with God.

43. *“In the Sentimental Past”: Cultural Identity Through Film Music Before and After the Hong Kong Handover*

Presenter(s): Kasady Liu

Advisor(s): Dr. Jessica Sternfeld

Hong Kong: a city characterized by Jackie Chan, kung fu, and its surprising “in-betweenness.” Not quite Eastern and not quite Western, Hong Kong has been placed in a unique position due to its recent handover from Great Britain to China. As a result of this handover, the people of Hong Kong have displayed various attitudes towards their previous, foreign system of democratic government and their new, Communist

system of government. Hong Kong's cultural identity is closely tied with the handover, and in this paper, I analyze how the film music of Hong Kong movies have conveyed ideas about their cultural identity. Specifically through the analysis of *A Better Tomorrow* (1986), *Beast Cops* (1998), and *In the Mood for Love* (2000), I illustrate how Hong Kong's attitudes toward their governing powers and their cultural identity have changed over time. When Hong Kong was a British colony, *A Better Tomorrow* (1986) conveyed a sense of sentimentality and the inclusion of Cantopop songs give the film a clear sense of Cantonese-ness. A year after the handover, *Beast Cops* (1998) displayed the dissatisfaction of Hong Kongers towards both British and Chinese governments through its use of popular music and leitmotifs. In *In the Mood for Love* (2000) is punctuated by musical themes of longing and injustice – representing the desire of Hong Kong to be autonomous and free. Hong Kong's unique political history merits a close examination of its movies, thus demonstrating how films, and film music, can serve as an important marker of cultural identity.

44. *The Synaesthetic Romantic: Escapism and Evocation in the Works of Felix Mendelssohn*

Presenter(s): Katerina Kotar

Advisor(s): Dr. Jessica Sternfeld, Ryan Shiotsuki

From the fantastical tales of early opera, to the sweeping sublime landscapes of the paintings of J.M.W. Turner, to the lush imagery of the poetry of Goethe and Sir Walter Scott, to the epic adventures of the novels of J.R.R. Tolkien, a fascination with evocative fantasy as a means of escaping the “now” in which we live has been pervasive in the world of music, literature, and art. Felix Mendelssohn presents a unique case study in this regard, one of synaesthetic music, as he was both a composer and visual artist with a distinct interest in musical and painterly depictions of evocative landscapes. In addition to having output in both mediums, the subject matter of fairytales and preoccupation with far off places is prevalent in the majority of Mendelssohn's works, as is a harkening to the past overarching across his musical oeuvre. I explore how the visual element of his ability permeated his music through a visual analysis of the *Hebrides Overture* (1833), which is one of his more ambiguous but programmatic pieces. Additionally, due to Mendelssohn's vast travels and subsequent infatuation with far off places (evident in works such as this), I examine the psychological and social implications of his fascination with non-Nationalistic themes and the blurred line between music and art, as a Romantic composer who defied, or simply could not find his place within, the philosophical norms.

News and Documentary

45. *Analysis of People's Fears Because of News Outlets*

Presenter(s): Pedro Marquard

Advisor(s): Dr. Ann Gordon

In the past, people got their news from newspapers and by conversing with others. However, over the past couple of decades the media has completely evolved and people have access to an array of news sources. Nowadays, news have great persuasive capacity, previous analysis found that certain broadcast networks can influence voting patterns when introduced to Cable TV in areas where it had not been earlier. Research has shown that the daily news people receive has an influential role in someone's way

of thinking and their personal fears. Media affects theory immensely as the more people see a story, the more likely they are to gravitate towards it. The independent variables for the following analysis will focus on the different news sources which viewers watch or read: MSNBC, CNN, FOX News, Local News and online sources. The dependant variables will deal with potential fears viewers may have from watching their preferential news source. The paper offers an explanation as to which news sources affect certain types of fears. The data from a recent finding shows that people who watch MSNBC tend to have a mild to modest worry about climate change issues. While in a different experiment input revealed that several viewers of FOX News tend to have a fear of being personally affected by a terrorist attack. The overall report evaluates certain methods which will be implemented in order to obtain the final results. The data is analyzed by measuring the relationship between the independent and dependant variables. News outlets provide a vital source of information which in turn might create fears for certain individuals.

Pharmacy

46. Synthesis of Levofloxacin-[W4R4K] Peptide Conjugate Against Multidrug-Resistant Bacterial Pathogen

Presenter(s): Shun Kato, Muhammad Imran Sajid

Advisor(s): Dr. Rakesh Tiwari

The overuse of antibiotics has produced a global problem of superbugs known as antimicrobial drug-resistant pathogens. Antibiotics have become ineffective in killing resistant pathogens which has increased the mortality of infected patients. To treat resistant bacterial pathogens, Antimicrobial Peptides (AMPs) have shown effectiveness. Antimicrobial peptides target the bacterial membrane due to their amphipathic structure, which provides less chance of resistance development. Previous data from our lab reported the development of a cyclic antimicrobial peptide containing four tryptophan and arginine amino acids denoted as [R4W4] that showed potent antibacterial activity against clinically resistant bacterial strains. Furthermore, an antibiotic (levofloxacin) was conjugated to the cyclic peptide using an amide linkage and assayed against both Gram+ve and Gram-ve bacteria which did not show potency. The lack of potency of the conjugate could be due to incomplete hydrolysis of levofloxacin from the levofloxacin-[W4R4K] conjugate. Therefore, we hypothesized to use an easily hydrolyzable ester linkage for the synthesis of levofloxacin-[W4R4K] that will increase the potency due to the synergistic effects of [R4W4] and levofloxacin. Fmoc/tBu solid-phase synthesis was used to successfully synthesize both linear and cyclic conjugate of [W4R4K] with levofloxacin using an ester linkage. This study reports our developed synthetic chemistry in the project.

Political Science

47. Party Identification and Fear of Climate Change

Presenter(s): Isabella Marcus

Advisor(s): Dr. Ann Gordon

This paper will conduct an analysis of the correlation between political party affiliation and its effect on the fear of climate change. Based on the Chapman University Survey of American Fears, global warming and climate change is listed among the top ten fears average Americans had in 2018. For decades, climate

change has been a contentious issue in the United States and globally. Republicans and Democrats seem to have consistently been in disagreement regarding the issue and the policy surrounding it. Looking at the two main political parties, Democrats and Republicans, this study will be able to draw conclusions regarding their viewpoints. It will determine how political party affiliation and the two differing viewpoints effect the common fear that Americans have of climate change. This paper will conduct an analysis between political party identification, and additional factors including sources of media, gender, age, and income to determine how those factors coincide with public opinion of climate change. Multivariate regression results find that the political party affiliated with liberal points of view, Democrats, will correlate with a greater fear of climate change. On the contrary, individuals who side with the conservative point of view, Republicans, will have a lesser fear of climate change. The correlation between the additional variables and their impact on party identification as well as fear of climate change will be further elucidated in the duration of this paper.

48. *The Demographics of Climate Change Acceptance*

Presenter(s): Carly Nolan

Advisor(s): Dr. Ann Gordon

Science has confirmed the existence of climate change, and the monumental role that humans have had in it; however, many Americans continue to deny its existence. This paper will examine predictors of climate change denial. Beside the expected correlation between political ideology and belief in climate change, the factors of age, income, education and the fear or experience of extreme weather events were all expected to have an effect on whether or not certain demographics of Americans deny the existence of climate change or not. While most of the current research only considers correlations between political party identification and age, personal income, education level, and concern about extreme weather events such as natural disasters caused by climate change are all believed to affect whether Americans believe climate research. This research used data from variables used in Chapman University's annual Fear Survey of Americans, which has shown an increase in fear of climate change. There was an expected high correlation between political ideology and fear of climate change, with a high correlation between fear of natural or manmade disasters and climate change as well. Age and education had only slight correlations with fear of climate change, but were still statistically significant. Unexpectedly, there was no statistically significant correlation between income and fear of climate change. This showed that political ideology, fear of natural disasters, age and education do have an effect on climate change acceptance. Because domestic policy in the United States is so heavily influenced by public opinion, the likelihood that policies that address climate change will be enacted is dependent on whether or not Americans believe that it is a real issue. By recognizing what factors are related to climate change denial, we may be able to properly educate US citizens on the real crisis posed by climate change.

49. *How Does Media Influence People's Fear of Mass Shootings?*

Presenter(s): Christian Grevin

Advisor(s): Dr. Ann Gordon

The impact of traditional versus social media on people's fears of a mass shooting is a matter worthy of research and analysis. Many studies have been conducted on the connection between local TV news and fear, showing that the consumption of local TV news has increased people's fear of crimes. More recently, social media has caused a shift in the distribution of news, with increasing amounts of people turning to platforms such as Twitter and Facebook to receive their daily news. There have been few studies examining the relationship between social media usage and one's fear of crime, more specifically one's

fear of mass shootings. According to data collected by Chapman University in their Survey of American Fears, social media usage seems to increase one's fear of being a victim of a mass shooting in comparison to all other forms of media consumption measured in the study (i.e. local newspapers, national newspapers, national nightly news, local TV news, and online news sources). Media consumption wasn't the only variable found to have a correlation with people's fear of being a victim of a mass shooting. Among the interesting findings, gender also influences a person's fear of being a victim of a mass shooting; females tend to have higher levels of fear than males. The vulnerability theory partially explains this relationship between gender and fear. In this article I will explore people's fear of being a victim of a mass shooting and its relationship with different media sources, as well as other variables like gender. I seek to provide an explanation for the high levels of fear that stem from social media usage, as both mass shootings and social media have increased in prominence in the past decade and require more scholarly attention.

50. *Media Influence on Fear of Terrorism*

Presenter(s): Eleni Fernald

Advisor(s): Dr. Ann Gordon

On September 11th, 2001, the World Trade Centers in New York City were destroyed, along with the hearts of Americans. News outlets everywhere covered the devastating event, along with television networks and social media, there wasn't a single household in the US that didn't know about the terrorism that struck New York that fateful day. Evolving from print media to radio stations, and then from newspapers to Twitter on a tablet, media consistently keeps us in the loop of what is going on in our country. Through extensive research with the Fear Calculator on Chapman University's website, I will look at the correlation between media and terrorism. I will determine, with data, whether or not media has an influence on fear of Terrorism in America. I predict that people who consume media news will be more afraid of terrorism, and people who read their local newspaper will not be as influenced to be afraid of terrorism. This is important research because as a media consumer and as an American, I wonder whether or not my fear of terrorism is warranted or amplified due to media's emphasis on its chaos.

51. *Predictors and Characteristics of Conspiracy Believers*

Presenter(s): Erisa Castillo

Advisor(s): Dr. Ann Gordon

Conspiracy theories have been used by many throughout history as explanations to justify situations or events that the United States Government has carried out, however, many have no reliable evidence. The claims of these theories range from completely harmless to strange phenomena. So why do people believe in conspiracy theories? One reason may be our lack of confidence, trust and transparency between our government and us as American citizens. Using the Chapman University Survey of American Fears, I will look into the various variables that play leading roles as to why people are so convinced by conspiracy theories, also, whether one conspiracy theory is more believed than another. Some variables I will look into include age, usage of social media, and education. This paper will be exploring three different conspiracy theories, first, the belief that the government planned the 9/11 attacks, second the theory that the United States concealed the truth about JFK's assassination, and lastly the made-up South Dakota Crash. To my knowledge, there are many people that believe in conspiracy theories ranging from the elderly to the young, however, more recently, through outlets like social media, there has been a shift in

those who believe in conspiracy theories. If the research shows a relationship between the predictors of conspiracy beliefs, it will allow me to better understand why people believe in such theories. This paper will discuss three hypotheses; those who are less educated and younger are more likely to believe in conspiracy theories, those who obtain their news information through social media are more likely to believe in conspiracy theories and lastly, people are more likely to believe in everything they hear regardless of its truth value.

52. *An Analysis on the Role Demographics Play in Predicting Public Fear of Pollution*

Presenter(s): Isabella Morrow

Advisor(s): Dr. Ann Gordon

As the population steadily increases year after year, more resources are expended and consumed, and the chance of permanently harming the world around us increases. The topic of pollution, specifically air and water pollution, is not a new concept to the public. For instance, many are aware that our actions negatively impact the environment we live in, but what are the public attitudes that coincide with pollution awareness? Many large cities, like New York City, Beijing, and Los Angeles, have their fair share of polluted air, but what is the perception from the public? This paper will aim to answer this question by analyzing why some people fear pollution and why others do not. Further, it will investigate the causes of these differing attitudes toward pollution. Key demographic variables that will be analyzed will help explain differences in public opinion. Among interesting findings, race and gender demonstrated modest influence on predicting fears of pollution. Additionally, this paper finds a strong relationship between fear of air and water pollution and political party affiliation. Aside from demographic influence, it is important to consider the strong impact political, social and economic issues can have on the variations of public environmental fears. For example, within recent decades, a significant spike in pollution fears have been observed. This sudden spike was the start of the public becoming more responsive to fears of potential environmental issues. Lastly, fear of pollution greatly affects changes in environmental policy due to the impactful relationship public opinion and public policymaking share. This paper's findings express the significance in determining fear of pollution and its' impact on public policy; however, it is just the start in understanding the cause of pollution perception.

53. *News Media and the Cultivation of Fear*

Presenter(s): Kaleo Chang

Advisor(s): Dr. Ann Gordon

With greater news accessibility, allowing for more news consumption, and the channels to receive news increasing exponentially, it is important to assess the risk news media plays on the average consumer. Utilizing the 2019 Chapman Survey of American Fears, this paper will analyze and evaluate the relationship of news media and fears of conspiracy theories. Previous research has indicated news took a shift from strictly factual to a revenue-driven entertainment industry after the Vietnam War, when it was discovered news media has the opportunity to make lots of money. Much of the existing research focuses on news media's impact on fears of violence, but analysis over things of more entertainment value are not studied as extensively. Conspiracy theories, often times communicated through media, have the potential to show news media concentration on adding entertainment value. For greater detail, news outlets, such as national and local news stations, talk shows, and social media, can be individually measured to observe

potential correlations. The dependent variable in this study will be the fear of conspiracy theories focusing on the government concealing alien encounters, mass shootings, and global warming. The frequency of different news media, such as Fox News, CNN, MSNBC, and social media, will be analyzed as the independent variable. With the completion of this study, individuals can be more aware of the extent the news media plays in exacerbating conspiracy theories.

54. *Examining Emergency Preparedness and Effective Evacuations Due to Wildfires*

Presenter(s): Katie Selko

Advisor(s): Dr. Ann Gordon

In 2018, California experienced the most destructive wildfire season in its history. Fires can burn through city and county lines, which can create disorder between different emergency departments and residents. Communication between first responders and the people living in the communities is important for everyone's safety. But before that, people must understand emergency preparedness. Using the Survey of American Fears, it is clear that there is a growing fear of wildfire. With this data, I will examine why people do or do not evacuate and look at factors such as having pets and/or having a disability. I will also examine how demographics (race, gender, age) impact someone's preparedness for an emergency. The way emergency crews notify people in affected communities will also be evaluated to see if they are sending effective messages and whether or not residents are actually receiving them. With the increasing effects of climate change, we can expect to experience more destructive wildfires and experience a longer fire season. This is why emergency preparedness is extremely important.

55. *Hispanic Power in Presidential Elections: Factors Influencing Political Participation in the Hispanic Population*

Presenter(s): Maribel Castanon Moran

Advisor(s): Dr. Ann Gordon

The Hispanic population is the largest ethnic minority in the US and with the growing rate of the Hispanic population in the US there is no doubt that they hold leverage in the US Presidential elections. Every presidential term there are more and more eligible Hispanic voters and they play a large impact in US politics, especially in key states like Florida, Nevada, and Colorado. With the growing population of Hispanic voters, this paper, with the use of the 2016 American National Election Studies, to investigate what factors influence Hispanic voters to participate in national Presidential elections. Various variables will be tested to understand what motivates the Hispanic population. The research questions examined in this paper will focus on the education level of Hispanics, impact Hispanics feel they have in US politics, and party influences. These factors are only some of the variables that influence Hispanic voter and political participation, past studies have focused on other factors such as: moral values and socioeconomic, but the factors mentioned above might help have a better understanding of what motivates the Hispanic community. The results of this study might help political campaigns understand how to approach the Hispanic community, what will influence them to use their power in Presidential campaigns.

56. *The Interconnectedness of Government Corruption and Conspiracy*

Presenter(s): Micaela Hurd

Advisor(s): Dr. Ann Gordon

This paper sets out to examine the relationship between one's perceived fear of corrupt government officials and the connection this fear has to whether one believes in political conspiracy theories or not. This relationship is observed by utilizing data from wave four and wave five of the Chapman University's Survey of American Fears. Using this data, I will run a full statistical analysis through CPSS Programming. From this analysis, I will demonstrate that the fear of government officials is not only present, but has been growing among Americans. I will then take the data and compare it to three major political events that people are known to believe the government is concealing information about: the 9/11 attacks, the South Dakota crash, and JFK's assassination. Furthermore, I will observe what demographic factors influence people to believe in specific conspiracies. I predict that those who fear corrupt government officials will be more likely to believe in conspiracy theories. I also predict that political party affiliation will greatly influence the type of political conspiracies that one believes in. With the growing fear of corruption among government officials, this research sets out to explain how and why people are continuously distrustful of the government, allowing government officials and political leaders to reexamine their roles and prevent further fear of corruption. In addition, this research will add to what we already know about how and why conspiracy theories come about in politics.

57. *Examining the Relationship between Americans and Immigration during the Election Season*

Presenter(s): Michael Jahangani

Advisor(s): Dr. Ann Gordon

During any political election season, the topic of immigration plays a deciding role in which candidate will be elected to office. The topic of immigration, alike other heavily debated political topics, allows for the American people to gain insight of the prospective candidate's views. Political debates can be very influential as the way candidates respond to issues can influence voters to change their own opinions or attitudes on certain topics. An example is seen with the 2016 Presidential election, where there was a vivid transformation in the political views of many of the Americans who watched the political debates. This paper researched American attitudes towards Immigration and how different viewpoints influenced the voting decision process. This paper utilized an American National Election Survey feature that was used to research the voting behavior of constituents during the campaigning of political seasons. The feature was used in order to be able to examine areas of research such as: How do Americans perceive immigrants? How did the 2016 Presidential election influence Americans to change their opinion towards immigrants? How does one's own social status impact their views towards immigrants and immigration collectively? The variables that will be examined carefully are gathered from the ANES Time Series Variables 2016. The three variables that will be researched in depth are as follows: U.S. government policy toward unauthorized immigrants, America's culture is generally harmed by immigrants, and Feeling Thermometer: Illegal Immigrants. The purpose of this research is to determine whether there is a strong correlation between the topic of immigration and political elections. The paper will continue to add upon previous research to determine if whether political candidates are influential in terms of swaying voters who are moderate in their political views to develop extremist opinions.

58. *The Influence of Media on Identity Politics*

Presenter(s): Mirriam Martha

Advisor(s): Dr. Ann Gordon

Media gives more direct access to viewers than ever before. It is an essential mechanism through which citizens can explore information. Appropriate understanding of both media and politics falls mute on the average consumer. Many fail to recognize how much content is heavily manipulated. Previous literature has looked into the American Voter, The American Voter Revisited and described the Echo Chamber. As media advances, new research must follow to track the significance of how it plays on voter behavior. Rather than getting a diversity of perspectives that contribute to political debate, we see an echo chamber. The main narrative falls into the “game frame” which simplifies political discourse to a win or lose and us versus them mentality. The media creates and maintains echo chambers. Despite the importance of media coverage, studies on how they influence public opinion and the political process remain scarce. This study, using NES data research from the election cycle of 2016, analyzes a marked contrast between the amount of political party ideologies pre- and post-election. The objective of this research is to determine the role that media plays in influencing identity politics, as well as the need for further research to broaden the scope of an informed voter. These findings suggest a requirement for improved awareness and education in order to ensure that media transforms into an informative rather than persuasive platform.

59. *Contributing Factors on Increasing Fear of Racial/Hate Crimes*

Presenter(s): Nancy Lopez

Advisor(s): Dr. Ann Gordon

In the proposed research, the fear of being targeted by racial/hate crimes will be measured to confirm that race, gender, and social media usage for news are major variables in deciding who is more susceptible to fear. Data collected from the Chapman University Fear Survey will allow input on whether the variables pose any influence at all. Relevance and significance of these variables will also be compared to each other to determine which has the greatest impact. People of color are more likely to be intimidated and fearful in regard to being targeted. Those who get their news from social media such as Twitter or Instagram more often are likely to be more aware of these crimes. Also, women are generally more scared than men of being victims of crimes. Based on society’s behavior and stereotypes it can be predicted that all three will contribute to an increase in fear. According to the Department of Justice, in 2017 58.1 percent of the motivation behind hate crimes was race. Hate crimes were reported to have increased 17 percent from 2016 to 2017. In the Fear Survey data, it was concluded that all factors were significant contributors, although race was the most influential.

60. *Financial Burdens of the Healthcare System*

Presenter(s): Nancy Nguyen

Advisor(s): Dr. Ann Gordon

Despite the United States having a great economy and opportunities for people, there are many people who are uninsured or underinsured when it comes to healthcare. Everyone needs healthcare because people are getting sick, getting injured, and getting into accidents. Healthcare is a basic need. However, the fear of high medical bills includes: higher premium, higher deductibles, and out-of-pocket costs. The

three hypotheses I came up with are: 1. People who are uninsured are more likely to hesitate from seeking medical treatment, 2. People who are underemployed are less likely to stay up to date on their medications, and 3. People who are underemployed or who have a part-time/independent job are more likely to hesitate to seek medical treatment. Individuals who are completely uninsured may be afraid of the out-of-pocket costs of any medical treatment they receive and may therefore be reluctant to seek medical attention. People who are underemployed are less likely to stay up to date with their medications due to not receiving enough benefits to help them cover cost of their medications. This can become a financial burden and in some cases people may skip doses to make their supplies last longer. People who are underemployed, meaning anybody without a full-time job or lots of disposable income, is likely to struggle with healthcare and if a person struggles, they are less likely to seek preventative treatment, fearing high medical bills. Full time jobs are increasingly scarce in the U.S. Many people are more scared of the treatment cost more than their injury or illness. This results in less people going to the hospital for treatment due to the expense.

61. *The Fear of Gang Violence and the Media*

Presenter(s): Ryan Callagy

Advisor(s): Dr. Ann Gordon

In the past 50 years, telecommunications development has changed the amount of news programs available for average American by increasing news choices and increasing the number of news programs. As a result, average Americans have access world news through network television, cable television and internet Television and local news available through local network television. News programs have a high percentage of content involving violence. The violence featured in national news emphasizes terrorism and school and public mass shootings. Local news, on the other hand, covers gang violence, as well as relevant school and public shootings. As a result, this paper hypothesizes that the more average Americans view news, the more they fear gang violence. Using the Chapman University Fear Survey, this finds that viewing national news reduces fear of gang violence but viewing local news increases fear of violence. The relationship between viewing national news and fear of gang violence is negative because the more respondents view national news, the less they fear gang violence. On the other hand, the relationship between frequency of viewing local news and fear of gang violence is positive; The more frequently Americans view local news, the more they fear gang violence. As a result, this paper concludes that news impacts fear levels in different ways because of the content of the news. For example, national news rarely covers gang violence. However, local news covers gang violence and has a positive impact upon fear of gang violence.

62. *Xenophobia Within America*

Presenter(s): Vanessa Zamora

Advisor(s): Dr. Ann Gordon

President Trump's foreign policy on immigration have always made headlines on the front page of every news post. Many have called him crazy, insane and most of all racist. As he steps into office, many immigrants, regardless if they are legal or not, feared the policies and regulations he is trying to enact in office. His xenophobic policies made him the kind of president everyone will always remember. Although he is not the first to enact such laws that excludes minorities, many presidents before having passed a bill

that was intentionally excluding minorities due to society fearing immigrants. Policies like the Chinese exclusion act or the Patriot Act contributed to the such xenophobic thinking within society. One alternative hypothesis towards the effects of xenophobia is that economic issues are the reasons behind such fear arose. Another one is that the cost of unemployment is due to illegal aliens or immigrants coming in the United States. Others think it is with regards to national security. Meaning that is after the 9/11 attacks is when such thinking becomes apparent. Few people thought it was because of the loss of American identity. As more and more immigrants come to the United States, it creates a gap within the culture. As a result, American citizens lost confidence towards the American government due to xenophobia.

63. *The Effects of Human Demographics on the Fear of Environmental Crisis*

Presenter(s): Sora Reid

Advisor(s): Dr. Ann Gordon

The initiative of this research paper is to investigate if a person's education levels and religious background has an effect on their awareness and fear of environmental crisis, specifically their fear of global warming and climate change. Research will be conducted to consider the hypothesis that when looking at people's educational levels, there will be more environmental crisis awareness and fear in those who have higher education levels than those who have lower levels of education. Furthermore, it is also hypothesized that evangelicals will show to have less of an awareness and fear of climate change than those people who have no religious affiliation will. The significance between religion, education, and the issue of environmental issues have been forthcoming. Relying on data from the 2019 Chapman University American Fears, stronger insight and knowledge on the important components relating to this urgent and concerning issue are anticipated.

64. *Fear of a Nuclear North Korea*

Presenter(s): Mark Davis

Advisor(s): Dr. Ann Gordon

The unpredictability of the North Korean state has certainly created a fear among the American public. In 2018, the fear of North Korea using nuclear weapons was the 30th most common fear of Americans, with 39.2% of those surveyed identifying with this subject. This research is important because we are seeing fear today among Americans about nuclear warfare for the first time on this level since the Cold War. This has not necessarily been a large fear among Americans for several years now but it has returned and is among the biggest fears today for Americans. This paper deals with the modern fear among Americans of North Korea using nuclear weapons and the effect that media coverage regarding the topic has on Americans' fear, as well as other factors in people's lives. Previous research has studied the effects of media on Americans but has not studied media effects in addition to other aspects of their lives in terms of North Korea having access to nuclear weapons. This article will analyze the media's role, as well as other factors in Americans' lives - specifically ideology, party preference, and sex - that influence their level of fear in North Korea using nuclear weapons using the 2018 Chapman University Survey of American fears. I predict that Americans who identify with the Republican Party, people who consider themselves to be conservatives, women, and people who watch Fox News multiple times a week to have a higher fear of North Korea using nuclear weapons than other Americans. This article will bring attention and focus to a large and legitimate fear of nuclear weapons among many Americans today.

65. A Charter of America's Drug Crisis

Presenter(s): Daniele Zavala

Advisor(s): Dr. Ann Gordon

In spite of news saturated with reports of this drug violence harrowing Americans today there is a lack of established and acknowledged literature and other prior research from the American political field that focuses on the topic of drug violence in the current American opioid crisis. This lack of academic discourse in the urgent phenomenon against Americans leads a gap in knowledge and action that this paper will fill in, through an analysis of public opinion data from the most recent American FEAR Survey. The application of a neoliberal theory lens in both the literature review and the crux of the theses within the paper will look at any possible economic influences led to the environments that could cause the rise of agreement in reports of more frequent drug usage in American schools and neighborhoods now compared to twenty years ago among Americans. This will take place by using variables from the American Fear Survey; the main and dependent being the level of agreement according to the question “think about the schools in your neighborhood and indicate how much you agree with the following statements. Compared to 20 years ago... Drug use happens more frequently.” The independent variables focus on a responder’s layer of socio-economic backgrounds, including the specific official division in the United States where the responder is currently living, their reported household income, their reported level of highest education, as well as those who have indicated that either they or someone they are close to have been victims of violent crimes, as well as property crimes. The relationship between the two variables will be tested in this paper and the results will be considered in the face of certain neoliberal-concerned questions.

Psychology

66. Temporal Binding and Visual Masking

Presenter(s): Roisin Cunningham, Hailey Worden, Amber Hopkins

Advisor(s): Dr. Aaron Schurger

Temporal binding is a phenomenon whereby the perceived time interval between two events is shortened if the preceding event seems to cause the following event. The causal action is perceived to happen later than it actually did, and the effect is perceived to happen earlier (Haggard et al., 2002; Ruess et al., 2018). Binding for visual effects is most effective when the stimulus is presented 250 milliseconds after the causal action. Visual masking is the reduction or elimination of the visibility of a brief visual target by presenting a mask (i.e. another visual stimulus) shortly after. In this experiment, participants will fixate on a cross. They will be instructed to press a key around one second after hearing a tone. One target stimulus (random number from 0-9) and three control stimuli will appear in the periphery of the fixation cross, followed by a mask in the location of each stimulus. The time between the tone and the presentation of the target and mask will vary from -500 to 500 milliseconds with 50-millisecond intervals that are equally distributed. The time between the stimulus and mask will be determined by a staircase procedure before the main experiment, which will find the participant’s threshold at which are around 60% correct. The participant will report what number they saw, and how confident they were that they saw this number. We hypothesize that the mask will be more effective when it appears 250 milliseconds after the causal action. References Haggard, P., Clark, S., & Kalogeras, J. (2002). Voluntary action and conscious awareness.

Nature Neuroscience, 5(4), 382–385. doi: <https://doi.org/10.1038/nn827> Ruess, M., Thomaschke, R., & Kiesel, A. (2018). Intentional binding of visual effects. *Attention, Perception, & Psychophysics*, 80(3), 713-722. doi:10.3758/s13414-017-1479-2

67. Social Connections in Childhood are Associated with Blood Pressure in Midlife: Findings from the 1958 National Child Development Study

Presenter(s): Kathleen Glasser, Gigi Cliatt, Abby Paine, Amber Rahim, Danielle Zahn

Advisor(s): Dr. Julia Boehm

Social support reduces cardiovascular risk in adults, however we specifically examined whether social connections in childhood were related to blood pressure and pulse in adulthood. We hypothesized that youth with social connections would show healthier levels of systolic blood pressure (SBP), diastolic blood pressure (DBP), and pulse in adulthood compared to youth with fewer social connections. Data were from the National Child Development Study, which included people born in Great Britain during one week in 1958. As 11-year-olds, participants wrote essays: “Imagine that you are now 25 years old. Write about the life you are leading, your interests, your home life and your work at the age of 25.” Two judges rated 483 essays for the extent to which the author mentioned close relationships with family members or other people (1=not at all to 7=very; ICCs=.84-.89). The ratings for family and other people were first combined, then examined separately. At age 45, SBP, DBP, and pulse were clinically-assessed. Linear regression models controlled for covariates from childhood (sex, financial hardship, cognitive ability) and adulthood (cardiovascular medication use). In unadjusted models, youth with more overall social connections showed lower SBP ($b=-4.14$, 95% CI= $-5.56, -2.72$) and DBP ($b=-2.70$, 95% CI= $-3.68, -1.72$). In the fully-adjusted models, social connections’ associations persisted for SBP ($b=-2.52$, 95% CI= $-3.99, -1.05$) and DBP ($b=-1.97$, 95% CI= $-3.00, -.95$). A similar result was seen for connections with family members in fully-adjusted models (SBP: $b=-2.35$, 95% CI= $-3.78, -.91$; DBP: $b=-1.89$, 95% CI= $-2.89, -.88$). However, connections with other people were not significantly associated with blood pressure in fully-adjusted models (SBP: $b=-.98$, 95% CI= $-2.43, .47$; DBP: $b=-.68$, 95% CI= $-1.70, .33$). Social connections were not associated with pulse in any model. Social connections in childhood are associated with healthier blood pressure levels in adulthood, but not pulse. Associations seem stronger for connections with family members rather than other people.

68. In vs. Out Group Differences When Determining the Race of Faces

Presenter(s): Aisha Cornejo

Advisor(s): Dr. Vincent Berardi

This study explores the concept of an in-group advantage, which is the idea that people of the same culture have better facial recognition of their own group than people of another culture (i.e., the out-group). This work is a part of a larger study focusing on image annotation of Time Magazine's archival database of 4,500 issues from 1927-2012. We have been utilizing Amazon's Mechanical Turk to extract all faces from the archive and annotate them on the following variables: Adult, Face Angle, Gender, Image Color, Quality, Image Type, Context, Multi-face, Race, and Smile. Our current focus is on a post-annotation demographic survey that raters completed. Our demographic survey did not ask about ethnicity or culture, but we analyzed the potential in-group versus out-group biases by using race and location as a proxy. Currently, 615 unique AMT workers have annotated 6000+ images, with each image annotated by

two randomly-selected raters. Raters' reported locations were 65% North America, 32% Asia and 3% South America or Europe. Participants self-reported their race as 59.7% White, 32.2% Asian, 2.6% American Indian, 2.8% Black, 0.5% Pacific Islander, and 2.3% Unknown. The images in Time Magazine are mainly of White individuals, especially in the less recent issues, and our sample is predominantly White and North America; therefore, we predicted an in-group advantage amongst Whites on White images and North Americans on White images than other races or locations. Several χ^2 tests analyzed if the raters' agreement on the race, smile, and gender of the image was dependent on the race or location of the raters. On the variable of race, there was a notably significant difference between North America raters', ($\chi^2 (2) = 614.7, p < .001$), with the highest agreement existing when both raters were from North America. Moreover, when restricting the analysis to individuals located in North America, there was a significant difference between White raters' on race, ($\chi^2 (2) = 5.99, p < .05$), with the highest agreement found when both raters were White.

69. *Observational Study Measuring Stair vs. Elevator Use in a Collegiate Dorm*

Presenter(s): Julia Frederick

Advisor(s): Dr. Vincent Berardi

Today's society places importance on physical activity for individuals and, consequently, the different ways to promote it. Towards this end, efforts towards encouraging a quick and convenient decision to take stairs instead of an elevator have been widely studied. The purpose of this observational study was to measure the levels of both stair and elevator use in a collegiate dorm, compare them, and determine if there was a need for an intervention to promote stair use. This study was executed from April 23rd, 2019 to May 8th, 2019 at Chapman University's Henley Hall. This dorm is a four-story building with a basement. Pedestrian tracking mats were placed on each floor at the base of the staircase and in the entry of the two side elevators. Data was collected 24 hours a day for the 16-day period, and each day the condition of the mats were checked on by a member of the research team. The data was analyzed throughout the course of this semester, and there was a clear difference showing the greater use of elevators, relative to stairs, on the fourth floor as opposed to any other floor. These results reveal an opportunity for an intervention targeting students traveling to higher floors in the building. Further investigations, including examining the difference in stair and elevator use dependent on different times of day, will also be summarized.

70. *Not in My Home: An Objective Analysis of Secondhand Smoke Exposure and Associations with Ethnicity/Nativity*

Presenter(s): Lydia Ong

Advisor(s): Dr. Vincent Berardi, Dr. Georgiana Bostean

Children's exposure to secondhand smoke (SHS) is linked with asthma attacks, ear infections, and overall poor respiratory health. The home is the primary location where children are exposed to SHS, making it a critical location to study. An effective way to protect children from SHS exposure is to implement a home smoking ban. However, prior research largely relies on self-reported bans and few studies have substantiated self-reports against objectively measured air quality. The current investigation aimed to clarify the relationship between self-reported home smoking bans and objective air quality. Ethnic/nativity differences in self-reported home smoking bans have been documented and thus, a secondary aim was to examine whether similar ethnic/nativity differences exist in objective air quality and

whether these differences can be explained by norms and attitudes. Data were obtained from Project Fresh Air, a randomized controlled trial that aimed to reduce children's SHS exposure through an in-home behavioral intervention among low-income and diverse households (N=253). Participants self-reported home smoking bans, norms, attitudes, and demographics in questionnaires. Objective SHS exposure was quantified from air particle monitors installed in homes; objective outcomes included mean particle levels and number of peak particle events. Linear regression, logistic regression, and mediation analysis were performed. Results showed that homes with self-reported full home smoking bans had significantly lower mean particle levels ($p < 0.001$) and fewer peak events ($p < 0.001$) than homes with partial or no home smoking ban. Smoking-averse attitudes mediated the relationship between number of peak events and ethnicity/nativity (indirect effect: $p = 0.019$) such that foreign-born Hispanics had significantly fewer peak events due to greater smoking-averse attitudes. Further understanding of home smoking bans and SHS exposure in diverse households will aid in the development of culturally appropriate interventions and inform funding allocation toward at-risk groups.

Religious Studies

71. Religiosity and How It Affects A Person's Fear of Death

Presenter(s): Chase Nielsen

Advisor(s): Dr. Ann Gordon

With the present work, an introspective analysis of how the various aspects of religion—belief, practice, alignment to teachings, etc.—relate to the fear of death or tragedy possibly leading to death is examined. In the present work, variables regarding religion and belief in a higher power are examined against variables that are in some way connected to dying and the fear of said death. When the question of how religious an individual considers themselves to be (qn1) is tested against the fear of dying (qn9c) in a bivariate correlation through SPSS, the results produce a nonsignificant Sig. (2-tailed) reading of 0.148—greater than the 0.05 limit that would make it significant. Contrarily, when the practice of religion—how often an individual attends a religious service (qn2)—is run in a bivariate correlation test against fear of death (qn9c), there is a significance in the correlation provided by the Sig. (2-tailed) reading of .000. In fact, the Pearson Correlation (R) would suggest that the correlation is strong. Several other tests, ones conducted through the IBM SPSS and the American National Election Studies (ANES), running variables related to the practice of religion and an individual's self-prescribed level of religiosity against those related to death give credence to the idea that it is the practice of religion that eases the minds of people about the fear of death. The contents of this work will provide significance to proving or disproving individual preconceived notions of the general populous' attitude toward the religious and their views on death.

Sociology

72. *Tiger Moms, Dragon Dads, and Baby Pandas: Cultural Expectations For Success Among Asian-American College Students*

Presenter(s): Corinne Tam

Advisor(s): Dr. Edson Cruz

Family sociologists explore the societal conditions contributing to the need for young adults to move home following the completion of school. This is known as the boomerang phenomenon, and it can be seen as part of a new life stage in which young adults explore their identities, are unstable and self-focused, feel in-between adolescence and adulthood, and sense broad possibilities for the future. Although scholars explore this condition for contemporary young adults, previous literature does not account for the extra pressures that Asian-Americans face. This research project asks, How do college-aged Asian-Americans deal with expectations of success in a contemporary society that presents them with pressures of having to return home due to financial instability? I explore this question through eight qualitative interviews of college-aged Asian-Americans, four men and four women. I find that they feel separate pressures from their mothers and their fathers. I differentiate these as a "tiger mom" style and a "dragon dad" style of demanding success. Secondly, I find that my respondents experience expectations of success which stem from their families in the form of a success frame and from the model minority myth, which stems from the broader society. I call this a "baby panda" style of experiencing demands for success. Finally, I find that these respondents confront pressures to return home because of financial instability and pressures to fulfill familial obligations after college. In conclusion, my study reveals that young Asian-Americans go through emerging adulthood with extra pressures that come with being an Asian-American. My research contributes to our understanding of why Asian-American college students may express higher rates of depression than White college students. My research also adds to our understanding of the boomerang phenomenon by noting the extra pressures dealt with by Asian-Americans. Future research will explore the role of generational status in the experience of emerging adulthood for young Asian-Americans.

73. *Feminism Across Cultures*

Presenter(s): Sofia Fernandez, Norma Mendoza

Advisor(s): Dr. Edson Cruz

Some circles of contemporary journalists raw from clear, concise definitions of feminism in their discussion of social issues. For instance, Anna Quindlen, defines feminism as "the belief in the social, political, and economic equality of the sexes". Through this research, we draw attention to the multifaceted and highly malleable experiences captured by the concept of feminism. Due to the inherently complex nature of an individual's upbringing, which varies by culture, socioeconomic status, and other social forces, feminism as a concept holds a variety of different meanings for each individual. In our analysis, we draw from the sociological concept of intersectionality. The intersectionality of one's culture, religion, self-identification, and familial structure are all factors that contribute to the fluidity of feminism and its perception within our society. For this qualitative research project, we will be conducting individual interviews with participants from a variety of backgrounds. Moreover, we are also organizing focus groups

with 5-10 participants to observe the interactions between different meanings of feminism. The participants in this study will be college-aged individuals from Chapman University. The significance of this study lies on the importance of acknowledging the intricacy of the diverse experiences captured by feminism in order to be able to engage in civil conversations and progress as a society.

Theatre

74. Immersion in Themed Entertainment How Artistic Vision Succeeds in the Theme Park Industry

Presenter(s): Melody Carey

Advisor(s): Dr. Jocelyn L. Buckner

Theme parks became a reality in the 1940s with the opening of Santa Claus Land, taking the thrill and experience of amusement parks and adding thematic elements to create cohesive stories for guests to enjoy. The 1950s began a renaissance of theme parks with the opening of Disneyland, raising expectations for guests and broadening what could be achieved through the use of ride technology, animation, props, and many other crafts that enhance the tales that the parks tell. In recent years, the theme park industry has pushed for a never before seen level of theatrical immersion, as lands such as the Wizarding World of Harry Potter, Cars Land, Pandora: The World of Avatar, and Star Wars: Galaxy's Edge became a new focus of the industry, creating multi-experience cohesive stories that put guests in control of their actions to a new degree. Information on the topic has been gathered through a thorough survey, as well as articles and forums where guests express their opinions on the lands. This thesis focuses on finding the elements of these lands that appeal to guests and make lands both financially and artistically successful. With an incredible level of detail in these immersive lands, success comes as a byproduct of compelling storytelling rather than iconicity and scale. This interactivity and immersion, often fed by the standards and techniques found in film and theatre, has raised the stakes of the industry to create perfected experiences tailored to both the source material as well as the guests' whims.

World Languages and Cultures

75. Facing the Music of the Margin: The Phenomenon of Jazz Manouche in Wartime France

Presenter(s): Amadea Tanner

Advisor(s): Dr. Veronique Olivier

Jazz manouche, or "gypsy jazz", is a music of diaspora that found its home in Paris just before the Second World War. Its inception during the war follows a tradition of rebellion which aptly reflects France's revolutionary spirit. Though this music became an emblematic export of French culture, it owes its creation to a community of outsiders—the nomadic Romani. Of this marginalized group, Django Reinhardt was an anomaly, a Romani guitarist who rose to fame as the most renowned jazz musician in Europe. Upon closer examination, it is not mere irony or happenstance that a people traditionally shunned from French society embodied the voice of war-ravaged France. The trajectory of this music's influence highlights themes ever present in 20th century wartime, by pitting the novel against the traditional, liberty against tyranny, and life against death. By exploring Django Reinhardt's peculiar rise to fame, this study examines the social movements inspired by jazz manouche and the political upheaval which enabled a

gypsy musician with a disability to become a French national hero. Complicit in movements of rebellion, such as the zazou counter culture, the women’s suffrage campaign, and the French Resistance, this music solved an identity crisis for the people of France by quelling disillusionment and bridging the traditions of the past with hope for the future. This study further explores the parallels between the systematic persecution of the Romani people and the oppression of the French during the Nazi Occupation. Jazz manouche was a mobilizing force in France, pushing towards liberation from both its outdated values and national oppressors. Through the French fascination with Django Reinhardt, a musician without the full ability of his left hand, this study demonstrates how music and culture transcend prejudice by illustrating how the decimated state of Post-War France sought to repurpose the broken, to give worth to the things that had long been perceived as worthless.

76. *The Female Perspective in The French New Wave and Beyond*

Presenter(s): Deming Magner

Advisor(s): Dr. Veronique Olivier

The French New Wave was a historical stepping stone for the film industry. The movement brought realistic and relatable personas to the screen, allowing more diverse portrayals of our society and lives. Instead of the classic “bourgeoisie” shown in films, this movement allowed auteurs to have an innovative voice in storytelling. Stories about real people from different socio-economic backgrounds began to flourish, opening a gateway for new possibilities within cinema. With this pivotal moment in film history, it makes sense that women would have been represented more. However, that was not the case. The “male gaze” was still prevalent during this era and women didn’t get as many opportunities to tell their stories than their male counterparts. Fortunately, one woman’s voice changed how we see women in cinema. How has Agnes Varda’s legend paved the way for female filmmakers and the representation of women in film? The key components of this research include scholarly texts, books, articles, documentaries on the history of film and female filmmakers, as well as numerous films by French female filmmakers, directors, writers, and actors. The expected conclusion is that without the female perspective in films, audiences worldwide would not see themselves, or women they know, represented accurately on screen. Movies hold a deeper meaning than being around merely for entertainment. Films are a reflection of our society and our lives. Each film, no matter the genre, is rooted in truth. If we don’t see honest depictions of diverse people on screen, then a cultural subgroup can feel isolated and unseen. French female filmmakers such as Varda, Catherine Breillat, and Agnes Jaoui, are just a few women who shifted the way we tell the stories of the female journey.

77. *Mental Health and its Depiction in Francophone Cinema*

Presenter(s): Hayley Bensmiller

Advisor(s): Dr. Veronique Olivier

The effects of cinema are often profound, and they can influence the attitudes and opinions of the entire population. In the course of history, movies have contributed to a change in public attitudes towards LGBT people, racial issues, gender imbalance-- and even showers and sharks (thanks to Psycho and Jaws). For better or for worse, movies depicting people with mental illness have a direct effect on public opinion (Beauchum). These representations often disappoint both professionals and patients, but the possibility of using cinema to educate and positively influence the public is already under consideration (Beauchum). Throughout the world, the portrayal of mental illness through the media tends to create misunderstandings and confusion about what mental illness really is. In particular, French-language cinema is made up of a variety of films that touch on mental illness, and each of these examples helps determine its influence on culture in general. Some of the films we are going to look at are Mommy; I killed my mother; He Loves Me ... He Loves Me Not; Romantics Anonymous; Girl; Laurence Anyways; Jeanne Dielman, 23 Quai du Commerce, 1080 Brussels; News From Home; Blue Betty; High tension; Two Days, One Night; Three Colors: Blue. Additionally, we will determine whether these depictions can be considered as fair and positive or destructive and potentially dangerous, as well as the impact of these films on Francophone culture.

Art

1. *Just A Spoonful Of Sugar: Locating Suchitra Mattai's Work in a Forgotten History of Indenture*

Presenter(s): Prabhnoor Kaur

Advisor(s): Dr. Wendy Salmond

This summer, when I started my Summer Undergraduate Research Fellowship, I wanted to locate a history of indentured labor in the work of Denver-based, Guyanese artist Suchitra Mattai; or even locate her work as part of that history. Instead I found that history exists superimposed on children of the diaspora, ever-present and looming. When I met with Mattai in her studio in July, she told me the story of how her Indian grandparents ended up in Guyana. Like many at the time, they came to South America as indentured laborers for the British colonial sugar plantations. Initially, the plantations had relied on slavery to keep themselves running, but slavery was abolished in 1832. After six years of "apprenticeship", the plantation owners needed a new labor force that was cheap, plentiful, and easy to control. Under India's strict, oppressive caste structure, there were plenty of people looking to escape their station and build a new life elsewhere. Among these people were Mattai's grandparents. All indentured laborers had contracts of five years, and once theirs' ended, they decided that Guyana wasn't all they had imagined and returned back to India with their son, Mattai's grandfather. In India, they found themselves once again constricted by their low caste, and, for the last time made the journey across the Middle Passage where they settled in Guyana for good. Suchitra Mattai also told me about her own journey moving around, something that definitely resonated with me. For my final project, I was interested in materializing that in-between space that is so characteristic of diaspora. So I put together an exhibition where the coolie prints, the sari dripping sugar, and a video of the ocean all acted as meditations on the history that birthed Mattai's work.

Biochemistry and Molecular Biology

2. *Exploring The Role of the Hdac3 Co-Repressor Complex in Regulating Bone Glucocorticoid Signaling*

Presenter(s): Riley Kendall

Advisor(s): Meghan McGee-Lawrence

According to the European Journal of Rheumatology, an estimated 200 million people worldwide suffer from osteoporosis, and one osteoporotic fracture occurs every 3 seconds. Osteoporosis and other forms of bone fragility are exacerbated by an increase in bone marrow fat with age that damages surrounding tissue. However, the metabolic biology behind this age-related change is not yet understood. Our lab previously found that an increase in marrow fat is due in part to lipid droplet storage in osteoblasts, a cell that secretes the matrix needed for bone formation, in addition to fat storage in typical bone marrow adipocytes. The purpose of our current project was to test and confirm molecules that play key roles in the metabolic pathway of fat storage in osteoblasts. Several factors have been suggested by our lab to contribute to high marrow fat and age-related tissue damage, including the gene suppression of the Histone deacetylase 3 (Hdac3) regulatory enzyme and its corepressor NCoR1, the accumulation of the aging-associated tryptophan metabolite Kynurenine (Kyn), and the increase of circulating glucocorticoid

hormones (GC) observed with aging. For this reason, it is important that the effects of these factors on the activation of glucocorticoid-responsive elements are investigated in vitro through the preparation and analysis of luciferase assays. Our experiments found that the GC Dexamethasone increased activity of a GC-sensitive promoter, and Kyn did not inhibit the repression of this promoter by Hdac3 or NCoR1. Additionally, the strongest repression of promoter activity occurred when both Hdac3 and NCoR1 were added together, supporting the hypothesis that the two molecules form a complex and have a synergistic effect on the repression of downstream GC-responsive promoter activation. Exploring the metabolic pathway of these processes is significant because it contributes to the overarching goal of discovering the contribution of osteoblasts to marrow fat and preventing bone loss with age through the maintenance of healthy, bone-forming osteoblasts.

Biological Sciences

3. *Analyzing Nitrogenase's Regulator - NifA's Interaction with DNA*

Presenter(s): Heidi Standke, Lois Kim

Advisor(s): Dr. Cedric Owens

The bacterium *Glucanacetobacter diazotrophicus* contains an enzyme called nitrogenase which converts dinitrogen gas to ammonia - an essential plant nutrient. The breakdown of dinitrogen has a high energy demand, utilizing 16 ATPs and 16 reducing equivalents. For this reason, nitrogenase is highly regulated (Fisher, 1994). Regulation of nitrogenase is controlled by the protein NifA, a sigma-54-activator. NifA is a transcriptional activator that binds to DNA through its DNA binding domain (DBD) to activate nitrogen fixation genes when *G. diazotrophicus* needs ammonia (Fisher, 1994). NifA also regulates nitrogen fixation depending on whether sufficient redox equivalents are present to support nitrogenase. However, while the role of NifA is known, its mechanism is not fully understood. It is not known if NifA senses oxygen or if it directly senses reducing equivalents. There are two cysteines at the start of NifA's DNA binding domain. Cysteines are redox active and oxidize to form disulfide bonds which are known to affect protein activity. It is unknown if these cysteines sense oxygen and/or redox conditions and if this potential sensing mechanism affects NifA's DNA binding. Here, we determine the functional importance of the two cysteines by investigating their redox and O₂ sensing activity, and how the redox state of the cysteines influences NifA's interaction with DNA. To test the hypothesis that NifA's DNA binding is regulated by the redox state of the cysteines, two constructs of NifA's DBD were made: one truncated version containing neither cysteine (No-Cys) and another containing both cysteines (2-Cys). Both the No-Cys and 2-Cys constructs were cloned into expression plasmids, expressed heterologously in *E. coli*, purified, and functionally examined through DNA binding assays and biophysical methods. We hypothesize that if NifA is a redox/O₂ sensor, it will only be active when both cysteines are reduced. Our results will enable us to understand how NifA regulates nitrogenase expression and allow us to know under which conditions *G. diazotrophicus* produces ammonia.

4. *Behavior of Hagfish Mucin Vesicles in Fresh Exudate*

Presenter(s): Anne Kenney

Advisor(s): Dr. Douglas Fudge, Dr. Gaurav Jain

Hagfish produce a large quantity of defensive slime when attacked. This slime is a rapid forming dilute hydrogel comprised of two main components, thread filaments and membrane-bound mucin vesicles. Little is known about the behavior of the mucin vesicles immediately after excretion from the slime gland, as most studies on mucin vesicles have used stabilized vesicles. In this study we observed and captured the behavior of the exudate as soon as it was released. A unique event was observed in the fresh mucin vesicles that did not occur in stabilized vesicles, where a small number of individual vesicles would rapidly swell and create a clearing within an area. The clearings that were created grow logistically until a maximum area is reached or another clearing event interferes. We hypothesize that the clearings are individual vesicles that have absorbed fluid from the exudate and have swollen but have not ruptured, due to the elastic properties of the mucous gel. Here we present data for the swelling kinetics of freshly secreted vesicles from analysis of videos of exudate viewed under a microscope. My results have implications for understanding the biophysics of hagfish slime formation.

5. *Are Pacific Hagfish Reactive to Light?*

Presenter(s): Dahlya Habashi

Advisor(s): Dr. Douglas Fudge, Dr. Yu Zeng

Hagfishes are marine craniates that burrow into the ocean floor. Hagfishes do not have eyes which are capable of forming images, instead, they have unpigmented eye spots located on the top of their head. As such, hagfishes perceive light through a dermal light sense, photoreceptors under the skin. Though effectively blind, Pacific hagfish (*Eptatretus stoutii*) first react to light with a wave-like movement of their tail or head. They have also been observed curling up in response to light in captivity. After some time spent in light, Pacific hagfish tend to begin to swim around and settle once reintroduced to the dark. These behaviors led us to hypothesize that Pacific hagfish are negatively phototactic. To test this idea, we created an arena with two sections, one dark, and one light, that the hagfish could freely explore. We used a digital video camera to monitor the movements of the hagfish within 30-minute trials. Our preliminary results suggest hagfish are, indeed, negatively phototactic. Our results raise interesting questions about the role of photosensitivity in deep-sea animals and the diversity of photosensitivity within the hagfish lineage. Future experiments will explore the photosensitivity of the Pacific hagfish's closest living relative, and one that lives in much deeper (and darker) environments – the black hagfish.

6. *Interspecific Skein Scaling in Hagfish*

Presenter(s): Skylar Petrichko

Advisor(s): Dr. Douglas Fudge, Dr. Yu Zeng

Hagfishes are bottom-dwelling creatures that are known for their defensive slime. Slime is composed of thread cells that coil into an organized structure, or “skein”, and reside within specialized cells known as gland thread cells. In most organisms, cell size is independent of body size. This means that the cell size of an organism remains fixed as body size and body proportions change. However, skeins function outside of the hagfish, which raises the question of whether the evolutionary and biophysical constraints that keep cell size constant also apply to thread skeins. One study found that the average skein is smaller in

glands that were in the process of refilling than in full glands. Here, we analyzed skein size and thread diameter over a range of body sizes in ten different hagfish species to understand whether larger hagfishes possess larger thread skeins. Specifically, we recorded the length, mass, and girth of individual hagfish. We also collected slime exudate from full glands on the right side, posterior to the gill and measured the skein length, width, and thread diameter. Our results suggest that skein size is conserved within a species, i.e. it is independent of body size. However, positive interspecies scaling may exist based on our preliminary findings.

7. *A New Mechanism for the Regulation of Natural Competence in Streptococcus Mutans*

Presenter(s): Cailyn Sakurai

Advisor(s): Justin Merritt

Treatment of tooth decay is one of the leading health expenditures in the United States, reaching a 124.4-billion-dollar expense in 2016. This disease is caused by the dissolution of the tooth enamel due to fermentative bacteria such as *Streptococcus mutans*, which metabolize dietary carbohydrates into lactic acid. The oral cavity hosts a diverse microbiome that engages in many competitive interactions; however, cariogenic species like *Streptococcus mutans* can dominate in carbohydrate-rich environments due to a variety of abilities such as natural competence and the production of ribosomally-synthesized antibiotics (bacteriocins). Natural competence provides the organism the capability to actively import exogenous DNA leading to their genetic transformation. Previous studies have found a coordinated time delay in *Streptococcus mutans* between the production of bacteriocins and the activation of natural competence. Evidence suggests that *Streptococcus mutans* can capitalize on the released DNA from their competitors triggered by bacteriocins to promote their own genetic evolution. In my research, I aim to understand the regulatory connection between natural competence development and the production of the bacteriocin mutacin V. Preliminary results found the endopeptidase PepO to directly bind to mutacin V in addition to serving as an inhibitor of natural competence development. Based on these results, we hypothesize that the production of mutacin V titrates PepO degradative activity away from the natural competence inducing peptide signal XIP, thereby preventing XIP degradation to stimulate natural competence development.

Business

8. *Trusted Recommendations: Estimating Consumer Trust in Influencers*

Presenter(s): Zina Gorin

Advisor(s): Dr. Cristina Nistor, Dr. Kara Bentley

"Theoretical models of reputation and consumer trust imply that influencers with many followers (Super Celebrities) should only create ads that are authentic, and that followers should trust them implicitly. At the same time, smaller influencers will have less to lose if they advertise products that are not high quality (because their reputation is less salient and thus less important). However, the advertising industry believes that Micro influencers and small Celebrity influencers (under 1 million followers) are more valuable than Super Celebrities. They claim that customers trust smaller influencers and these smaller influencers are better at creating authentic content that can speak to their followers. There is a disconnect

between previous models of trust and reputation and the current social media world. We plan to use empirical estimates to solve the puzzle and rely on extensive data collection focused on Eco-Influencers across countries."

Chemistry

9. *Visualization and Particle-Particle Interaction of Au Nanoparticle Microgels Across Multi-Modal Microscopy*

Presenter(s): Rachel Lustig

Advisor(s): Dr. Andrew Lyon, Molla Islam

Au microgel composites have been employed previously in drug delivery techniques, tumor targeting, and chemical catalysis. Au nanoparticles, when mixed with microgels, have the potential of altering the composition of particle-particle interactions of the system. These interactions are important because they set the foundational role of the capabilities that the microgel can have. In this experiment, microgel will be mixed with varying amounts of 20nm Au particles. By leveraging multi-modal microscopy, the approach to analyzing Au nanoparticles in microgels and their visualization can be further evaluated. The use of atomic force microscopy, laser scanning microscopy, and confocal microscopy will be used in the visualization of potentially encapsulated Au nanoparticles and the influence on microgel composition. These modes will serve as a stepping stone for the various interactions occurring within these newly created gels. Across microscopy techniques, the spatial localization of Au nanoparticles can vary, which is related to the imaging and future biological applications of these gels. Here, various dilutions of Au nanoparticles immersed in microgels will be tested to understand the optimal visualization ratio as well as the interactions occurring between the particles. There is not a large amount of literature for these specific interactions, however enhancement of the microscopy visualization when Au nanoparticles are mixed into microgel solutions has been previously suggested.

10. *Computational Investigation of the Mechanism of HOCl-Mediated Cysteine Oxidation in the Conserved Zinc-Binding Core of Cytosolic Chemoreceptor Transducer-Like Protein D (TlpD)*

Presenter(s): Lindsay Zumwalt

Advisor(s): Dr. Maduka Ogba

Helicobacter pylori, a gastric pathogen present in about 50% of the global population, is known to facilitate gastritis, stomach ulcers, and stomach cancer. Previous experimental studies show that local unfolding at the conserved chemoreceptor zinc-binding (CZB) domain within the transducer-like protein D (TlpD) cytoplasmic chemoreceptor upon contact with hypochlorite (a known biological oxidant), is implicated in the mode in which *H. pylori* effectively colonizes the stomach. However, the mechanism of oxidation at the conserved zinc-bound cysteine residue upon HOCl contact, the role of the zinc complex in modulating the reaction, and the origins of selective oxidation are unknown. Our work utilizes DFT computations to probe plausible mechanisms for the oxidation process, illuminates the role of ligand exchange equilibria at the zinc complex in modulating the reactivity and regioselectivity, and provides new hypotheses for the origin of the chemoattractant response. Insights from our computational study will be presented.

11. Computational Investigation of the Lewis-Acid Mediated Activation of Sulfur (VI) Fluorides

Presenter(s): Matthew Nwerem, Brian Han

Advisor(s): Dr. Maduka Ogba

Nitrogen-containing sulfur (VI) compounds, such as sulfamides, sulfonamides, and sulfones, are found in ~27% of sulfur-containing drugs administered by the United States Food and Drug Administration. Synthesis of these compounds have been historically performed via the oxidation of thiols or the substitution of sulfur (VI) chlorides precursors. The former occurs under harsh conditions, limiting functional group compatibility; the latter is thermodynamically unstable and susceptible to hydrolysis and redox reactions. Sulfur (VI) fluorides have emerged as promising alternative precursors toward the synthesis of nitrogen-containing sulfur (VI) compounds via sulfur-fluorine exchange (SuFEx) chemistry. A recent experimental study has reported the use of stoichiometric calcium triflimide (CaNTf₂)₂ – one of the few methods that employs a Lewis-acid mediated process. However, given the difficulty in isolating Ca²⁺ intermediates along the reaction pathway, the mechanism of this process is unknown. Our work uses DFT computations to probe plausible mechanisms for the Ca(NTf₂)₂ mediated S-F activation process, specifically unraveling the calcium coordination complexes responsible for S-F bond activation. Furthermore, we probe various fluoride and product inhibition equilibria to provide new hypotheses for the reason for stoichiometric Ca²⁺. Results from this computational study will be presented.

Communication Studies

12. Robot Ambassador for College Campuses

Presenter(s): Yanni Parissis, Khiry Carter, Hiliary Lee, Alex Lewandowski

Advisor(s): Dr. Austin Lee

Being a student ambassador is a resource that improves a student's confidence and leadership skills. With an increasing demand for technology skills, our project will display how the ambassador robot can assist student ambassadors while improving upon their efficiency, by discussing information during college campus tours and familiarizing students with robot applications and their technology. The ambassador robot can support students during tours by answering questions about specific information that may have slipped an ambassador's mind. The robot will also be able to create a group focused atmosphere that will allow ambassadors the opportunity to lean on a dependable teammate for specific responses just as the robot depends on the ambassador for upkeep. With current technology, it is nearly impossible for a robot to do a complete tour independently, but with our research, we want to see precisely how the ambassador robot can improve a university campus tour for prospective students and families while positively developing our student ambassadors skills and confidence with robot applications. The student ambassador robot is not a replacement for student leadership and their roles or campus tours. The student and robot ambassador are the future of leadership efficiency and creates a bold new campus experience for all students and families to enjoy!

13. NAO Aquarium Robot Tour Guide

Presenter(s): Kendall Shaub, Andrew Beran, Jacob Rocha

Advisor(s): Dr. Austin Lee

We are creating an interactive prototype for an informational Robot Tour guide designed for the Aquarium of the Pacific in Long Beach, California. Using the NAO robot, this tour guide will take over the role of human volunteers by explaining exhibits, giving directions, and providing ways that visitors can do their part to help save our oceans. It will assist visitors by being able to answer very specific questions regarding things such as feeding procedures, lifespan, and extinction threats. Our robot will be entertaining for our target audience, kids and families, through its playful nature and use of humor. We project that the use of NAO robot tour guides will attract an influx of visitors to this aquarium.

14. Intimate Partner Violence: Predicting and Preventing its Prevalence

Presenter(s): Anne Cole, Paige Stevens

Advisor(s): Dr. Michelle Miller-Day

Dating violence is an unfortunate part of life for some women and far more common than it should be. In the current era of women's empowerment, our research is incredibly relevant and addresses the issue of committing to stay out of unhealthy relationships, which is a topic that has not been extensively covered in literature thus far. Our area of research explores the demographics that may lead to a women experiencing dating violence, as well as her likelihood of remaining in the relationship and finally, her commitment to avoiding future abusive relationships. Various demographics such as socioeconomic and ethnicity, as well as factors such as mental health and familial interpersonal violence all play a role in a woman's commitment to avoid unhealthy relationships. We hypothesized that women who have been victims of abusive relationships previously would have a higher desire and commitment to avoid future unhealthy relationships, however our findings found otherwise. Our data was collected from a sample of Chapman University students aged 18-22. The students were given a survey that proposed various questions about their experience with hurtful relationships. From this data, we analyzed different variables to determine the significance. Our data suggested that women who had never experienced an unhealthy relationship were more committed to staying out of one in the future than women who had already experienced one. This finding was surprising and raises many questions such as how women identify toxic traits in a partner to best avoid future harmful relationships. Our findings open the door for many different possible research studies that may help researchers delve deeper into women's commitment to avoid unhealthy relationships.

15. Same-Sex Parenting Outcomes and the Effects on Child Perception and Attitude of Gender Roles

Presenter(s): Evelyn Leyba, Zach Salem-Mackall, Chloe Pace, Michaela Foisy

Advisor(s): Dr. Michelle Miller-Day

Drawing on the conducted research and previous findings, we have advanced to find out in what ways does being raised by same-sex parents shape gender role attitudes. We aim to examine how being raised by two individuals of the same gender and/or sexual orientation will affect how one perceives a world of heteronormative culture and stigmatizing social constructs. Many common trends and themes seen throughout the studied research in journals and articles are that same-sex families assume no difference in heterosexual and homosexual parenting styles and outcomes. To find the answer to our question, we

conducted a series of interviews with young adults of same-sex parents. This included questions about their identity and family life, personal experience and early life in relation to their parental upbringing. These interviews allowed for very open and personal conversations that revealed very informative insights in regards to our research question. We expect these results to demonstrate that young adults of same-sex parents have a wide range of beliefs toward their attitudes that look past the simple mean of gender. This is without a narrow view towards heteronormative culture, while still living a life with the open-mindedness of same-sex parents and same-sex relationships overall.

16. *How Sexual Preference Is Related To Perpetration And Victimization of Dating Violence*

Presenter(s): Madeline Kuchan, Lexi Tyler, Karley Wilson

Advisor(s): Dr. Michelle Miller-Day

Intimate Partner Violence is a serious and detrimental public health issue that impacts millions of Americans each year. According to National Statistics, nearly 20 Americans per minute are physically abused by an intimate partner (NCADV, 2019). This equates to nearly 10 million men and women experiencing IPV each year. IPV includes actions such as domestic violence (hitting, slapping, shoving), stalking, and rape. Although there is extensive research on the overall subject, a small amount of research has looked at the relationship between sexual minorities and dating violence. The research we conducted analyzed the correlation between sexual preference and victimization and perpetration of dating violence. We created and instructed an online survey of 159 Chapman students to examine the question “What is the relationship of sexual preference to the victimization and perpetration of dating violence?” The collected data was analyzed using the SPSS online program. Results indicate that there is no correlation or relationship with statistical significance between sexual preference and victimization of dating violence among our participants. We will discuss the implications of these results in future parts of our research. Our research can be beneficial in understanding the ways in which society and health care can help Intimate Partner Violence victims.

17. *Childhood Psychological Abuse's Impact on Future Partner Violence*

Presenter(s): Sam Sakamoto, Ted Davis

Advisor(s): Dr. Michelle Miller-Day

Childhood psychological abuse proves to be a significant issue in society and a predictor for future partner violence. The treatment we receive as children has a direct impact on our treatment of others later in life, and mistreatment and mental manipulation have proven to be a factor that impact adult social and mental wellbeing. In our literature review, we found indications in previous studies that psychological and other kinds of childhood abuse led to interpersonal trauma later in life, especially on a romantic level. There was also evidence that linked childhood mental abuse to financial struggles and loneliness in victims of the mistreatment. These factors can factor into romantic harmony and healthy interpersonal relationships. For our study, we examined the relationship between childhood psychological abuse and victimization in adult romantic relationships. Our data looked at an analysis of 159 Chapman University students in an attempt to determine a correlation between the two variables. We analyzed the psychological abuse using a home environment and emotional trauma scale. The dating victimization was measured on a dating violence scale. Our research did not find a strong correlation between childhood psychological abuse and victimization in adult romantic relationships.

18. *Interpersonal Violence: Norms, Red Flags, and Attraction to Abuse*

Presenter(s): Skylar Terrana, Anastasia Gougas, Zachary Kaiser, Asaf Cohen

Advisor(s): Dr. Michelle Miller-Day

This study was conducted to examine the relationships of acceptance of couple violence and attraction to abuse among as well as beliefs about red flags of violence among college students. We conducted an online survey of 159 students at Chapman University to test the hypothesis that there will be a positive correlation between attraction to abuse and acceptance of couple violence and explored the correlation between red flags about violence and acceptance of couple violence. The results indicated that there is a positive correlation between students feeling attracted to abuse and acceptance of violence in their relationship. There was not a clear correlation between the acceptance of violence and red flags, but we did find that students who feel that jealousy is acceptable in a relationship are associated with being more accepting of violence in their own relationships.

Computer Science

19. *Pocket Academic Adviser: College Made Easy*

Presenter(s): Alex Jones, Michael Shusterman, Jesse Smith, Christian Valencia

Advisor(s): Dr. LouAnne Boyd

Understanding the structure of college, and the need for long term academic plans can be a struggle for first generation students and those with anxiety. In addition, research by Naja Mack, Robert Cummings, Earl Huff Jr, Kinnis Gosha, and Juan Gilbert suggests that minority students often felt underrepresented when visiting their academic advising offices. We hope to mitigate these problems via the Pocket Academic Advisor (PAA). PAA is a multimodal digital platform that seeks to make college planning and graduation maintenance easy to understand and manage. With our project students will be able to manage their schedules efficiently, and with confidence that their plan has been decided solely on their own academic rigor without any external biases. We hope to do this by leveraging the existing course catalogs for Chapman University and by using our application to display various flow charts and tables to make understanding one's major, minor, and general education requirements simple and easy. In addition to support holistically a student's academic plan our platform will allow users to: view anonymous students four year plans, send their academic plan to their academic advisor, make semester schedules, and create hypothetical combinations of additional majors/minors. We aim to support all students, including those who have felt historically disenfranchised by the university's academic advising office.

20. *The Caf App: The One Stop Chapman Health App*

Presenter(s): Ayra Tusneem, Nate Everett, Raha Pirzadeh

Advisor(s): Dr. LouAnne Boyd

Our purpose is to create an app to make food and exercise facilities inclusive for all Chapman Students and Faculty. Research has shown that students with disabilities have difficulty accessing various high education programs, including food and exercise. The number of students with disabling condition continue to grow but minimal effort has been made to ensure that diverse students are able to access programs across campus. With this in mind, we decided to create an app that displays information about

the food and exercise options on campus. This includes timings, menus, and the busyness of these facilities. This will allow students to go when they are most comfortable, whether it's with more students or less. Additionally, the app will feature menus of the restaurants on campus including the ingredients for students with allergies, restrictions, and other special cases. Our app will also show whether or not there is handicap access for the specific building. We also kept in mind that many people have different ways they wish to view the app, including dark mode and light mode. There will be voice recognition and speech to text options. Our goal is to ensure that all students feel comfortable using the facilities on campus and have access to any information they may need.

21. *Improving the Accessibility of Dietary Restriction Options at Chapman University*

Presenter(s): Charles Filce, Will Crewe, Sebastian Ludlow, Samantha Webster

Advisor(s): Dr. LouAnne Boyd

Recent research has shown that sixteen out of sixty three food allergy related deaths occur in college aged individuals. To help solve this problem, our team is designing a mobile application to help make the Chapman Dining Hall more accessible for students with dietary restrictions. This app will include a list of meals available in the dining hall during each meal and an option to submit a request for a specific meal. We are approaching this problem by using Human Computer Interaction research methods, such as multiple user testing sessions to design our application and including various accessibility features such as customizable color palettes and text to speech. Our goal is to use our app to make it safer and easier for students with food allergies to use campus dining options.

22. *Grocerys Comparing and Savings App*

Presenter(s): James Romero, Elmer Camargo, Mark Hyun, Nima Nakhjavani

Advisor(s): Dr. LouAnne Boyd

In Orange County, people's access to cheap or discounted groceries is very limited. There is no efficient solution for providing information to students about the best deals that are available. Our group is examining the relationship of user access to market goods, by allowing users in need to buy groceries at discounted rates as well as allowing access to food pantries in the area if the user qualifies. Although there are existing coupon based discount programs in the market, we hypothesize that a tailored mobile app for diverse user groups may facilitate usage. When constructing our application we wanted to have a UI that will result in an inclusive user experience. We took a user-centered approach in order to test the quality of our product. We were able to select from a diverse group of Chapman University students as our users. We then strategically altered our prototype based on the data we gathered from them.

23. *Designing a Universally Accessible Room Reserving Application for Chapman University*

Presenter(s): Robby Jones, Jonathon Burns, Angelo Narvaez

Advisor(s): Dr. LouAnne Boyd

Chapman students and faculty members have expressed a desire to conveniently access and utilize all rooms on campus to a greater extent than currently available. Human-computer interactions are focussed on studying issues such as usability, and the mobile paradigm provides new opportunities to explore interactions. The goal of this project is to discover accessible interactions in a multimodal design. Our aim is designing an app that allows students to reserve rooms from any building on campus. We gathered

information from anonymous surveys to determine what problems people faced when using Chapman's current room reserving system. This data allowed us to ensure that our application solves the problems faced by students. The app incorporates methods to promote diversity and inclusion for affiliated Chapman personnel. We have made sure to include multimodal design techniques and accessibility information about rooms in order to ensure that our app is inclusive towards people who have sensory impairments. Card sort, paper prototypes, and wireframe prototypes were used to assess the functionality of the app to create a user-centered design. Through several iterations of our design, we are hoping to achieve a well-rounded, more accessible, functional design.

24. Computer Science and Art Design

Presenter(s): Diego Avena, Ori Chanael, Dana Davidson, Alex Jones, Debbie Lu

Advisor(s): Dr. Michael Fahy, Andrew Shalat

Our main focus is on illustrating the impacts art design has on computer science (cpsc) and cpsc has on art design. To accomplish this, a 2d game made with Unity is going to be expanded to include more enhanced graphics and a new multiplayer feature. This leads to a 2 sided approach: on one side lies the graphic design team, which will enhance the graphics of the game by working on a list of needed designs and designs that can be improved - a list provided by the other side: the networking team. The networking team is responsible for not only approving and adding these designs into the game, but also for implementing the multiplayer mode of the game that will support up to 4 players. The networking will be accomplished via a service called Photon, which provides the server that clients will use. It is up to the networking team to decide on which features require networking, and how to connect and disconnect players to lobbies and the server. The main challenge for the networking team lies in developing a method that gives everyone a task to do and preventing the overriding of each others code. To address this, the large task of networking has been divided into 5 subtasks, and each has a set timeframe during which only the person assigned to that task has the right to modify files in the project, preventing the overriding of each others work. The expectation is to have a 2d Unity game that not only looks elegant in terms of graphics, but also contains support for multiplayer mode, illustrating the impact art design can have on cpsc, making programs look more polished, and cpsc can have on art design, adding a dimension of life to art.

Data Analytics

25. Geo-Scraping South LA

Presenter(s): Elmer Camargo, Karl Hickel, Suleiman Karkoutli, Geoffrey Hughes, Nic Cordova

Advisor(s): Dr. Michael Fahy, Dr. Jason Douglas

One of the most time-consuming parts of any project or research program is managing data; unfortunately, a lot of non-technical teams with little to no networking or data science background have a difficult time collecting, aggregating, and maintaining data. On top of these difficulties, academic research work must be reproducible by peers for findings to become accepted by their corresponding communities. The Health and Space Lab, part of Crean College, is conducting research within South Los Angeles, and part of research requirements include collecting data on property locations from various

sources including, the Los Angeles County and City Open Data website, Google Maps, and WeedMaps. In order to collect data, research assistants would have to manually search for properties and copy and paste findings into Microsoft Excel one by one. Our goal for this project is to create a program that will automate the manual work of creating comma separated value (csv) files with data from the WeedMaps API and Google Maps API as well as allow research assistant to customize the tool to fit program goals. A secondary goal for our project is to store and manage the program and data in a cloud service database that a research director can leverage to conduct further analysis as well as disseminate into the academic community.

English

26. Shaping My Identity Through Literature Representation at the Secondary Level

Presenter(s): Kyra Gallego

Advisor(s): Dr. Jan Osborn

For my thesis, my primary texts are going to be *The House on Mango Street* by Sandra Cisneros and *The Refugees* by Viet Thanh Nguyen. I want to research the interactions that reading diverse multicultural text has on students who don't identify with that category through the lens of these diverse stories because I want to find out the effect it has on student's perception of others and the world in order to help future educators understand the importance of implementing such curriculum into their lessons. Identity and representation are ideas that I aim to explore and how literature allows students an avenue for them to develop their relationship to others. By presenting students with text such as Cisneros and Nguyen into a curriculum dominated by white authors, we are able to create an avenue of representation for students. I argue that exposure to a variety of multicultural literature can assist in breaking down cultural barriers, as people from both sides are able to connect on a basic human level of understanding. This matters because within the scope of our secondary education, students who read and actively engage with a text that depict people outside of their racial and ethnic identity, gain a deeper understanding of themselves and the world around them. Through this deeper knowledge, relationships can be strengthened, bridging the gap between students from diverse cultural backgrounds. In these stories, we see depictions of Latinx and Asian heritage, but the major themes of gender, inequality, language, societal standards, identity, beauty are all innate issues that every person deals within their lives. Through my analysis of both books, while incorporating my own narration about my story on the lack of representation as a Mexican-Asian-American, it creates a new angle on to the addition of multicultural literature at the secondary level.

27. Intersectionality and Identity in Anzia Yezierska's Bread Givers

Presenter(s): Emma Allen

Advisor(s): Dr. JoAnna Levin, Dr. Lynda Hall

Though it has historically been read as a tribute to American assimilation in the 1920s, Anzia Yezierska's novel *Bread Givers* exemplifies modern notions of intersectionality in the formation of identity. This novel follows the story of the Smolinskys, a family of Polish-Jewish American immigrants, as they navigate their new lives in New York City. The family struggles with both economic and social issues of immigration, while also dealing with more personal issues like love and marriage. Each family member has his or her

own view of tradition, assimilation, and identity that is presented throughout the novel. Each character has a different opinion on what it means to be Jewish, what it means to be an immigrant, and what it means to be an American, and they all prioritize these aspects of their lives differently. These three items all have different significance to each character, and the balancing of these aspects of identity creates many tensions both in the home and in the outside world. By using critical frameworks like feminist studies and race studies to situate the formation of identity, this paper will analyze the Smolinskys' attitudes toward assimilation, ultimately arguing that Bread Givers argues for the formulation of intersectional identification.

28. *Latina Identity in Literature*

Presenter(s): Camila Correa

Advisor(s): Dr. Lynda Hall

Sandra Cisneros and Helena Viramontes are two very well-known Latina authors who write about the lifestyle and experiences of Latinos in America. As a Mexican American, I find it crucial that readers read and learn the stories these women have written and shared with the world, so I will be taking one short story from each of Sandra Cisneros's books, *Woman Hollering Creek* and *House on Mango Street*, and I will also be taking two short stories from Helena Viramontes's *The Moths* and other stories. Literature speaks stories and experiences into existence, and this research is intended to expose readers to a different perspective of the lives of a certain group in America that isn't African American or male Caucasian American. Therefore, the issue I will focus on is the subjectivity of otherness in femininity and ethnicity in Sandra Cisneros and Helena Viramontes's short stories. I intend to deconstruct the Latina identity through sex/gender discrimination and gender performativity as a result of race, culture, and hybridity. Latino identity is crucial to the literary history of America because it teaches readers that the American experience isn't the same for everyone. Most of the short stories these Latina writers write about are very accurate to what it is like to be a Latina in America, and through the subjectivity of otherness I plan on breaking down this Latina identity in order for readers to understand it, learn from it, and appreciate it. This topic warrants consideration because there are many works of literature that everyone reads and a majority of them are not multicultural. It is important that readers continue to expand their minds by becoming worldly readers and not limit themselves to only works written by Europeans from the 17th and 18th centuries. There is always more to gain from learning something new than there is from sticking with what you know.

29. *Moral Reflection in Art-Horror*

Presenter(s): Cedric Dube, Sophia Kohrs

Advisor(s): Sam Risak

The purpose of "The Vulture" is to create a piece of horror literature in the form of a scrapbook that can be used as a tool for moral reflection. Research done by Cynthia Freeland shows that art-horror depicts long, gruesome deaths, which allows readers to feel a crushing sense of dread. By making readers to come face to face with the reality of evil, they will be encouraged to look deeper into their ethical beliefs surrounding death. Horror pieces allow the audience to see a darker version of themselves, as well as the world around them. In our multimodal scrapbook medium, we incorporate notes, photographs, sketches, news articles, etc, to create a realistic environment. This makes the overall story more relatable and forms

an instant connection between the audience and the narrator. The way the story is laid out will make it easier to toy with the narrator's dependability. If everything between the world in the story and the "real world" is the same, other than the narrator having questionable supernatural experiences, is his truth reliable? While questioning the stability of the narrator, we expect readers to take a closer look at every detail of the story to solve the puzzle, leading them to question their own truth.

30. *Sexual Assault in Horror*

Presenter(s): Daniela Muñoz

Advisor(s): Sam Risak

The purpose of this horror film, called *Perpetual*, is to showcase the lasting effects sexual assault has on a person. We live in an era where sexual assault is a common crime. According to Mental Health America, "1 in 6 women and 1 in 33 men report experiencing an attempted or completed rape in their lifetime". The goal of the film is to visually manifest the fear that all women live with day today. This film will not showcase any graphic material; this is implied when talking about such an intimate crime. Instead, through the use of lighting, make-up, special effects, and camera movement, I will be able to convey PTSD symptoms correctly. In order to portray this fear effectively, my film pulls from research in multiple fields, including Kaitlin A. Chivers-Wilson for a medical perspective, Alyn Pearson for a cultural and historical understanding, and the series *Big Little Lies* as a comparison for contemporary representation in media. The film will be showcased at Chapman's Student Union; therefore, the primary audience is Chapman students. The ultimate goal of this film is to raise awareness of what it feels like to suffer from PTSD so other people can understand, relate, and try to help, as well as to encourage the government to come up with better solutions for this nationwide problem.

31. *Friend?*

Presenter(s): Ella Weil, Ethan Slade, Chanse Corbi, Izzy Ward, Sarah Kwon

Advisor(s): Sam Risak

The purpose of our project is to show our audience the toxic effect that social media is having on our society through a satirical lens. We are part of a larger group that is working together to create a short film called "Friend?" Our role is screenwriting. We plan to take a semi-comedic path for our script in order for it to have a longer-lasting effect on the audience, rather than just an initial scare. We will be using the "Save the Cat" template by AJ Detish because we are new to screenwriting, and this template will help us create a script that will cause our audience to question if they too are falling victim to this new age monster. This film will be a multimodal experience due to the number of people involved in its creation. Our research led us to read "Primal Roots of Horror Cinema" by Dennis Perry, which explains the connection between horror and psychology. The concepts will help us create a short, psychologically disturbing horror film. Social media is not only one of the largest parts of our lives today, but also essentially runs it. Many of our actions, outfits, and outings are determined by how much we think other people will like or approve of them. In order to make our film successful, we have to make our killer, APYR, a metaphor for the detrimental harm that social media can cause to our minds. In conclusion, our film is a warning, and hopefully also a deterrent, to irreversible effects social media has on the minds of our society.

32. *First Timers Club*

Presenter(s): Emily Liberatore, Sam Batt, Robyn Stoop

Advisor(s): Sam Risak

The purpose of “First Timers Club” is to connect the two genres of comedy and horror by exploring the controversial topic of cannibalism to symbolize the desensitization our culture is experiencing. Through the medium of a short film, the goal is to make our audience laugh, but also leave them with an unfamiliar perspective that is both unsettling and disorienting. Following author Rebecca Gordon’s theory, the purpose of Horror-Comedy is to provoke the emotional shift from dread and terror to shock and hilarity. That is our overall goal - to create a shift in audiences emotions that they don’t fully understand. In order to do so, a number of rhetorical strategies must be utilized correctly. Creating an effective horror comedy requires both an understanding of script and cinematography. The script must encapsulate an absurdist plot in seemingly casual, everyday dialogue. That is what makes our four characters so complex and horrifying; they’re exactly like everyone else. The cinematography of the film will also be important in getting across the emotions we will be attempting to portray. Working with a student cinematographer to create shots like dutch angels, birds eye views, and low angle shots will jolt the audience into the headspace of our characters. The lighting we are choosing to use is another factor into the mood we will set. We rely mostly on the television our characters are sitting in front of to cast blue light over the scene, giving an ominous presence over them throughout the entirety of the film. We expect the story to be well received by audiences, but we also expect some confusion and repulsion as the topic of cannibalism is commonly taboo. Our purpose is to make them look deeper into why it has become so normal to ignore atrocities we see everyday, so the fact that they will be laughing at a topic as vile as cannibalism should achieve this.

33. *Film Research Project "Friends"*

Presenter(s): Trevor Luebbers

Advisor(s): Sam Risak

My research project is a satirical horror film called “Friend”. The purpose of this research project is to research the elements of what makes a scary movie, scary. My group is going to be researching pieces of horror of the past and making a piece of horror of our own using the elements we studied from other works and other mediums. We studied different old scary movies that do a great job at scaring audiences, and we studied movies that did not do a great job at scaring audiences. Our group also studied different stories, books, and articles that do a successful job of scaring people. We took everything we learned from those works that we studied to compile a movie that is going to take the good element, and not use the bad elements. We expect that the different editing techniques we used will be the thing that causes the audience to feel the most emotions. This project is a tool to express and exaggerate techniques authors, editors, actors, and musicians use to scare audiences and provoke an emotional response from audiences. The audience for this piece is Chapman students. The piece my group made expresses things like lighting, music, cuts, and acting to expose tools other authors and filmmakers use.

34. *The Frightening Humanity and Unhealthy Romantic Relationship in the Film*

Presenter(s): Yue Tian

Advisor(s): Sam Risak

The purpose of this project is to show my audience at Chapman University how humans can be more frightening in a horror film than ghosts, monsters, or jump scares by using a calm tone. My film is designed in a creepy and suspenseful style and talks about a girl who stalks a guy after she fell in love with him. The shooting angle in this film creates the most tension; the stalker and the main character appear on the same frame, but he never finds out the girl is stalking him. This project aims to warn the audience that you would never know a person until they take their masks off. It also gives an example of unhealthy romantic relationships and how low self-esteem could destroy a person with mental illness. Stalking might not be a common behavior in daily life, but in a romantic relationship, caring too much about others can cause us to peek at other's phones, keep asking where they are, and what they are doing. We can feel self-abased and afraid of losing him/her when we fell in love with someone. However, respecting ourselves and respecting the person we love is the right way, healthy way in a relationship. These are the issues in which audiences should be thinking about after they watch this project.

FFC

35. *The Beauty of Death*

Presenter(s): Ally Casillas

Advisor(s): Dr. Eileen Jankowski

The celebration of life through death civilizes human beings and offers deceased individuals the opportunity to be remembered on Earth long after their bodies have perished. The predisposition that many have to fear death is challenged through the Day of The Dead in Mexico and the Ancient Greek celebration of Anthesteria. Mourning is transformed into a celebration of life and beauty in an effort to make the inevitable less intimidating. The Mexican celebration of Day of The Dead or Día de Los Muertos honors friends and family members who have passed away. It is a cultural celebration that dates back to 1800 BCE and was derived from ancient Aztec festivities. Historically, Mexican families create colorful ofrendas (offerings) to honor their departed on November second. Families often visit the graveyard and leave cultural symbols such as marigold flowers on tombstones. Día de Los Muertos is a celebration of life rather than a day of mourning. Ofrendas are filled with food, scents, objects and photos of the deceased to pay homage to their time on earth. It is a bright festival where individuals partake in conviviality to laugh in the face death. The Day of The Dead bears a similar likeness to the Greek tradition of Anthesteria that occurred 3 days out of the year between February and March of the Athenian lunar calendar. It celebrated the transition from fall to spring and consisted of three different days known as Pithoiga, Choës, and Chytroi. The Greeks believed that the portal from the underworld was opened during Anthesteria and spirits were free to roam Athens. As a result, inhabitants drank wine and decorated the city in bright spring flowers. Both Anthesteria and Día de Los Muertos exhibit important human fascinations with death and the idea of honoring individuals who have passed on through offerings. These important rituals suggest that the tradition of honoring loved ones who are gone is a strong cultural compulsion.

36. *Loki: The Mischief Behind Eluding Societal Norms*

Presenter(s): Ashley Anderson

Advisor(s): Dr. Eileen Jankowski

Deemed the wily trickster of Norse mythology, Loki exists as an outcast to the highly revered gods of the Aesir. He is the antithesis of the properly moral deity, embodying the concepts of mischief, temptation, and utter chaos. His shapeshifting abilities entice him to meddle in godly affairs, and he is left to resolve problems that he alone has created. Though not completely adverse to providing others with assistance, Loki revels in the disruption of harmony he instigates. He interposes all situations with the goal of challenging and duping the hierarchical system of Norse gods. As a trickster, Loki undermines the established status quo set by the Aesir and breaks societal boundaries. Lokasenna, a poem originating from a collection of Old Norse writings known as the Poetic Edda, depicts the flyting of Loki as he appears uninvited to a feast hosted by the other gods. One by one, Loki tosses insults at the Aesir, pointing out their worst flaws and corrupt misdeeds. The gods are quick to lose their temper and punish Loki by trapping him in a cave where he is bound to a rock as venom from a snake drips onto his face, burning his flesh. Loki only spoke the truth, bringing to light the masked criminality of the other gods, yet was punished for his candor. Loki's brutal honesty, ambiguous identity, and fickle nature unsettles the Aesir, and likely had the same effect on the worshippers of old Norse mythology who avoided the witty god. By straying from and criticizing the expectations set by the other gods, Loki defies the norms of Norse mythology and society. His actions throughout various myths pave the way for all future transcendence of societal boundaries and inadvertently generate a sense of acceptance towards those seen as outcasts.

37. *Zoroastrianism: The Ancestor of Modern Religion?*

Presenter(s): Grayson Jones

Advisor(s): Dr. Eileen Jankowski

Consider what the Abrahamic faiths of Judaism, Christianity, and Islam all have in common. One God, who in his divine judgement saves those adherent to His system of belief. Consider this, however: The idea of monotheism, which means the belief in a singular deity, may be millennia older. About seven thousand years ago, a faith known as Zoroastrianism emerged from what is now considered the nation of Iran. This faith blends traditional shamanistic beliefs with new, previously unexplored, beliefs. After the rise of Islam, in the seventh century, Zoroastrianism began to face prejudice, and still does, across the Middle East and the Indian subcontinent. The faith can best be described as a blending of ideas, a cultural blending of monotheism and polytheism. The Ahura Mazda, Zoroastrianism's main omniscient being, may not be the omnipotent being that Yahweh, God, or Allah is in the Abrahamic faiths. Nonetheless, the Zoroastrians see this being as divine. The first written copies of the Avesta, or Holy Scriptures, date to around 1,300 BCE. Many concepts found in contemporary Abrahamic thought, including the ideas of Heaven, Hell, and the Divine Reckoning, are found in the Avesta. Cyrus the Great, an ancient Persian emperor, and practitioner of Zoroastrianism, liberated the Babylonian Jewish people, perhaps even influencing their scripture. Many of the traditional Zoroastrian practices, ever since the conquest of Iran in the seventh century, have been outlawed, and even affiliating with the faith is discouraged within Iran, to the point where many refugees have settled in other parts of the world, where it is safer to practice their beliefs. Iranian refugees, who practice Zoroastrianism in South Asia are called the Parsi, and they number between 110,000 and 125,000. Effectively, the ideas of monotheistic practice, and the divine afterlife originate with a religion so persecuted, it accounts for only 0.0000156% of the world's population.

38. ACCESS CALIFORNIA: INTERNATIONAL BORDERS

Presenter(s): Chaya Chandrashekar, Mary Bush

Advisor(s): Dr. Lisa Leitz

This research project examines the relationship between international borders and the work that Access California does with immigrants. Access California is an organization dedicated to “empowering all underserved populations”. They focus mainly on Arab-Americans and Muslim-Americans communities. Our project observes the services that Access California provides and the impact they have on these communities. An interview will be conducted with a manager of the organization. Our aim during the interview is to identify limitations that apply to their services and the effectiveness of their aids to “underserved populations”. We will also be taken on a tour of the organization and observe two classes that they offer their members and evaluate their curriculum and the aid they provide. We will aim to answer the question, “How does Access California’s internal culture positively affect the lives of Arab-Americans and Muslim-Americans who have personally crossed international borders through their services and classes?” We will use class documents and scholarly journals that examine what we know about organizations dealing with international borders and Arab-American and Muslim-American lives in the US in recent years. We have examined Access California’s social media presence and website. We will be using ethnographic methods to examine Access California and its successfulness. In an academic journal by L.A. Cainkar, he discusses the complexities of life in America for Arab-Americans and Muslim-Americans after the 9/11 terrorist attack. Another journal, written by, Sally Bonet, examines how the Patriot Act, a law established after 9/11, has affected Muslim-American youth’s psychological well-being, patriotism, and their educational abilities. These are interesting points that will come up in our interview with the manager. Another Journal, written by, Anisa Goforth, Evelyn R. Oka, Frederick T. Leong, and Daniel J. Denis discusses the adjustments Arab-Americans face in America, which we will be covering in the interview as well.

39. Immigrant Youth Activism

Presenter(s): Miriam Elfahdi, Ever Herman

Advisor(s): Dr. Lisa Leitz

Largely due to its proximity to the southern border of the United States, Southern California is home to thousands of documented, along with undocumented, immigrants. Because of this, there is a large prevalence of humanitarian organizations formed throughout the region, all with the purpose of aiding to the immigrant community. Our purpose with this project is to investigate how the younger generation of one of the most vulnerable communities is able to spark social change and action against the many injustices against their own communities. To do this, we chose to focus on the youth-led organization Orange County Immigrant Youth United (OCIYU). The mission of the OCIYU is to advocate for the “rights of undocumented immigrants to live lives free from exploitation and persecution”. Our research would contribute to a relevant inquiry in social sciences of the social and political impact of younger generations involved in activist groups. There are many factors that contribute to the development of youth-led organizations like the OCIYU, such as daily acts of resistance and collective action. Our project would further examine these factors by method of participatory-observant research of the OCIYU. We will be attending one of the general meetings that occurs weekly, as well as conducting two separate interviews with one of the program coordinators and influential members of the organization. Through our research, we expect to attest to previous scholarly studies by providing additional data and documentation of an organization near the southern border.

Film

40. *Cycles: A Visual Album*

Presenter(s): Claire Loudis, Takazo Hall, Kaizo Hall

Advisor(s): Adam Borecki, Jason Lowi

This project is an interdisciplinary Visual Album with music by Kaizo Hall and Takazo Hall and visuals by Claire Loudis. Instead of focusing on the auditory and visual aspects of the project separately, we have decided that developing them together allows us to create a more cohesive vision for the final project. Visual Albums are a developing art form that combines music and film in a closer way than ever before. We find this art incredibly intriguing because it utilizes both art forms to their fullest extent and has them build upon each other instead of simply using the other as a tool of the final product. The Visual Album will be based on the four seasons and will draw from the themes associated with Summer, Fall, Winter, and Spring as an inspiration for the sound, look, and story of the entire project. The cycle and order of the seasons also relates to how we both plan on experimenting with structure through this Visual Album. The story of the album will involve a female character whose life is represented by the seasons, up until her death in Winter and followed by the rebirth of a new character in Spring. Our main focus for this project is to further our creative endeavors in both music and film while also testing the precedent of our respective mediums by trying out new ways of composing each art form. For the music aspect, this will involve adding in elements of classical and jazz music to pop songs, while the video aspect will involve straying from linear structure and telling stories whose structures are tied to the structure of the song. This project will not only lead to our personal growth as artists and students, but we also hope to open a door between the College of Performing Arts and the Dodge College of Film and Media Arts, allowing for more collaboration between students in both schools in the future.

41. *The Distribution of French Films in the World*

Presenter(s): Alastair Mecke

Advisor(s): Dr. Veronique Olivier

French cinema has always been recognized for its prestigious, creative and intellectual films in the film industry. The history of cinema proves that French films have become classics and will remain among the most beautiful and powerful works of art. Their movies are not as commercial as Hollywood movies and that makes them distinct. Their goal is to make their audience think more deeply and get an emotional response from them. In a world where most films are fast paced showing action and they take into account the short attention span of their audience, French films take a slower, more contemplative and relevant approach. Although there are many excellent French films that are both entertaining and visually appealing, their "cultural preeminence" has been lost. In this new digital age, where distribution offers endless possibilities for movies and where streaming platforms are at an absolute level, why are not French films as popular as ever? Why are people less interested in French films? With hundreds of thousands of foreign films at your fingertips or in a few clicks, how does France stand out from the rest of the world? The film industry is not idle in France, which tries relentlessly to find solutions so that the industry can dominate and stand out.

42. *The Impact of Uncanniness*

Presenter(s): George Stewart

Advisor(s): Sam Risak

The purpose of my short film, "Brownie," is to horrify viewers with the idea of not being able to differentiate reality from imagination. I will accomplish this by writing a screenplay based on characters who are high on psychedelic drugs, leading to the audience to wonder if what they are seeing is real or a hallucination. The word "uncanny" is described by Austrian neurologist Sigmund Freud as that which "undoubtedly belongs to all that is terrible - to all that arouses dread and creeping horror; it is equally certain, too, that the word is not always used in a clearly definable sense, so that it tends to coincide with whatever excites dread." The importance of this definition is that it can apply to anything that provokes fear or uncertainty. In my short film, many elements revolve around uncertainty and interpretation. The brain is prone to make people confused or unjustly afraid, so this film takes advantage of that. My project will screen in the Student Union for an audience consisting of mostly Chapman students. The premise of my film is an excellent opportunity to show college students the potential effects of psychedelics. The uncanniness of the story will convey the powerfulness of drugs and how they can intensely distort reality. There are events and twists that the audience will not know if they should feel threatened or not because they do not know if what they are seeing is real. Are the psychedelics playing tricks on the minds of the characters? Or are the characters rightfully scared of what they are seeing? The ambiguous events in "Brownie" will prolong the uncanniness of the story, even after it has ended.

Health & Strategic Communication

43. *CU Prepared: An Evidence-Based, On-Campus Intervention on Campus Safety Mobile Technologies*

Presenter(s): Bethanie Le

Advisor(s): Dr. Jennifer Bevan

Informing college students about emergency situations that are happening on campus is imperative to equip the community from potential danger. However, university administrators have indicated that a significant number of their students are not subscribed for the institution's text-message emergency alerts or personal safety mobile application (Johnson, 2012; National Association of College and University Business Officers, 2009). The lack of engagement with the campus safety mobile communication channels poses a risk to the students' wellbeing. To address this phenomenon, an intervention that is designed to influence first-year students to (1) download their campus' mobile safety application and (2) subscribe to the emergency notification system's text-message alerts was developed, implemented, and evaluated on a college campus. Chapman University, a mid-sized, four-year, private institution in Southern California, was used as a central case with the resulting CU Prepared intervention. CU Prepared involved scheduled time for an upperclassman student to deliver a 10-minute demonstration of the campus safety mobile technologies in predominantly first-year courses. To test the effectiveness of the intervention, students (N = 191) in the experimental group completed an online survey after the demonstration. Comparisons were made to a control group (N = 130) of students who were not exposed to the demonstration. Examining variables of the participants' attitudes, subjective norms, perceived behavioral control,

perceived usefulness, perceived ease of use and behavioral intention towards the campus safety technologies, the findings from this study support the prominence of college students' low engagement of these resources and provide greater insight on effective messaging for campus safety intervention design.

44. Bone Strength and Distal Femur Trabecular Thickness in Sleep-Deprived Ovariectomized Rats Treated with Zoledronate

Presenter(s): Erin Nolte

Advisor(s): Dr. Frank Frisch

Osteoporosis is a disease that causes the density and quality of bone to be decreased, which can increase the risk of fracture by 40%. 1 in 3 women over the age of 50 will be affected by osteoporosis. This study aimed to show how bone strength and distal femur trabecular thickness might be affected by Zoledronate and sleep-deprivation in estrogen-deficient rats. Wistar female rats were ovariectomized to contrive post-menopausal estrogen-deficiency. The rats were separated into 4 groups. The control group (C, n=4) was given an intraperitoneal (IP) injection of 0.45 mL of 0.9% saline, were housed in standard conditions permitting 12 hours light and 12 hours dark. The Zoledronate group (Z, n=8) were given an IP injection of 50 ug/kg of 10% Zoledronate and housed in standard conditions with a 12 hour light/dark cycle. The sleep-deprived group (SD, n=8) were given the same IP injection as the rats in C but were housed in chambers that did not permit sleep for 18 hours, then moved to sleep chambers for 6 hours. The sleep-deprived Zoledronate group experienced the same sleep deprivation as the SD group but received an IP injection of 50ug/kg body weight of 10% Zoledronate. After 5 weeks, tibiae and femora were harvested, wrapped in saline-soaked gauze, and stored at -80F until a 3-point bending test, high-resolution micro-CT and peripheral computed tomography was done. The SD group showed reduced bone strength compared to the SDZ group (162.21N and 165.97 N, respectively; N.S.). The SDZ group also showed improved distal femur trabecular thickness compared to the SD group (75.5 microns and 68.375 microns, respectively; $p < 0.05$). The value of bisphosphonates in bone preservation is well documented. We attempted to illuminate the value of a bisphosphonate in sleep-deprived environments in the hopes of evaluating the efficacy and potential therapy for executive women who consistently work in sleep-deprived states. Our findings are equivocal but encouraging to pursue studies of a longer duration.

45. Mild Traumatic Brain Injury Litigation: An Exploration of Expert Witness Qualifications With a Proposed Deep Learning Approach to Assessing Brain Injury Factors Using Semi-Supervised Learning Algorithms.

Presenter(s): Elise Victor

There is a long history of brain injury litigation dating back over 100 years, and historically, the relationship between law and medicine has been challenging. In most mild traumatic brain injury (mTBI) civil lawsuits, the opinions of expert witnesses are introduced as evidence. This information can be persuasive for a jury. Expert witness testimony for the plaintiff and defense often conflict, and generally accepted requirements for the qualifications, diagnostic methods, and research guidelines for mTBI are still developing. Also, a gap in current literature on the qualifications of expert witnesses in mTBI litigation exists. The primary purpose of this study is to evaluate the qualifications of expert witnesses. Additionally, the study explores the area of artificial intelligence and deep neural networks and proposes a deep learning approach to

assessing mild traumatic brain injury based on factors that have been shown to support the existence of an injury. Specifically, this research applies a bibliometric approach to examining the qualifications of expert witnesses in mild traumatic brain injury (mTBI) negligence lawsuits from 2014 to 2019. Plaintiff and defense expert witness data obtained from Thomson Reuters Westlaw Edge are compared to identify key differences and similarities between the two groups. The study incorporates bibliometric and statistical methods and measures applied to quantitative data. Additional information about each expert witness is obtained from a variety of sources; factors such as education, years in practice, academic affiliation, licensing, and scholarly publication is collected and analyzed. This study provides critical distinctions between the two groups of expert witnesses, guidance for future research, an overview of key themes that emerged from the data, and a proposed deep learning model / approach to better understand mTBI.

History

46. Understanding Political and Ethnic Violence in KwaZulu-Natal, South Africa in the 1980s-1990s

Presenter(s): Michael Macinnes

Advisor(s): Dr. Erin Mosely

In the 1980s and 1990s, South Africa was engulfed in political violence as the last years of brutal white minority rule, under the system of Apartheid, slowly came to a close. The Zulu nationalist political organization Inkatha was one of the major players in the violence and instability of this time period. Although they claimed to be a party of non-violence and a supporter of black liberation, Inkatha ironically engaged in politically motivated violence against other anti-apartheid movements, most famously the African National Congress (the party of Nelson Mandela) and its allies. Given the contradictions between Inkatha's stated message and the reality of its actions, my thesis seeks to answer the following question: what motivated individual Inkatha members to participate in political violence? In so doing, my project aims to go beyond previous scholarship on Inkatha, which has focused on its role in the wider liberation struggle, how it mobilized and utilized ethnic nationalism, and its relationship with Apartheid security forces. By taking a "from above" and "from below" approach, my project showcases a number of contributing factors and recurring motivators to engage in violence such as coercion, opportunism, access to limited resources, political propaganda and indoctrination, and cyclical conflict aided by police collusion. By studying these factors we can begin to answer this complex and individual question and use Inkatha as a case study for examining what motivated individuals to engage in political violence not only in South Africa, but in political violence more globally which is currently on the rise.

Interdisciplinary

47. Healing Through Creativity and Creation: Drama Therapy as Treatment for Individuals with Eating Disorders

Presenter(s): Hayley Werner

Advisor(s): Dr. Jocelyn L. Buckner

For those living with eating disorders, intervention and effective treatment can mean the difference between life and death. Conventional treatments, such as Cognitive Behavioral Therapy and Dialectical Behavioral Therapy, forms of talk therapy, and Nutritional Counseling, focus solely on the psychological patterns or nutritional science of eating disorders. Though these treatments are effective for some individuals, there is a gap in treatment options that address both the mind and body as one and appeal to the humanity of patients outside of their disorder(s). Herein lies the power and potential of integrating drama therapy as a widely available treatment. Drama therapy is a valid psychotherapeutic option for individuals with eating disorders given the therapy's indirectly targeted methods of treatment through support and community, scientifically beneficial physical activities, and a creative, emotional outlet beneficial to improving the wellbeing and mind-body relationship of those with eating disorders. In this paper I will discuss why the practices of drama therapy are attune to the treatment of individuals with eating disorders. For reference, I will provide diagnostic criteria for anorexia nervosa, bulimia nervosa, and binge eating disorder and related symptoms in the eating disorder population via survivor and expert quotations. I will then connect this evidence to proven drama therapy practices. These include physical warm-ups and activities, writing, and role playing. I will then discuss the physiological and psychological benefits of the aforementioned, including the treatment of eating disorder comorbidities. This paper will serve to demonstrate the potential effectiveness of drama therapy in the treatment of individuals with eating disorders, thus allowing viable and effective treatment to reach a larger population.

News and Documentary

48. Autism and Mothers

Presenter(s): Kailie Fagen, Danica Tamura, Gianina Hatton

Advisor(s): Dr. Michelle Miller-Day

Current stats from the United States Center of Disease Control and Prevention (2019) have shown that 1 in every 59 children is diagnosed with Autism Spectrum Disorder (ASD). Research illustrates mothers gravitate towards the role of family manager in a household of children with ASD. The impact extends beyond the diagnosed individual, as it influences the family dynamic, concerning roles and structure. Thus, it is important to explore the commonalities and disparities these mothers face in the life-long process of caring for a child with ASD. These experiences are chronicled in our short, day-in-the-life documentary, following a family whose seven-year-old son has ASD. Additionally, to offer a broader perspective, we included semi-formal, open question interviews with personnel who have engaged with ASD children and their families in treatment(s). To navigate the diagnosis, mothers utilize these treatments, including social support, special needs programs and Applied Behavior Analysis (ABA), as daily coping methods. Previous research has not provided a clear-cut consensus on the specific difficulties' mothers face regarding proper care-giving, support, and their own well being. The objective of the documentary is to bring more

awareness to the multifaceted nature of ASD, by educating those who have never been directly affected and symbolizing those who have.

Pharmacy

49. Chromatography: Anticancer Activity through Guided Purification of Proteins from Fennel (Foeniculum vulgare) Seeds

Presenter(s): Van Do, Mekdes Megeressa

Advisor(s): Dr. Aftab Ahmed, Basir Syed

Fennel (*Foeniculum vulgare*) is an aromatic flowering medicinal plant classified into the family Umbelliferae (Apiaceae). It is native to southern Europe and the Mediterranean region with a long history of use by humans as a spice, fresh vegetable, and in traditional folk medicine. Despite its popularity for its medicinal value, the majority of data in scientific literature is based on the crude extracts and essential oils such as trans-anethole and estragole, fenchone, limonene, and 1-octen-3-ol. Therefore, this project explores the cytotoxic activity of the proteins that are extracted from fennel seeds. The crude fennel extract was partially purified using anion-exchange chromatography on HiTrap-Q FF 5ml column in 20mM Tris/HCl, pH 8.00 buffer. The sample was eluted using gradient in 20 column volume from 0-1M NaCl by automated AKTA start FPLC system. The crude extract and fractions collected were judged for their purity by 10% Tris-tricine SDS-PAGE gel electrophoresis. The MTT assay results exhibited that ion exchange fractions (2-7, 8-12, 13-19) demonstrated significant cytotoxic activity against MCF-7 breast cancer cell line with cell inhibition of 77%, 84%, and 67% respectively. In contrast, evaluation using AsPC1 pancreatic cancer cell line revealed non-significant inhibition (Under 15%). Further work is in progress to identify and fully characterized the primary structure of proteins by mass spectrometry and Edman protein sequencing.

50. Physician Satisfaction with Clinical Pharmacy Services Using Collaborative Practice Agreement in Team Based Care

Presenter(s): Michael Tran, Hieu Nguyen

Advisor(s): Dr. Jelena Lewis, Dr. Albert Bach

Purpose: This study investigated the satisfaction of primary care physicians (PCPs) with clinical pharmacists working under collaborative practice agreements (CPA) in team-based care (TBC) settings. This study also evaluates the interest in having clinical pharmacy services if the practice site does not currently have any. **Background:** With an aging population and shortage of primary care physicians, there has been a shift towards TBC with clinical pharmacists. Pharmacists managing chronic conditions has improved overall patient care. Studies have shown satisfaction with clinical pharmacists, but few have focused on clinical pharmacy services in TBC settings under a CPA. **Methods:** A 30-item, anonymous, cross-sectional survey was sent via email to PCPs in the Providence St. Joseph Heritage Health System in Southern California. Responses were collected for two weeks in August 2019. Data was analyzed using SPSS 25.0 with p-value set at $p < 0.05$. **Results:** 36 physicians completed the survey. 66.7% have not practiced with clinical pharmacists. 96.0% of these physicians stated they would like to have a clinical pharmacist at their site. 54.2% agree that clinical pharmacy services are valuable and 56.0% agree that pharmacists provide effective disease management. Physicians who are likely to refer patients to pharmacists are also those who want a pharmacist at their site (95.8%; $p = 0.009$). 91.7% of these physicians

feel comfortable having clinical pharmacists on their team ($p=0.043$) and 95.8% believe patients will benefit from having pharmacists involved in their care ($p=0.009$). Physicians ≥ 45 years old and have >15 years of practice are more likely to be satisfied with the care provided by clinical pharmacists compared to other groups ($p=0.026$). Conclusion: Physicians are satisfied with and have a desire to include clinical pharmacists on their team. By spreading awareness of the valuable services clinical pharmacists provide for patients, there may be more future opportunities for clinical pharmacists in TBC.

Physical Therapy

51. Asymmetry in Temporal Parameters of Gait among Stroke Survivors

Presenter(s): Christopher Hoang, Kenna Dougherty

Advisor(s): Dr. Rahul Soangra, Dr. Patricia Brown

Stroke is one of the main causes of adult disability. Falls are common among stroke survivors, occurring in approximately 50% of patients within the first year after stroke occurrence. Fall risk is higher among stroke survivors and is the leading cause of injury among them. Accidental falls and related injuries, such as hip fracture often lead to additional disability and affect patient quality of life. However, the cause of falls is complicated, with various involved risk factors such as asymmetry in walking. In this study, we compared swing and stance times for gait asymmetry among post-stroke and healthy older adults. Fifteen healthy participants (Age 74 ± 8 years, Height 162 ± 10 cm, Weight 68 ± 13 kg) and fifteen post-stroke participants (Age 60 ± 8 years, Height 179 ± 8 cm, Weight 100 ± 24 kg) participated in this study. Twenty-six reflective markers were affixed at various body landmarks and stance time and swing time were computed for 2 minutes walking on a treadmill. The stroke group reported on average a lower extremity motor function score of 22.7 ± 3.7 (decline by 33%), sensation score of 9.2 ± 3.4 (decline by 22%), and passive joint motion score of 15.7 ± 2.3 (decline by 21%) from the Fugl-Meyer stroke severity scale. We calculated Symmetry Ratio, Symmetry Index, gait asymmetry and symmetry angle for two temporal parameters 1) Stance time and 2) Swing time. For stance time, the symmetry ratio for stroke group was 0.94 ± 0.03 and for control 1.0 ± 0.01 . Gait symmetry for stroke group was -2.2 ± 1.6 and control group was 0.0 ± 0.7 . Symmetry angle for stroke group as 49.1 ± 0.02 and control group as 49.1 ± 0.0 . Symmetry index for stroke group as 10.9 ± 26.8 and control group as -0.10 ± 4.3 . Gait symmetry for stroke group as 4.5 ± 13 and control group as -0.04 ± 1.9 . The main finding of this study was that decreased involvement of the paretic limb compared to controls during walking resulting in temporal gait asymmetry among stroke survivors. This study highlights the need for stroke severity assessments using asymmetry in temporal parameters of gait.

Physics

52. Solving Hard Satisfiability Problems by Simulating Hamiltonian Dynamics

Presenter(s): Trevor Kling

Advisor(s): Dr. Justin Dressel

In 2008, Dr. Dorit Aharonov et al. proved that the field of adiabatic quantum computation is equivalent to standard quantum computation. However, the exact interactions and details of this equivalence still

remain to be explored. In this project, we seek to demonstrate one possible interaction between the two models by adapting an adiabatic quantum algorithm to the quantum circuit model. The algorithm computes solutions to the boolean satisfiability problem of three variables, or 3-SAT for short. The approach focuses on the use of a mathematical framework called the quantum Hamiltonian to compute these results. Prior work in this field had employed parallelism in the quantum annealing regime to compute solutions; this approach requires many duplicates of an analogous classical Hamiltonian to obtain accurate results. In our approach, the quantum Hamiltonian is implemented directly onto quantum hardware, allowing for a much more seamless transition between the theory of the Hamiltonian and the process of computing results. The primary approach to this project has been simulation and mathematical analysis. Various simple examples of the problem were implemented in Python, then used as inputs to a simulation of our algorithm. These results were then analyzed for adherence to expectations, as well as underlying patterns. The program is well-behaved and produces expected results in simulation, but the overall runtime is yet unknown. The mathematical formalism of the algorithm has then undergone analysis, with an end goal of setting a strict upper bound on the runtime of the algorithm. If possible to derive, the upper bound of runtime is expected to be polynomial in some combination of the parameters of the problem.

Political Science

53. *“They’re Bringing Crime:” The Language Of Xenophobia*

Presenter(s): Hanna Rosenheimer

Advisor(s): Dr. Ann Gordon

Leading up to the 2016 election, popular rhetoric surrounding immigrants to the United States shifted dramatically. Notions of a multi-ethnic immigrant nation gave way to warnings of cartels, criminals, and caravans. This change can be partially explained using Piotr Cap’s proximization theory, a threat-based discursive model that relies on locating threatening events in proximity to the audience in order to justify preventative or protective measures. This paper uses a multi-methodological approach, combining statistical and content analysis. Public opinion data from the Chapman University Survey of American Fears (2019) suggests that fear plays a strong role in anti-immigrant sentiment. Americans who believe immigrants should assimilate to mainstream culture also tend to believe that immigrants are more likely to commit crimes. Americans who hold these beliefs typically tend to favor or strongly favor preemptive punitive action against non-citizen residents, including but not limited to increased policing, raiding homes and businesses, and deportation. The anticipation of elevated criminal activity within the immigrant population is used to motivate both individual and state-level action against immigrants, irrespective of real-world statistics regarding citizen and noncitizen crime rates. Content analysis is used to highlight the prevalence of proximating language in presidential social media communication. The history of American immigration policy, especially the race-based restrictions that have been imposed in the past, offers broader context as to the actors that have stood to benefit from pushing the nationalist narrative of the immigrant as latent criminal and citizen as defender of the nation.

54. *Public Opinion and Fear of Apocalypse*

Presenter(s): Hannah Richardson

Advisor(s): Dr. Ann Gordon

Predicting the end of the world has been a practice in place for thousands of years. In recent years, it was seen in 1891 with the Mormon Armageddon, 2000 with Y2k, and 2012 when the Mayan calendar was believed to be ending. While these moments in history are often seen as entertainment by the greater population, there are many groups of people that support and live by the idea that the world will end in the near future. This paper will develop ideas of why people form a fear of the world ending, and the public opinion around this fear. The Chapman Survey of American Fears' data shows that only 16.4% of Americans are fearful of an apocalypse; while this number may seem low, there are a higher percentage of people who are afraid of the extinction of animals and plants, economic collapse, and warfare including nuclear and biological weapons ("America's Top Fears 2018" 2018). There is an overarching theme that people are fearful of everyday problems facing the world, and there is a fear that in the near future the world will never be the same. Apocalyptic theory splits the believers in two groups: one group believing that the world will inevitably end, the other group believing that humans are contributing and working towards ending the world internally. This paper will explore these hypotheses: 1) Fear of the world ending is the result of religious affiliation and political ideology, 2) Fear of the world ending stems from fear of economic collapse, and 3). Fear of the world ending is correlated to fear of the use of nuclear weapons. Fear of the apocalypse carries importance today because this fear can create distrust amongst communities, but can also create trouble for elected officials. Should more Americans be fearful of the apocalypse or the end of the world, there is potential for extremely differing opinions on how to vote towards environmental or economic policy and how governmental budget should be spent. Furthermore, those fearful of the end of the world can decide to not vote at all.

55. *The Effect of White Supremacist Groups in a Dominant Media Age*

Presenter(s): Kylie Sabin

Advisor(s): Dr. Ann Gordon

White Supremacist groups in the U.S. are more of a problem than one may think. The recent rise in membership and number of groups pose a threat to national security and the well-being of those residing in the country. This fact is as scary as the harm they have physically caused racial and religious minorities, but yet, not much is being done about their existence or their acts of hatred. Previous literature on the topic has given insight to the rise of these groups and their motivation along with perspectives on what it is like to be someone targeted by these groups and the toll it takes on their physical and mental well-being. Using the Chapman University Fears Survey, the level of fear of White Supremacist groups among different racial groups and those who get their news from different outlets (like CNN, Fox News, social media, etc.) will be analyzed in correlation with the rise of these groups in recent years. It is important to recognize the background and origins of these hate groups in order to understand why they are deeply feared by so many but incredibly appealing to others, or just not considered a threat to national security by some. It is a common misconception that these groups are solely based on hate. They are rooted in fear of the unknown and the "other" rather than their hatred for such and their own fear has caused them to act out in hate toward those unlike them. This hatred caused by fear is incredibly dangerous to not just those targeted, but to the U.S. as a whole.

56. Religion and Politics

Presenter(s): Samuel Gonzalez

Advisor(s): Dr. Ann Gordon

Religion has had a significant effect on voter participation in the United States and continues to change with society as it continues to develop into a more diverse environment as the years progress. The “God Gap”, a coined term used to describe the more religiously attentive an individual is the more likely they are to vote Republican. Many different survey studies of the 2004 American National Election Survey (ANES) have supported this term with data showing a gap between republican and democratic votes when individuals report their attendance to religious services more than once a week. Of those that participated in the 2016 American National Election Survey (ANES) 45% identified more closely with the democratic party and 40% identified more closely with the republican party. With the party identification of the participants stated it is important to note that 60% of these participants have attended church or a religious service. The statistical significance of having a religious affiliation plays a limited component when taking into account an individual’s political party identification. This paper shows that religious beliefs play an important factor when participants think of voting as a duty as or a choice given to all Americans. Lastly, discussed are test implications and where further research analysis should be directed.

57. Media Effects Towards Immigration

Presenter(s): Stacey Juarez

Advisor(s): Dr. Ann Gordon

The topic of immigration has been greatly spoken about but due to the current president’s views and beliefs has that resulted in the rise of fear of immigration? This research paper will identify how the different media outlets affect the views and fear of immigration in relation to president Trump. Immigration is a subject that will most likely never have a solution. Individuals will always migrate from place to place in search of a better living environment or better economic opportunity. News today can be spread on different social media platforms reaching a range of ages. The older generation that grew up without social media revert to television to get their news information. Millennials and the younger generation instead use social media to stay up to date with current events. Questions relating to party identification and fears of President Trump will be used to determine if news outlets like CNN and Fox News have a negative or positive affect on individuals towards the president. Party identification stems from what views people were raised in and greatly from what party their parent(s) support. The more a topic is covered the media the more interest and involvement individuals will want to part take. Media outlets can have a bias on what information they present and Marshall McLuhan believed “The medium is the message”.

58. American Voter on The Border wall: Who Are The Voter's And Comparing 2016 to 2019

Presenter(s): Nicolas Houser

Advisor(s): Dr. Ann Gordon

During the fiasco that was the 2016 presidential campaign, Donald Trump made a promise of a border wall on the southern border with Mexico. This is a very controversial topic on both sides of the political spectrum in today's media and each party's political agenda. I will look at the level of agreement of the following statement “ America Should build a wall on the border with Mexico”, and use the CSAF. I will

also use data from the American public's attitudes toward the US–Mexico border security was conducted by the Pew Research Center, Ipsos Public Affairs, and the Monmouth University Polling Institute. I hypothesize that Political affiliation will greatly affect whether or not a person agrees, as well as how a person's whereabouts and nationality affect your level of agreement. I expect to find Republicans will majority agree and Democrats will disagree with the idea, I also infer that the area affected by immigration such as border states will most likely support the statement above. I believe that support for America's Border wall will have a decrease since the time of the President's Campaign. I look at social identity theory and how one's perceived membership to a particular group has a relationship between American national identity and American public opinion on Immigration.

Psychology

59. The Clever Hans Phenomenon Seen Through Pupil Dilation

Presenter(s): Gilana Pikover, Andy Liang, Paola Portillo

Advisor(s): Dr. Amir Raz, Dr. Uri Maoz

Clever Hans, a horse in the late 1800's and early 1900's, was reported to be able to do basic arithmetic and perform other cognitive tasks. However, after extensive research, German biologists at the time, Oskar Pfungst and Carl Stumpf demonstrated that the horse was able to detect unconscious micro-movements that the person asking the question, and especially its trainer, would make. Hence, only if the person asking the question knew the answer to the question and the horse could see the person, the horse could tap his hoof enough times to count towards the correct answer. The Clever Hans phenomenon highlighted the existence of subtle, unconscious cues for communication. It also served to highlight the importance of double-blind studies. The proposed study consists of two stages. During the first stage, the Clever Hans phenomenon will be recreated. Subjects will be asked a basic arithmetic question, and then hear taps that the subject counts until it reaches the correct answer. The questions are addition and subtraction, with answers ranging from one to ten. Pupillometry is used to track subject's pupillary change during this process, looking specifically at pupillary changes that suggest anticipation and tension towards the answer, and then the ease of that tension. The experimental process uses no visual information, except a fixation point for subjects to look into, to reduce the risk of pupillary change due to external stimuli. In the second stage, this pupillary data will be used to train a machine learning program that will learn to identify the subtle, involuntary, pupil movements that are unconscious to the subject. By only looking at pupil dilation data, the program will be able to determine the answer to a math question that the participant is thinking about, using the same process from the first part of the study without the program having any previous knowledge of the answer to the question asked.

60. Pediatric Postoperative Pain Medication: Demographic Predictors and Parent Medication Attitudes

Presenter(s): Vivian Luong

Advisor(s): Dr. Brooke Jenkins

Over 85% of children experience significant pain after surgery. Despite this presence of pain, research suggests that a quarter of these children receive very little pain medication at home. Such poor pain

management in children can have harmful long-term consequences. Previous research indicates that the amount of pain medication administered to children in the home may be significantly impacted by the attitudes parents have regarding analgesics. Given this, the purpose of the present study is to identify how demographic factors such as child sex and ethnicity predict certain parent analgesic attitudes and, in turn, the amount of pain medication their children actually consume at home. These variables were analyzed in pediatric patients ages 2-13 who have undergone elective surgery at the Children’s Hospital of Orange County (N = 112). Before surgery, parents completed surveys to report medication attitudes and demographics. Following surgery, parents completed surveys at home to report the names and amounts of analgesics their child consumed. Ethnicity was found to interact with child sex to predict parents’ fear of side effects, $b = -4.750$, $p = 0.043$. Specifically, among Hispanic households, parents of daughters expressed a greater fear of analgesic side effects compared to parents of sons. The opposite trend is seen in White households, such that parents of sons expressed a greater fear of side effects compared to parents of daughters. Moreover, parents of higher income households administered less pain medication to their children than parents of lower income households regardless of medication type (acetaminophen: $b = -9.41E-6$, $p = 0.011$; ibuprofen: $b = -1.32E-5$, $p = 0.017$). Given the immense variability in content, amount, and clarity of information currently provided to parents about managing pediatric postoperative pain, these findings can be utilized to develop interventions that specifically target and educate parents who are likely to have misconceptions regarding analgesic use while still respecting the family’s culture, values, and practices.

61. Subject-Specific Neurofeedback for Mood Improvement

Presenter(s): Jake Gavenas, Jye Bold, Emma Chen, Bahram Saber, Victoria Caldera, Natalie Richardi

Advisor(s): Dr. Uri Maoz, Dr. Amir Raz

While medication and therapies are often effective treatments for depression, certain forms of depression are treatment resistant (e.g. Keller, 2005). Treatment alternatives are therefore desirable and are currently under exploration. Neurofeedback lets participants self-regulate their brain activity to a desired state via real-time measurements, analysis, and appropriate feedback. Some studies find electroencephalography (EEG) neurofeedback to be a viable treatment for depressive symptoms (Choi et al., 2009; Zotev et al., 2011). However, it is unclear how well features in EEG data generalize across individuals (e.g. Li et al., 2018). This brings into question the external validity of studies which rely on such features for targets of neurofeedback. We propose to investigate the efficacy of individually-tailored EEG neurofeedback. During a first session, participants will be induced to generally positive or negative moods while their EEG is measured. We will then extract features and train machine-learning and deep-learning algorithms to classify EEG by mood in real-time. During a second session, participants will self-regulate towards a happy mood with the help of feedback given by this classifier. Changes in mood will be compared to participants in a sham control group. We expect a greater improvement in mood in the feedback group compared to control. The use of individually-tailored classification algorithms is novel in EEG paradigms. Using subject-specific methods will both increase the internal validity of our findings and, hopefully, improve treatment efficacy. In this poster we compare current to previous piloting efforts and describe the current state of this project.

62. Changes in Pupil Size Reflect Brain Processes before Spontaneous Actions

Presenter(s): Jake Gavenas, Amber Hopkins, Ruby Moss, Kate Harder, Sabrina Takla, Romi Kariv

Advisor(s): Dr. Uri Maoz, Dr. Aaron Schurger

The timing of decision-making and intentions is critical to the study of volition. The self-reported time of intention onset (W) may mark a shift from a preconscious state to a conscious intention. However, W has been demonstrated to be a very problematic measure of intention onset, if it reflects this onset at all (e.g., Banks & Isham, 2009; see Maoz et al., 2015 for a review). Recent studies have shown that pupillometry can be used to quantify and track attentional shifts (Kang & Wheatley, 2015), potentially offering a more objective timing method than self-report. Lack of dilation related to intention onset would support other notions that the specific timing of an intention is inferred post-movement (e.g. Dominik et al., 2017). Here we investigate pupil dilations when attending to internal versus external events during self-initiated actions. Differences in pupil signals pre-movement provide insight to pre-movement brain activity.

Software Engineering

63. Crave: Crowdsourcing Meals Through Networking

Presenter(s): Trevor Kling, Chase Toyofuku-Souza, Joshua Barrs

Advisor(s): Dr. Michael Fahy

In the modern internet era, the ability to connect distinct technologies is one of the most important responsibilities for a software developer. To this end, we developed an application which employs multiple methods of transferring information between components to service the user. The program interfaces with two web APIs: Yelp and Reddit. The Reddit API is used to pull food-related posts from the web and display their contents in the application, while the Yelp API is used to find restaurants serving similar food. To determine what kind of restaurants to search for, a set of Naive Bayes classifiers are used to determine keywords for the Yelp search based on the text contents of the Reddit post. All of this back end data acquisition and processing is performed in a Java application. Meanwhile, the user interface is implemented on an Electron application, using HTML, CSS, and Javascript. This means the two components must have a way to communicate; this is achieved by passing JSON files over a local TCP connection. These results are then displayed to the user, who can interact with them freely while the back end does the time-consuming computations on a separate thread. Primarily, this project serves as a learning opportunity for a variety of industry-standard technologies. Electron and multiple-language applications are standard in the industry, yet evade most college curriculum. The end goal of this project is to produce an application which functions like a modern social media application, using machine learning and networking techniques to facilitate a seamless user experience.

64. Training Autonomous Vehicle using Emulated Sensors and Physiological Data

Presenter(s): Jungsu Pak, Oliver Mathias, Ariane Guirguis

Advisor(s): Dr. Uri Maoz

The potential of autonomous vehicles (AV) has been long recognized—from reducing road accidents and driving-related stress to increasing leisure time. However, it was not until recently, with advances in sensor technology together with machine learning and deep learning that autonomous mobility has begun to appear feasible promoted from fiction to science. It is therefore currently drawing much academic and commercial interest 2–7 , combining traffic engineering and data science. Our team proposes to emulate

sensors for AV within a highly realistic and immersive driving simulator. Our simulator comprises both software and hardware components that gives us complete control over the graphics, animation, and other visual, auditory, tactile, vestibular, and proprioceptive inputs of the participants. We will also collect physiological signals such as eye movements, pupillometry, heart rate, skin conductance, electroencephalography (EEG), electromyography (EMG), etc; using them to detect human cognitive states, such as emotions, attention, and much more. The sensor emulation from CARLA project—cameras, RADAR, LIDAR, and ultrasound— will be added to our driving simulator as well as autonomous driving abilities based on emulated sensors and on the physiological data of the human passengers. Furthermore, we will expose our participants to various specific traffic scenarios—from inner-city to highway driving—to see how they respond to the movement of the AV in the virtual environment based on different combinations of sensors and traffic situations. The simulator also enables us to study passengers in an AV, human drivers around and inside AVs, and all interaction among them within the same driving environment. At the same time, we will record their physiological data together with the emulated sensor data to train the machine-learning algorithms that drives the AV.

65. *Trolley Problem in Autonomous Vehicle Simulated in Virtual Reality*

Presenter(s): Jungsu Pak, Scott Cummings, Nicholas Mirchandani

Advisor(s): Dr. Uri Maoz

Trolley problem is a famous, philosophical thought experiment, where a person has to choose between killing five people through inaction or one person through action. In most such settings, subjects are given a battery of moral problems as text vignettes and respond to them one after the other. Preliminary previous research has suggested that placing the driver in a virtual-reality (VR) setting might alter their preferences. But no clear, systematic studies have been carried out to test the effect of VR on the trolley problem. We propose to do just that using a VR driving simulator. Subjects will drive around in the simulator where autonomous vehicle would be simulated and suddenly encounter the trolley problem. This setting will enable the subjects to actively make a decision and carry out the action. We will further measure EEG to monitor the participant's brain waves and further place sensors on the participant's body to collect postural data.

Theatre

66. *The Healing Power of the Arts: Drama Therapy and the Use of Theatre in the Treatment of Trauma*

Presenter(s): Brooklyn Snyder

Advisor(s): Dr. Jocelyn L. Buckner

Theatre is an incredibly valuable therapeutic tool. In this thesis, I will explore the ways in which trauma can reshape individuals lives, both cognitively and physically, impeding their sense of self, ability to trust, engagement, and many other seemingly ordinary aspects of day to day life that those of us unaffected by trauma take for granted. Additionally, I plan to cover how employing theatrical tools, like improvisation and role play, can act as a beneficial treatment option for those who have suffered a traumatic past. Drama therapy allows individuals to reconnect with their bodies and their minds, gain new perspectives on their experiences, and come to terms with their holistic self. Trauma affects people around us more

than we realize. One in five Americans have been molested, one in four grew up in a family with alcoholics, one in three couples have experienced physical violence, and countless veterans and their families deal with the aftermath of combat (Van Der Kolk, 1). In what ways do innovative treatments, like drama therapy, offer new roads to recovery and activate the brain's natural plasticity? I plan to study specific practices of drama therapy and evaluate public programs to see how using theatre as a tool builds communities and unites individuals whose lives have been scarred by trauma. Drama therapy provides a safe space for individuals in specific mental health and community settings to explore telling their stories, expressing their emotions, and finding new ways of looking at their situations, fostering a greater understanding of their experiences, as well as improved interpersonal relationships.

67. *New Voices Telling Old Stories: A Study in Stage Adaptation*

Presenter(s): Cassie Archer

Advisor(s): Dr. Jocelyn L. Buckner

What is adaptation? How is it studied? Why use the stage as a canvas for adaptations for literature, history, mythology, film, and more? Why are people drawn to adaptations? How does a retelling of a story affect that story? This paper will attempt to answer these questions first by exploring how adaptation studies apply to the theatre arts. This exploration into adaptation will yield discoveries into how storytelling works in theatre and to understand the power of telling and retelling in theatre. As adaptation studies has grown as a field, it offers a fresh perspective on theatre that can study the connections it has to other media, such as literature or film. Another goal of this paper is to analyze stage adaptations written by women and to find the answer to why and how they are rewriting these stories. This analysis will include my experience as dramaturg on Chapman University's production of Ellen McLaughlin's *Lysistrata*, as well as studies on Alice Walker's *The Color Purple* novel-to-movie-to-musical adaptation and Lynn Nottage's *Las Meninas*. This focus on women playwrights, writers, and women's stories is just one example of how adaptation is at work with creating diversity in theatre. This paper hopes to set up a framework in understanding why adaptation is important in appreciating the value of theatre history as it informs the creation of new stories that seek to communicate the truths of many perspectives. A wider goal of this paper is to contribute to the greater field of theatre studies by calling into question the value placed on originality, relevancy, history, and perspective. Ultimately, I will argue that it is essential that theatre artists continue to make adaptations from old stories because through this adaptation process, the knowledge of history can be shared and appreciated, at the same time as opening up the narrative to include voices that have traditionally not been included.

68. *Film School Not Necessary*

Presenter(s): Hannah Korf Haas

Advisor(s): Dr. Jocelyn L. Buckner

Theater has consistently been a part of my life, due in large fact that it is my family's business and passion. As I was growing up, I was fortunate enough to be taken to a performance almost once a week since I was 10 years old. Having this unique opportunity gave me the chance to see the expansive beauty within the entertainment industry. My theatrical upbringing ultimately led me down the path of studying theater. The skills I have learned, and continuously work to perfect within my undergraduate theater education is something I will carry with me through the rest of my career in entertainment. The curveball people are

unable to grasp is that although I will graduate with a B.A. in Theater Studies, I do not see myself necessarily going into theater after graduation, but film instead. Through my research I will prove to those who believe a film degree is a necessity for a film career that the skills I've learned from my theater education are easily transferable to a career in film and/or television. For example, the organizational skills that are needed for paperwork and being consistently prepared with an answer I have learned from studying stage management. Then the ability to communicate and work with difficult individuals I have refined through discussion. In addition, I have learned to be creative when it comes to having to problem solve. I have gotten to learn how to execute all of these skills in a professional atmosphere, and I know they can be easily transferred to my desired career of Executive Producer in the entertainment industry, and I am excited to continue to prove film school is not a necessity to achieve my goals.

69. *Harold Prince and Musical Theatre: The Most Glorious Words in the English Language*

Presenter(s): Jack Boyle

Advisor(s): Dr. Jocelyn L. Buckner

Musical theater is often brushed over and misunderstood. The director, along with the creative team, work together to convey a greater message, often aiming to stir social conscience. Musical theater weaves together song, dance and the spoken word, entertaining audiences while provoking thought. Many have viewed this groundbreaking art form as fluff; however, it's so much more than that. Certain shows have addressed critical issues and challenged stereotypes. Musical theater can be used as a platform to promote, identify, and allow people to become more aware of what's actually going on in the world, both positive and negative, and this never would have happened without the late, great director Harold Prince. Steven Levenson, playwright and author of *Dear Evan Hansen*, described Prince in *The New York Times* saying, "It is difficult to overstate just how outsized an influence Mr. Prince has had on the trajectory of musical theater, an art form that has been regularly pronounced frivolous, irrelevant, obsolete, only to reinvent itself time and time again. Many of the key moments of renewal and revolution in the past 65 years of musical theater were thanks to Mr. Prince himself." In this thesis, I plan to focus on Prince's directing styles and concepts, along with his collaborations with other artists and composers. Prince and his collaborators have shaped what musicals are and what they can be, often stirring emotion within audiences and causing pertinent follow-up conversations about how the shows may have mirrored the real world. As an aspiring director, I've been emotionally and creatively inspired by Prince's productions of *Company*, *Parade*, and *Cabaret*. I plan to carry on the amazing legacy of these productions and hope to create and produce shows of their caliber, always keeping in mind the greater social importance of the story being told on stage.

70. *People of Color as Leaders in Theatre*

Presenter(s): Jazmin Pollinger

Advisor(s): Dr. Jocelyn L. Buckner

"Leadership is a process of social influence, which maximizes the efforts of others, towards the achievement of a goal" (Kruse 2013). Our society has witnessed true leaders in all shapes, sizes, and colors. What makes a successful leader isn't their surface-level identity but their ability to inspire and motivate others to join them in working as a team toward a common goal. Yet, why is the theatre industry (i.e. one of the most diverse industries in the United States, the industry that strives for social change) lacking in leaders of color? Are there systematic educational prejudices and disadvantages in theatre education that discourage diversity in theatre careers? This paper seeks to answer these questions by evaluating the

potential bias present during the hiring process in the theatre industry. A 2017 diversity study done by the Actors Equity Association showed that “the overwhelming majority (74 percent) of national stage management contracts went to Caucasians” (Looking at Hiring Biases by the Numbers | Actors’ Equity Association). I will examine the various backgrounds of leaders in the theatre industry in order to attempt to answer “What are the means to creating a path to a leadership position?” Of the POC leaders in the theatrical industry, how many of them majored in theatre? It is necessary to identify how our society is moving forward. Historically, “almost all leaders have been men who represented the ruling class in their countries” (Hesselbein, 11). Leaders of the past were the same sex, race, religion, and culture. The leaders of the future, however, are evolving with an aching desire for diversity. As we move forward in understanding ourselves, it is necessary to know the leaders of today and the future will seek an understanding of all human experiences.

71. The Revolution of Choreography in Musical Theatre: How Styles of Dance Reflect Society and Illuminate Different Demographics

Presenter(s): Molly Shaw

Advisor(s): Dr. Jocelyn L. Buckner

Since their emergence in Western theatre in the 19th century, musicals have incorporated many different styles of dance into production. Choreographers have innovated and manipulated the human form to portray different ideals, consequently heightening the storytelling element of live performance. The musical theatre choreography canon has seen many genres of dance, from ballet, to jazz, to hip hop, with choreographic icons branching off and creating their own sub-genres along the way. Trailblazers such as Bob Fosse, Jerome Robbins, and Andy Blankenbuehler have used their choreography to illuminate different demographics of people, as well as reflect on the societies of their times. Theatre is truly a reflection of humanity and dance is an incredibly heightened outlet for emotion. Therefore, through dance, musical theatre has served as an incredible way to study culture and connect with the deepest human emotions. In this paper, I expand upon my beliefs that choreography in musical theatre can and has been used as a tool of cultural significance and that by studying the timeline and evolution of style, a window into humanity and social trends can emerge. Further examination into specific genres of dance and how they were manifested allows for insight into the societies of the time. A critical look into the representation of women and minorities, both in the choreographer and dancer communities can be directly correlated to the progression of dance and cultural ideologies in musical theatre. As theatre acts as a mirror to civilization, the themes and trends discovered in this paper will reflect not only the theatre and dance community, but also on the larger scale of American society as a whole.

72. The Whimsical Worlds of Sid and Marty Krofft

Presenter(s): Nola Jackson

Advisor(s): Dr. Jocelyn L. Buckner

From Dorothy traveling to the Land of Oz, Alice exploring Wonderland, and Little Nemo finally reaching Slumberland, Fantasy realms have always been a very popular form of media in children’s storytelling. In many people’s mundane lives, they can’t help but imagine escaping to new worlds and befriending bizarre creatures to go on adventures with. To create such complex and wondrous lands, one would not only need a very active imagination and a knack for storytelling, but also a way to make their vision come to life; which is exactly what brothers Sid and Marty Krofft achieved. Using a combination of 70’s television special effects and their skills in art, music, and puppetry, the Krofft’s greatly popularized giant puppet

mascots and shaped the movement of Saturday Morning children’s programming in the 70’s through their distinctly stylized television shows. In this thesis, I seek to understand how they created these worlds through their puppets, atmosphere, and characters; keeping in mind the technical capabilities of that time. I would like to discover how they developed these characters, what inspired them to create the sets, props, and puppets, and how they produced their shows to appeal to young audiences. To learn about the unique style of the Krofft brother’s productions, I shall narrow my search and mainly focus on three of their more popular shows: H.R. Pufnstuf, Lidsville, and Land of the Lost. I will conduct my research textually and visually, examining their theatrical design concepts of scenery, costumes, makeup, music, and special effects. By analyzing this information, I hope to discover the magic behind the scenes; what materials they had to work with, how the actors helped bring these characters to life, the mechanics involved with all of the special effects used, and what made these shows so fascinating overall.

73. Navigating the Complicated Nuances of Work Visas in the American Entertainment Industry

Presenter(s): Rin Mizumoto

Advisor(s): Dr. Jocelyn L. Buckner

My thesis will be about work visas in the American entertainment industry. The central research question focuses on different ways of acquiring visas, different types of visas, the history of immigration, and the politics of current visa situations. I will also provide information for fellow international students to obtain work opportunities in America through research of government documents, testimonies of fellow students, and personal experience. As an international student seeking employment in the American entertainment industry, this project will help me gather necessary information for my future as I approach graduation. This field is challenging to prepare for alongside the restrictions of being an international student, as I am not able to work off-campus in stage lighting. Contrastingly, my peers are legally allowed to pursue these opportunities and make connections. Many work visa policies do not take into consideration the obstacles placed on international students, and these unfair disadvantages placed on us create a sense of hopelessness. However, I have been proactive and fortunate enough to meet some successful people who are from different countries working in the American entertainment industry and have had the chance to learn how they got to where they are now. These connections have helped me realize that even though I will encounter obstacles through searching for employment as a Japanese person, I will be able to succeed. In this thesis, I plan to explore all the issues of the visa systems while also finding ways for international students to be prepared for the challenges they will face.

74. High Attendance and Long Running Shows at the Disneyland Resort

Presenter(s): Susanna Lewicki

Advisor(s): Dr. Jocelyn L. Buckner

People around the globe go to visit theme parks such as Disneyland. They begin planning their days around food, rides, parades, and fireworks. However, there are other things for them to do, such as going to one of the high tech shows most parks have to offer. The high tech shows offer exciting entertainment from singing and dancing to moving set changes and costume changes, and what guests are looking for on a hot day, a cool place to sit down and relax for a while. In this Thesis, I will explore how an amusement park production maintains its appeal to audiences and keeps the show running for many years. I will explore this through articles and interviews, as well as focusing on two of the longest running and well

known shows at The Disneyland Resort, Mickey and the Magical Map at the Fantasyland Theatre in Disneyland and Frozen live at The Hyperion in Disney's California Adventure. What makes these shows appealing to guests at the resort, making them want to leave the excitement of the park and to take the 25-60 minutes to watch a show? What does Disney look at in determining how long or if a show will continue running? What are the day to day responsibilities of Disneyland cast members that make these shows happen? What are the histories behind these shows and theatre's?

World Languages and Cultures

75. Hula: Keeping Tradition Alive in Colonial Hawai'i

Presenter(s): Naomi Molin

Advisor(s): Dr. Jocelyn L. Buckner

Hawai'i holds an interesting position in the fabric of the United States. The newest state and the most separate, both physically and culturally, Hawai'i has its own customs and culture that cannot be found anywhere else in the world. My research project explores the history of storytelling in Hawaiian culture, especially in regard to the significance of hula, the indigenous dance of Hawai'i, and analyzes the ways in which Hawaiian culture has been represented and altered as a result of colonialism and Hawai'i's incorporation into the United States. I will trace the origins of hula, the effects of Western imperialism on its practice, its shifting political and cultural place in Hawai'i over time, and the ways hula is used to keep traditional Hawaiian culture alive today. To do this, I will look at the political and military history of Hawai'i and Hawai'i's representation in Western media over time, using examples spanning from Victor Fleming's *Hula* (1927) to Disney's *Moana* (2016) to analyze why and how Hawaiian culture has been commodified and how those stereotypes contribute to the tourism industry crucial to Hawai'i's economy. I was born in Hawai'i, and while I am not Hawaiian, the islands were my first home and I care very deeply about them and their culture. Ultimately, this paper is an argument for the continuation and preservation of Hawaiian culture, in the hope that it will be around long enough for future generations of Hawaiians and non-Hawaiians alike to learn from and connect with.

76. Tradition and Evolution of Ballet in French Culture

Presenter(s): Hannah Shilling

Advisor(s): Dr. Veronique Olivier

Ballet is perhaps the most classical dance genre and certainly the most codified. There are specific etiquettes, rules, and customs but most importantly is the French vocabulary that accompanies it. Anywhere in the world, the vocabulary used and associated with ballet is all in French. This suggests that the ballet itself is truly inseparable from French culture. Ballet itself is reflective of the French language, which is a source of national pride very important in France. While the ballet rules must be respected and upheld even in today's generations, the French work hard to protect the rules, the authenticity, and the purity of the French language. This paper will explore the history of ballet in France from the time of Louis XIII to today, and how ballet has become an important part of French culture. I will conduct a literary analysis of major articles and sources to consider the links between language and ballet in France. Finally I will explore the influence of the French language on this kind of dance, especially the codification of terms.

77. The Fashion Industry & France

Presenter(s): Sarah Mehling

Advisor(s): Dr. Veronique Olivier

It's no secret that France has been a powerhouse in the fashion industry for decades. We see France's lasting impact on the industry that we know today. From the first couture house and department store to being the first place to categorize clothes by season, France has forever been a leader in changing the world of fashion. Designers with dreams of being the next Coco Chanel or the next Paul Poiret, designers who want to change the world of fashion, continue to flock to France to pursue their dreams. In my thesis, I not only explore the different ways that France has changed fashion, but also the ways that fashion has changed France. Fashion and luxury goods transformed the French economy. People from all over the world came to France looking for the latest trends and the most popular designers. All around the world, fashion was referred to as "la mode" which is the French term for fashion. France had made itself a global brand through the production of the finest articles of clothing. When purchasing an article of French couture, a person wasn't just buying the piece of clothing, they were buying the essence of style held by the French that no one else had been able master.

Biochemistry and Molecular Biology

1. *Dietary Folic Acid Modulates Drug-Induced Toxicity in Pediatric Inflammatory Bowel Disease*

Presenter(s): Natalie Paterson

Advisor(s): Dr. John Miklavcic

Ulcerative colitis and Crohn's disease are chronic conditions collectively known as inflammatory bowel disease (IBD). Of children with IBD, 20% have a polymorphism for the enzyme thiopurine methyltransferase (TPMT). Low TPMT activity inhibits effective metabolism of azathioprine, one of the most effective immunomodulators prescribed. Previous studies have shown that combining treatment with folic acid supplementation helps to mitigate drug-induced toxicity. Thereby, in this study, treatment and genotype data on pediatric IBD patients from ImproveCareNow, a global IBD network and database were analyzed. It was found that that 31% of patients on azathioprine were genotyped and 66% were phenotyped. In total, 17% of patients in ICN database are currently prescribed azathioprine of which 7% also take folic acid. When analyzing the blood markers that indicate drug-toxicity 70% of patients on azathioprine had 6-TGN metabolites measured and 65% had 6-MMP metabolites measured. The percent of patients who achieve remission while on azathioprine and folic acid still needs to be assessed. Overall, this study will serve to enhance the of data, treatment, and care practices within the IBD community by increasing the understanding of how individual genetic factors, drugs, and functional foods can be combined to increase IBD patient's quality of life.

2. *A Multivalent Prophylactic and Therapeutic Vaccine Against EBV Infection and EBV-Associated Malignancies*

Presenter(s): Victoria Erickson

Advisor(s): Gordon Ogembo

Epstein Barr Virus (EBV) is a gamma Herpesvirus that has infected about 90% of the population and is the leading cause of infectious mononucleosis. Each year there are 145,000 global deaths due to EBV malignancies with 200,00 new cases diagnosed. These malignancies include Burkitt lymphoma, Hodgkin lymphoma, NK/T cell lymphoma, post-transplant lymphoproliferative disorders, gastric carcinoma, and nasopharyngeal carcinoma. There is currently no EBV licensed vaccine in the clinic. The vaccine structure that we are currently developing incorporates the use of virus-like particles (VLP) to safely deliver 5 of the EBV envelop glycoproteins important for permissive cell entry along with 2 latent antigens known to be expressed in EBV positive cancers, EBNA1 and LMP2, into the body to result in activation of both a cellular and humoral immune response. To overcome poor immunogenicity reported in previously tested vaccine candidates, we used molecular cloning to incorporate the use of the Modified Vaccinia Ankara (MVA) platform to design, develop and characterize a heptameric virus-like particle that will be produced in vivo. It is hypothesized that by combining 5 EBV glycoproteins along with 2 latent antigens together in an MVA based EBV-LP vaccine construct we will be able to produce an EBV vaccine with therapeutic and prophylactic abilities to prevent EBV infection and its associated malignancies. We provide preliminary evidence through western blot that Baby hamster kidney (BHK) cells infected with MVA expressing multiple EBV proteins produced EBV-LPs. Full characterization of the composition, structure, and immunogenicity of these EBV-LPs is in progress.

Biological Sciences

3. *Hagfish Epidermis: Cell Types and Morphology of Epidermal Thread Cells*

Presenter(s): Kristen Nieders

Advisor(s): Dr. Douglas Fudge, Dr. Yu Zeng

Hagfish slime functions as a defense mechanism against predators by clogging their gills. The unique properties of this slime are mainly attributed to the silk-like threads produced by cells in the slime gland. It is hypothesized that hagfish slime glands arose as a result of the invagination of cells found in the epidermis, namely epidermal thread cells (ETC) and large mucous cells (LMC). This hypothesis predicts that there should be similarities between the structure of the thread and mucous cells found in the skin and those found in the slime glands. Here, we categorized the different types of cells found in the epidermal layer of hagfish skin: ETC, LMC, and small mucous cells (SMC) and aimed to gain a better understanding of the distribution and characteristics of these cell types. To gain an understanding of the distribution of epidermal cell types in Pacific hagfish, we measured cell positions and abundances in fixed and H&E stained skin samples from eight positions along the anterior-posterior axis. This research provides insight to the diversity of cell types found in the hagfish skin as well as the evolutionary origins of the highly specialized cells found within hagfish slime glands.

4. *Uncovering Slime Deployment Mechanisms in Hagfish*

Presenter(s): Lucy Chalekian

Advisor(s): Dr. Douglas Fudge, Dr. Gaurav Jain

Hagfishes are a diverse group of jawless marine fishes that are noteworthy for their ability to produce gill-clogging slime when threatened. The slime exudate ejected by the slime glands is made up of two main components: thread skeins and mucous vesicles. Although the biophysical mechanisms of exudate deployment in seawater are not understood, some details are known. Thread skeins must unravel from their coiled state and provide strength to the slime in the form of a network of silk-like threads. Deployment of mucous vesicles is known to involve the swelling of constituent glycoproteins their subsequent deformation into a vast mucous network that interpenetrates the slime thread network. Recent theoretical work suggests that thread skein unraveling would be greatly enhanced under conditions where the skein (or a loose piece of thread) is pinned to a solid surface. We hypothesize that the slime gland pore remains attached to ejected exudate, and acts as an anchor that allows mucus, and skeins embedded within it, to be loaded in tension, which facilitates unravelling and efficient slime formation. We have employed high-speed camera mounted on an Axio Zoom microscope to observe this process in detail. Our preliminary results suggest that hagfish slime exudate indeed requires an anchor for proper skein unraveling and slime formation.

5. *Locomotion of Atlantic Hagfish: Burrowing in Sand*

Presenter(s): Luke Arnold

Advisor(s): Dr. Douglas Fudge, Dr. Charlene McCord

Hagfishes are elongate, eel-shaped marine organisms notorious for their ability to produce large volumes of slime as a defense mechanism against predators. They are commonly found in the depths of the ocean, where they act as scavengers. Hagfishes have been known to squeeze through tight spaces and burrow in a variety of substrates, including sand, mud, and large animal carcasses, but the mechanisms of hagfish burrowing have not been widely researched. In this project, we studied the behaviors of the Atlantic hagfish (*Myxine glutinosa*) burrowing in sand. This was accomplished by studying an Atlantic hagfish in a tank partially filled with sand and artificial sea water (ASW), filming with a mounted camera. Videos were used for kinematic analysis of tailbeat frequency and behavioral patterns. It was found that Atlantic hagfish sand burrowing occurs in two sequential phases: the first phase began with the hagfish entering the substrate head-first, followed by lateral tail beating that decreased in frequency along with rotational movements of the body. This persisted until the hagfish was partially submerged in the sand; the second phase began with a gradual lurching where the body would enter the substrate in a saltatory pattern over a longer period of time. These findings are significant within the context of vertebrate evolution as well as bettering our understanding of the diversity of Atlantic hagfish locomotor behaviors. A biphasic burrowing strategy has also been noted in burrowing and sand diving Osteichthyes indicating that the lack of a vertebral column and the presence of an elongate body form of hagfishes does not impede, and may even functionally enhance, the burrowing lifestyle of myxinids.

6. *How Does Hagfish Slime Clog so Efficiently?*

Presenter(s): Luke Taylor

Advisor(s): Dr. Douglas Fudge, Dr. Gaurav Jain

Hagfish slime consists primarily of mucus vesicles and protein-based threads, which come packaged in coiled structures known as skeins. Much is understood about the structure and function of the thread skeins, but little is known about the nature of the mucus component. The purpose of this research is to better understand the structure of hagfish mucus and the mechanism behind its capacity to retain remarkable quantities of water. Hagfish slime has also been shown to act as a defense mechanism by clogging the gills of gill-breathing predators and hindering the flow of water. Our current hypothesis focuses on the entrapment of water molecules between mucin threads within the hagfish mucus. Mucins are large glycoproteins that potentially trap water molecules through hydrophobic interactions and disulfide bonding. According to our hypothesis, the entrapment is only possible due to the relative proximity of the mucin threads. If the threads are too far apart, the weak interactions likely lower the potential for the mucus gel to retain water. On the other hand, if the threads are too close together, the strong interactions likely leave little room for entrapment—effectively squeezing the water out from the mucus gel. If this hypothesis is correct, altering the proximity of these strands by intermolecular cross linking, reduction of cross-links, or mechanical disruption, will negatively affect the ability of the slime to trap water. We are testing this hypothesis with a variety of techniques including microscopy of mucus strands and quantitative drain rate measurements.

7. *The Effects of Ocean Acidification on Predator Recognition and Response in the Intertidal Hermit Crab Pagurus samuelis*

Presenter(s): Sarah Otto, Lauren Goodell, Jocelyn Dawson

Advisor(s): Dr. William Wright, Crystal Ng

The fitness of a prey species is strongly influenced by its predators, whether through the direct act of being preyed on, or indirect effects, such as limiting feeding and reproduction in order to engage in antipredator behaviors. Many marine prey, such as the intertidal hermit crab *Pagurus samuelis*, rely on various environmental cues to accurately judge a predator threat and initiate an appropriate response. *P. samuelis* specifically depends on both chemosensory and visual cues to detect potential predators and alter its behavior. We studied two different kinds of anti-predator strategies in *P. samuelis*: withdrawal into the shell and active flight. Previous research has shown that ocean acidification (OA) can compromise predator risk detection, leaving prey vulnerable. Our research investigates the short-term effects of OA appropriate to the present-day natural cycles experienced by *P. samuelis* in intertidal pools at night. Hermit crabs were placed in either ambient artificial sea water (ASW) or ASW containing a chemical predator cue, and then presented with a visual cue in the form of a predator shadow. Following the presentation of the shadow cue, the time of emergence out of the shell and fleeing speed were measured. We expected that *P. samuelis* would exhibit a higher intensity predator response when introduced to cumulative chemical and visual predator cues in the form of faster emergence out of their shell and a greater speed to flee when compared to a hermit crab introduced to only a visual cue. Yet, this heightened anti-predator response is predicted to be eradicated in acidic ocean water of pH 7.6, thus reverting back to ambient water behaviors. Our preliminary results suggest that predator scent does not influence the speed of active flight, whereas it shortens the time of emergence from the shell. These results confirm that as climate change intensifies OA, *P. samuelis* population dynamics will be threatened as individuals are left susceptible to predators due to an undermined sensory system, which can hence compromise intertidal trophic interactions.

Chemistry

8. *Exploring a Carbodiphosphorane Catalyst in Ketone Hydroboration*

Presenter(s): Cara Fleener

Advisor(s): Dr. Allegra Liberman-Martin

Catalysts are needed to carry out the majority of processes in refining, polymer, chemical, and environmental industries, including reactions involving ketones, which are commonly used as solvents, polymer precursors, and in pharmaceuticals. In efforts to promote green chemistry, environmentally friendly catalysts are being studied that feature earth abundant and non-toxic elements. We have conducted studies on the reactivity and mechanistic properties of a main group element catalyst in hydroboration, a widely used reduction reaction. The carbodiphosphorane catalyst we are investigating contains phosphorus as a substitute for the transition metals that are commonly used to facilitate these reactions but that are expensive and toxic to the environment. Carbodiphosphorane catalyst optimization was studied by expanding the scope of ketones for the hydroboration reactions. The highly nucleophilic carbon center of the carbodiphosphorane is efficient in catalyzing ketone hydroboration reactions. The exploration of this mechanism and formation of the hydroboration product from a given ketone allows us to uncover catalyst design principles to improve its reactivity.

9. *Computational Investigation Into the Origins of Reactivity in the Cooperative E-H Bond Activation at Metal-Thiolate Complexes*

Presenter(s): Joshua Oommen, Zach Nelson

Advisor(s): Dr. Maduka Ogba

Within the last decade, experimentalists have attempted to mimic the heterolytic bond cleavage of H-H bonds by [NiFe] hydrogenases by constructing synthetic metal-thiolate complexes using various transition metals for its potential applications in industrial reduction chemistry and alternative fuel sources. In their seminal work in 2008, Stradiotto and colleagues synthesized an iridium (III) and a rhodium (III) thiolate complex that was used for the successful cleavage of silane (Si-H) bonds, facilitating the hydrosilylation of ketones. Experiments reveal that stoichiometric amounts of the iridium (III) complex was needed for this transformation, while catalytic amounts were achieved for the rhodium (III) analog. The mechanism for the reactions using both metal-thiolate complexes and the origins of differing reactivity between the complexes have not been explored. Our research goal is to use quantum mechanical computations to (i) elucidate the plausible mechanism(s) for Si-H activation mediated by both metal-thiolate complexes, and (ii) uncover the factors affecting the difference in reactivity between these complexes i.e., stoichiometric for iridium(iii), catalytic for rhodium(iii). Furthermore, experimental attempts to heterolytically cleave dihydrogen (H-H) using these complexes failed, and results from our work will serve as a launch point for designing metal-thiolate variants for this important transformation. In this poster, we will present the computed ground state complexes along the reaction pathway toward the hydrosilylation of acetophenone using both iridium (III) and rhodium (III) metal thiolate complexes, and present our validation analysis with existing crystal structures. Our current hypothesis for the differing reactivity based on the ground state complexes will be discussed.

Communication Sciences and Disorders

10. *Vocalizations With and Without Mouthing in Hearing Infants and Infants with Profound Hearing Loss*

Presenter(s): Hayley Ratzan-Wank, Sophie Tabrizi

Advisor(s): Dr. Mary Fagan

Mouthing is an exploratory process through which children examine and gain information about their environment (Ruff, Saltarelli, Capozzoli, & Dubiner, 1992). For example, a child with a rattle may bang or mouth the object to receive information about the object's sound, texture, and shape. Previous research has shown that mouthing toys is an important exploratory process during play (Ruff et al., 1992). Infants also mouth objects when vocalizing (Fagan & Iverson, 2007). The focus of our study was to analyze mouthing behaviors during vocalization in infants with profound hearing loss with and without cochlear implants in comparison to hearing infants. Our research included coding 57 videos of 9- to 18-month-old hearing infants and infants with profound hearing loss. We identified the number of infant vocalizations produced during mouthing of objects (e.g., rattle, donut ring) and the number of vocalizations without mouthing. We hypothesized that, compared to hearing infants, infants with hearing loss are more likely to mouth objects in order to obtain sensory feedback in the absence of auditory feedback. Thus, we

predicted that mouthing would be an important form of vocal exploration in infants with hearing loss (Fagan & Iverson, 2007). Our research found, however, that the difference in number of mouthing and non-mouthing vocalizations between 18-month-old hearing infants and infants with cochlear implants was not significant. Compared with 9-month-old hearing infants, however, infants with profound hearing loss who had not yet received cochlear implants produced significantly fewer non-mouthing vocalizations.

11. Consonant Acquisition of Cochlear Implant Recipients and Their Normal Hearing Peers

Presenter(s): Minh-Chau Vu, Brittney Sawai

Advisor(s): Dr. Mary Fagan

Consonants are speech sounds (i.e., phonemes) created by the complete or partial closure of the vocal tract. Consonant phonemes can be divided by manner or type of closure (stop, fricative, affricate, nasal, liquid, and glide), place of articulation (bilabial, labiodental, dental, alveolar, palatal, velar, and glottal), and voicing (voiced and voiceless). The acquisition of these different consonant groups is part of the speech development process that begins as early as 2 months of age. The purpose of this study was to investigate differences in speech acquisition by comparing the consonant inventories of cochlear implant recipients and their age-matched hearing peers. There were two participant groups: infants with cochlear implants and normal hearing infants. Participants were videotaped playing with objects for approximately twenty minutes. Their spontaneous speech sounds were then recorded and analyzed. The results suggest that the normal hearing infants produced significantly more phonemes, consonants, and types of consonants per vocalization than the infants with cochlear implants did. The normal-hearing infants produced an average of 2.76 phonemes, 1.11 consonants, and 0.89 different consonants. On the other hand, the cochlear implants recipients produced an average of 1.96 phonemes, 0.74 consonants, and 0.64 different consonants. The types of consonants produced are currently being analyzed. A dominant number of stop consonants in the cochlear implant group is expected to be seen, as most studies agree that stops are the most frequent and earliest to develop. However, later acquisition of consonants has varied across studies. This study sought to find a pattern in the types of consonant acquired by the cochlear implant recipients and how that trend differs from their hearing peers.

Communication Studies

12. Nao Music Teacher

Presenter(s): Carlton Chang, Brandon Garcia

Advisor(s): Dr. Austin Lee

We will explore the functionality of robotics in regards to teaching piano to beginners. We will do this by programming Nao to listen to the students play the piano and respond by giving feedback on their performance. Different students respond from different teaching methods, in order for Nao to function the best as a piano teacher, it will first determine to the students personality via strengthsfinder test, analyze the results, and respond accordingly. The overall purpose is that Nao will be a resource for students to learn the piano at a lower cost than the normal human teacher. Nao will project sheet music on a seperate screen and will follow along as the student plays the piece. Nao will listen to the student

and if the student plays a wrong note Nao will highlight that notes on the sheet music for the student to see and be able to repeat correctly. Using Nao as guide will allow for the student to learn based on visual cues from both Nao and the sheet music. Nao will also respond verbally based on the student's needs and learning styles to allow the student to learn based on audio cues. Nao will also play the piece or note through its speaker in order for the student to learn and determine basic piano skills and theory. The purpose of all these specific functionalities and programming is to successfully and efficiently teach students piano in the learning style that best caters to them.

13. *The Relationship Between Childhood Psychological Abuse and the College Students' Perception of Dating Red Flags*

Presenter(s): Maya Dhairyawan, Elizabeth Alexander, Helene Drean

Advisor(s): Dr. Michelle Miller-Day

The research studied the ramifications between psychological abuse and dating red flags. Thus, the home environment in which individuals grew up in can affect their ability in perceiving red flags in their relationships once an adult. Psychological abuse has led to adults using dating violence and aggression. We conducted an online survey on 159 students, 15.3% (n= 24) and 84.1 female (n= 132) at Chapman University in Orange, California, studying in the field of Communication Studies or Strategic and Corporate Communication. The goal was to answer the following question: To what extent does the home environment that college students grow up in affect their ability to perceive red flags in their romantic relationships? We found that there was a statistically significant correlation between psychological abuse and viewing one's romantic partner losing his or her temper as a red flag. However, we found no statistically significant correlation between viewing jealousy or treating service workers poorly as red flags with psychological abuse.

Computer Science

14. *Human-Computer Interaction: Friend Connecting Application*

Presenter(s): Alex Rigl, Matthew Parnham, Jonathan Bahm

Advisor(s): Dr. LouAnne Boyd

Communication is an essential part of the human experience that allows people to connect and form bonds over similar experiences. Our group is developing an application that will connect users based on preferences including hobbies, ethnicity, sexual orientation, and other diversity clusters. Whether users want to meet people with similar interests and backgrounds or different ones, we believe an application with a focus on meeting people with the intention of becoming friends will deliver a positive experience that allows for potential close bonds to form. Users have the option to remain anonymous to offer a safe and secure messaging service, and also allows a group sharing function to display your feelings and thoughts to the world. We are integrating multi-modal techniques that allow users to control the application through voice recognition, touch, and haptic feedback. Our application has been developed with a user-centered design in mind that allows it to be accessible to a broad range of users, which has undergone many different versions through rapid prototyping in order to determine which features offer a more inclusive experience. Our goal is to offer a sleek and responsive experience every user will enjoy. This will hopefully make it easier than ever to meet new people and make new friends.

15. (C)happy: The Happiest Social Networking App

Presenter(s): James Kistner, David Aarhus, Vinny Caffaro

Advisor(s): Dr. LouAnne Boyd

Our goal is to create a multimodal social networking app that supports a diverse Chapman community. Because our group currently researches and studies how human-computer interaction affects the design of products in the field today, our purpose for designing this application is to create an inclusive platform that specifically includes features geared to accommodate people typically excluded. In particular, our networking application will work to embrace individuals that do not fall into society's gender and sexual orientation heteronormative. Also, we want to include people of diverse ethnicities and skin colors that are part of our Chapman community. Another important feature of our app is that is only for Chapman students. In order to become more aware of the diverse population at Chapman University and figure out what these groups need, our group incorporated methods such as paper prototyping and wireframing. Our expected results from our research are to have these different diversity groups feel included and comfortable in an app that brings the Chapman community together.

16. Cognitive Offloading App

Presenter(s): Thomas Trinh, Wyatt Miller, Noah Ferrel

Advisor(s): Dr. LouAnne Boyd

The issue we are trying to work on is figuring out how to help those with anxiety or a cognitive disability. The overall research question is asking How could a reminder app help person with anxiety or a cognitive disability with cognitive offloading?The goal of our project is to create a multimodal reminder app. We are using a user centered design process. We are developing our reminder app by utilizing techniques such as rapid prototyping, card sorting, and wireframing. Through rapid prototyping, we hope to optimize the user's experience by quickly creating mock interfaces and alternatives. This will allow us to gain information from the users as we develop the multimodal reminder app. Through data gathered by card sorting we have been able to figure out how each function of the app is linked together in an intuitive way. Wireframing will help us create an interface very similar to the real app and will provide us with the most accurate data that we need to further improve our multimodal reminder app. What makes our app multimodal is that users with various abilities will be able to smoothly use our app. The options we provide such as typing, dictation, and braille make this app more accessible. The overall research question is asking How could a reminder app help person with anxiety or a cognitive disability with cognitive offloading? Our expected result is that our app lowers levels of stress in our users.

17. Secure Network-Based Communication Using SSL

Presenter(s): Jacob Anabi, John Park, Jerrick Torres

Advisor(s): Dr. Michael Fahy

For our project, we will be developing a secure communication application. To accomplish this, we will be working with socket-based programming to provide encryption-based messaging. We will need to secure the transmission of data between two individual parties and provide proper connections, authentication, and data integrity. Thus, SSL seems like a prime candidate to use in our application. Additionally, we will be writing our application in Java because it already provides many security-based APIs like the JSSE (Java

Secured-Socket Extension). We expect to have the fundamentals of our chat application working by the end of this semester, with the possibly of a very basic UI/UX. Our hope and goal is to provide individuals, who are interested in encryption, a free and open-source resource that will help them down the path of working with secure messaging.

18. *Exploring Client/Server Interactions Within the Classic Game Pong*

Presenter(s): Jady Gonzalez, Ethan Kennedy

Advisor(s): Dr. Michael Fahy

In this project we hope to explore a multi-client/server interaction over the TCP protocol with the classic game Pong. We will implement the game using multithreaded persistent socket connections to the game server. The main component of the project will be the server as it will have to send and receive a constant stream of data from two clients, so multiple threads will have to be added server-side for the game to function properly. Additionally, these connections must be persistent such that data is constantly being shared between the server and the clients. The server will also host the bulk of the game structure while the clients will function only to establish a persistent connection to the server through an IP and port number and to update the game state with keyboard input from each user. In the end we hope to have a functional Pong game with a server running the game state that listens for clients on a specified IP and port number. Each client can connect at any time and upon two socket connections the server should start the game. At the game start the server and clients should maintain persistent connections as game updates will be streamed to the server from each client. At a set number of wins from either client, the server should send disconnect messages to each client and close the connections.

Data Analytics

19. *Does Parental Financial Assistance Affect a Student's Overall Experience at Chapman University?*

Presenter(s): Tommi Budd

Advisor(s): Dr. Oliver Lopez

This survey was given to Chapman University students and asked questions regarding the students' financial aid support from both the university and the parents/ guardians. This was to attempt to find a relationship between the financial support a student receives and the satisfaction level as well as quality of education as Chapman University student.

Economics

20. *A Conceptualization of the US-China Trade War*

Presenter(s): Bryce Kauffman

Advisor(s): Dr. David Rojo-Arjona

The economic policy of the United States always takes up a significant portion of the political discussion. Recently, one of the main topics in that area is the trade war with China. This trade wars include retaliatory

tariffs, which leads to negative effects. In particular, the trade war causes both an increase of the prices of important imports (with the corresponding cost passed to consumers) and a decrease in the volume of trade (which affects consumer welfare). Utilizing the general equilibrium theory to conceptually represent trade between the United States and China, this paper will show the effects of the trade war between these two countries and what conclusions can be drawn from this conceptual representation when we include real-world data.

21. *Improving Computational Methods of Revealed Preference Theory Analysis*

Presenter(s): Sebastian Ayala, Gregory Tyler

Advisor(s): Dr. David Rojo-Arjona

Revealed Preference is a theoretical framework providing the necessary and sufficient conditions to test many economic theory. One of the core elements of the revealed preferences literature is the Generalized Axiom of Revealed Preference (GARP). Current algorithms checking the conditions of this axiom are very demanding and limiting. In this project, we have two main goals. First, we seek to first understand Revealed Preference Theory (Samuelson 1938, Afriat 1967, Varian 1983). Second, we want to improve current algorithms by reducing the amount of computations required from n^{10} or above to at most $n \log n$. Decreasing the amount of computation by almost 1 order of magnitude will make currently intractable problems solvable with readily available resources.

English

22. *Romanticism Rising: A Human Rights Approach to Percy Shelley's "Mask of Anarchy"*

Presenter(s): Janice Yim

Advisor(s): Dr. Brian Glaser, Dr. Lynda Hall

By transcending boundaries and creating a standard language of rights and justice, poets can create a space that addresses the universal concerns of humanity. As an inherently universalist subject, human rights—and the execution thereof—calls upon individuals to promote those concerns that are essential to fostering a just global community. In his *Defence of Poetry*, Romantic poet Percy Shelley demands for poets to engage their audiences in the political realm through the pursuit of the Enlightenment-era idea of natural rights. My project focuses on the definition and application of a modern human rights lens, rather than a natural rights perspective, to Shelley's "Mask of Anarchy," a poem which describes the politics and pathos of nonviolent resistance and revolution. Through my definition of a human rights theoretical lens, as created through intensive research, and its subsequent application to Shelley's text, in "Romanticism Rising: a human rights approach to Percy Shelley's "Mask of Anarchy,"" I will explore the ideas of equity, diversity, accessibility, intersectionality, and others in terms of human rights, and I aim to find persistent themes of rights discourse throughout literary history and theorize upon what can be done to further human rights today. In doing so, I will discover what can be learned about the current situation in a globalizing, interconnective human rights discourse from the roots of the movement, highlighting the applicability of literary studies to the fields of law and philosophy.

23. *Multimodality in the Composition Classroom*

Presenter(s): Savy Janssen, Alexa Burnstine

Advisor(s): Dr. Ian Barnard

With increased reliance on technology in the classroom, conversations surrounding multimodality (evaluating how meaning is made through textual, visual, aural, linguistic, spatial, etc. elements) have surfaced in pedagogical theory. Most composition nowadays is done digitally and interwoven with sounds, images, videos, and hyperlinks, but the question is, does this type of composition increase student understanding more than a typical written text? For this study, we gave students both written and digital texts, in this case short videos, on the same subject matter. After each read or watch of the text, students were asked via survey to explain what the text is about. After we gave students the second text, we asked students which text aided them most in their understanding of the material. This process was repeated four times, with each type of text being given in a different order each time - written, video; written, written; video, written; video, video. We did this in order to avoid students from always claiming that the second text was most helpful simply because it was the second time they were seeing the material. According to the student survey responses, students had a better understanding of the subject from the multimodal video than from just reading the written text. These responses proved that teaching with multimodal resources is not only effective in the classroom, but it also increases student comprehension of a topic. Multimodality is still growing in academia, and if done right, we think that it can serve teachers and students well across disciplines.

24. *A Critical Approach to Structural Racism in Harry Potter*

Presenter(s): Amy Sara Lim

Advisor(s): Dr. Lynda Hall, Dr. Jan Osborn

J.K. Rowling's Harry Potter series has been lauded as a sensational children's series enjoyed by all ages—culminating in the creation of theme parks, movies, a merchandise line, and a franchise. Despite the fantastical and magical nature of Rowling's tale of young wizards going to Hogwarts and fighting evil, the structures of the wizarding world aren't too far-fetched or distant from our own Muggle world. Using the methodology of critical rhetoric and critical pedagogy, this project seeks to use these lenses to show how J.K. Rowling's fantastical world makes the familiar strange and reveals everyday social structures that are often overlooked. By looking specifically at blood status within the wizarding world, this study will explore structural racism in Harry Potter through the racial hierarchy of purebloods, half-bloods, and Muggle-borns. Blood purity is used to produce ideologies about other wizards and gives some wizards power while inhibiting others from living without fear of prejudice. A character study of Lord Voldemort of Tom Marvolo Riddle reveals how those in power use discursive formations to maintain their power. These discursive formations include the symbol of the Dark Mark, the Muggle Registration Commission, and Voldemort's takeover of the wizarding school, Hogwarts. Studying other characters, notably, half-blood characters, such as Snape and Harry Potter, indicates the complexity of mixed-blood characters within the racial structure, pointing to the complexities that multiracial children have in the real world. Combined with the effects of Voldemort's rigid and essentialist Hogwarts regime and the treatment of half-blood characters, this project will explore how structural racism within Harry Potter can be used by secondary education students and teachers to critically consider structural racism and awaken them to the ways in which they can fight the evils created when the dominant race controls power and ideology within a society.

25. *The Alienation of Outsiders in Dracula*

Presenter(s): Autumn Schaefer

Advisor(s): Dr. Lynda Hall

Dracula was written as the nineteenth century was coming to a close and there were rampant fears of reverse colonization and of the New Woman swirling around at the time. In Dracula, outsiders who do not conform to the societal norms set out by English society are ostracized and turned into bloodsucking monsters. Dracula is a vampire who emigrates to England, threatening English society with a foreign epidemic. Vampires are the catalysts in all the sexual interactions in the novel and though their sexuality is inviting to the main protagonists, it is also forbidden and demonized as the vampires are established as outcasts in society. Lucy, who is loved by several men, is a threat because her sexuality pits the men against each other and she becomes overcome by Dracula since she is a New Woman figure. Even Mina is susceptible to Dracula because of her status as a woman, and she must be protected, albeit poorly, by the men, and her sexuality as a woman ends up putting herself and the men at risk. People in power often utilize derogatory terms and ideas such as monsters and vampires in such a way as to keep people under control and maintain the social status quo. Minority groups who wish for autonomy away from the established structures are ostracized and turned into monsters who must be defeated. This demonization, name-calling, and ostracization of immigrants and minority groups continues and is still very prominent to this day. Monsters are used in Dracula to alienate those who do not conform to societal norms, as immigrants from the East and women who are independent or possess sexuality are turned into vampires who must be saved by men who conform to the Victorian ideologies of the day.

26. *Modern Day Horror (Filming/Editing)*

Presenter(s): Gina Aboul-Hosn, Liam Cory, Nick Griffith, Rachel Wilson

Advisor(s): Sam Risak

The purpose of our horror film “Friend?” is to parallel the overstimulation of ads and reduced use of social media through specific post-production techniques. Adults and children feel the pressures of social media and frequently lack judgment when it comes to making the right decisions. Our goal is to give our audience an allegorical and cautionary tale of what can happen when we lack judgment on social media. In this project, we have discovered the most successful way to scare the audience is through film devices, like slow-moving shots and editing techniques, such as cold colors and modern music, that shed light on the inescapability of our phones have. While creating the film, we reflected on horror films that succeeded in the past, such as Truth or Dare and The Ring. We pulled from the social media aspect of Truth or Dare, by making our film centered around an “Instagram Direct Message.” We pulled from The Ring by having our monster come out of the phone, just as it comes out of the television in The Ring. We also took from the stylistic choices of movies such as lighting, perspective, and sound, in order to have the same aesthetic created in the other films. The film is for teen and young adult viewing, as it resonates the most within the group who grew up with social media. We expect to create a film that will resonate with our audience's experience with social media and hopefully create a horror perspective on it.

Environmental Science and Policy

27. Validation of Arsenic Concentrations in Mine-Impacted Sediments Using a Handheld X-Ray Fluorescence Spectrometer

Presenter(s): Ryly Yee

Advisor(s): Dr. Christopher Kim

Arsenic (As) is a naturally occurring environmental contaminant that poses potential health threats to humans when ingested. Humans can be exposed to arsenic in food, soil, water, dust, and airborne particles. It is therefore useful to be able to rapidly assess arsenic concentrations in contaminated sediments as a first step towards determining potential arsenic bioaccessibility. Ten different mine sites throughout the state of California were sampled and examined; although currently inactive, the areas immediately surrounding the mines are often residential, which can expose local residents to traces of arsenic daily. Because of the risk to homes located near mine sites, these mining sites need to be analyzed to determine the amount of arsenic in the soils to ensure the safety of the residents. The goals of this project are to determine the validity of the handheld X-ray fluorescence spectrometer (XRF) over a wide range of concentrations and to find As concentrations in samples by creating a plot comparing As concentrations to data collected from an independent lab, ChemEx, which used acid digestion and inductively coupled plasma-mass spectrometry (ICP-MS) to measure arsenic concentrations. Working with the XRF allowed for the monitoring of trace concentrations of arsenic in the soil of different mine sites. The XRF along with a program, Artax, were used to create plots to compare the As raw photon counts to the standardized values obtained from ChemEx. The plot uses 67 data points from 10 different mine sites, and 8 outliers were excluded from the graph. The R^2 value of 0.9701 provides confidence in correlating the ChemEx and XRF data across multiple different mine sites. The mine sites studied are located near residential homes and this project focuses on determining the validity of the XRF to ultimately use this instrument out in the field to collect real-time As concentrations.

FFC

28. A Cross-Cultural Cinderella Story

Presenter(s): Adrienne Paulu

Advisor(s): Dr. Eileen Jankowski

Cinderella may be the most popular fairytale character to ever exist, largely due to the animated Disney film adaption created in 1950. Disney has immortalized the story in the hearts of young girls who dream to one day meet their prince charming. However, the common story of Cinderella is deeply rooted in a variety of cultures around the world. The fact that there may be over 900 versions of the fairytale across the globe stresses the importance of the themes and morals it has to teach young audiences. No one knows where the tale originated. Some believe that it began in China, where the story of Yeh-Shen was born as early as 850 A.D. while others believe it was later popularized in France or Germany. Despite the cultural differences in character and plot details, the versions all follow the path of a hard-working young

child who is mistreated by her family but then is later recognized and rewarded for goodness and virtue. They all focus on themes including kindness, faith, generosity, and the moral of not letting bad things ruin a good heart. The themes and morals from Cinderella have also appeared in other myths across the world, including Greek Mythology. In Cinderella, the theme of generosity is shown through the magical figure who turns her rags into riches as a reward for her kindness. In the Greek myths, generosity appears to be a noble and selfless behavior which secures heroes' respect in the eyes of the gods. Both of these examples express the morals of right versus wrong and good vs. evil. Cinderella has faith that even though terrible things are happening to her, something good can come out of it. This theme of faith can also be seen in the Odyssey -- when tragic events continue to happen to Odysseus and his men, he lets nothing stand in the way of him making it back home to his family and country. Even though Disney may have popularized the Cinderella story, the fairytale had been immortalized in the hearts of humans and will continue to touch the hearts of many more to come.

29. *Mermaids: The Comparison of Two Culture's Myths*

Presenter(s): Ashley Konheim

Advisor(s): Dr. Eileen Jankowski

Mermaids are one of mythology's most recognizable magical creatures and are portrayed as beautiful women with long, fishlike tails. The history of the mermaid started with the earliest mermaid legend that came from Syria around 1000 B.C. Nevertheless, mermaids began to become more critical to Greek mythology. Today mermaids are likely to be seen as innocent and kind, if not helpful. However, they were not always depicted like that. According to myths from multiple cultures, mermaid sightings were a sign of bad luck. For example, in British mythology, when seeing a mermaid, it is a sign of a violent storm to come. Mermaids were mischievous creatures and were capable of causing storms and killing humans. In Greek mythology, mermaids were often referred to as sirens, and were dangerous creatures. They would attract sailors nearby with their bewitching music and voices to their death. When the sirens would sing, men could not focus on anything else. The men would become obsessed with them and would not be able to concentrate, which made their ships crash. With all things considered, there are many similarities between these two culture's myths. Through my research, I will compare and contrast how mermaids were represented in Greek mythology and British mythology.

30. *Naughty or Nice? Why "Santa Claus" is Depicted Differently in Other Cultures*

Presenter(s): Gregory Barrack

Advisor(s): Dr. Eileen Jankowski

The Mythical Figure Santa Claus stretches far beyond the confines of American Folklore. The name Santa Claus is itself derived from St. Nick's Dutch name Sinter Klaas. There are centuries of Kris Kringle's rich history in many other parts of the world. Germany's Christkind is a gift-giving figure popularized by Martin Luther in the 1500s. Annually, German children hang Christmas lists on windowsills, hoping Christkind brings them requested gifts on Christmas. In Italy, La Befana is a substitute for Santa Claus. La Befana is depicted as an ugly older woman riding a broomstick. Today, Italian Children hope La Befana will climb down their chimney to leave sweet dates and candy for them. In the Netherlands and Belgium, Sinterklaas is recognized as a more serious version of Santa Claus. Sinterklaas is portrayed wearing a bishop's alb and

cape and a ruby ring, riding a white horse and often carrying a staff, delivering presents to children through chimneys. The question is, how did each country craft their own version of the same myth? My personal research on the topic has sought to find the answer to this question. I found that it is imperative to dive deeper into the root of each country's cultural background to find the answer. Our personal experiences shape us into who we are today. This logic holds true on a societal scale as well. Each culture has their specific customs and norms that have been integrated into the community based on the experiences that society has had. To understand why Santa Claus differs from Christkind, and why La Befana differs from Sinterklaas, each individual culture needs to be studied. Once the cultural roots of each country are understood, the differentiation of Santa Claus all over the world can be inferred as well.

31. *The Origin of the Nazar: The Long Lasting Effects of Reputation in Ancient Greece*

Presenter(s): Joy Joukhadar

Advisor(s): Dr. Eileen Jankowski

Every day till I was sixteen, I wore the same bracelet. It was an elastic adorned with the nazar on every bead. The nazar, the iconic blue eye symbol, is believed to keep the wearer safe from the “evil eye”(the belief that people can cause you harm with their glare). I was convinced if day went by where without my beloved beaded bracelet, I would fall victim to another’s malintent. My adolescent self was not alone in this belief. This superstition dates back to the ancient Greece and it spread into Mediterranean and Middle Eastern culture, then into the origins of modern monotheistic religions, then all around the world. It is not surprising that the famed eyes originated from Greece since their society heavily emphasized how you were perceived. They believed that whoever you were, once you died (unless you were a notorious villain or a glorious warrior) you went to the Asphodel Fields. So, while you were alive, your reputation was everything—it was all you had. Were you loved? Hated? Admired? Bothersome? God forbid your reputation was negative—you could be cursed. The only thing more important to Greeks than what others thought of them was what the gods thought of them. That was a common theme in many myths. From Arachne to Hercules, when you lost a god’s favor, you could lose everything. So, the Greeks created the nazar to protect them from the harmful gaze of their enemies and the envious. It was the value Greek mythology and culture placed on one’s reputation that catapulted the symbol of nazar to popularity and it has continued to be an immensely important cultural and religious symbol around the world today.

32. *The Afterlife: A look Into the Eyes of Hades and Osiris*

Presenter(s): Liam Nelson

Advisor(s): Dr. Eileen Jankowski

The concept of the afterlife has been represented in a multitude of ways by a wide array of cultures and religions. These unknown, mystical places of which the soul resides following death were often encapsulated by an all-powerful deity. Two great civilizations, the Egyptians and the Greeks, associated death, the afterlife, and the ruler of the underworld in many different ways, but at the same time, they shared many similarities. Osiris, the idolized ruler of the Egyptian underworld, was worshipped annually through galant festivals. His domain was titled Duat, a complex, treacherous location composed of twelve gates guarded by devilish monsters. Osiris played a major role in the determination of where the eternal soul would reside, whether it be luxurious, or be tossed into a pit of oblivion. Whereas the ruler of the

Greek underworld, Hades, was rarely discussed in everyday life. He was hardly worshipped as prayers and sacrifice were overlooked by his grimly eyes. Hades was the literal king of the dead. His terrain was also named Hades, and was divided into two distinct parts. Erebus, the resting place of unburied souls, and Tartarous, which consisted of three parts in which the good, the bad, and the heroic souls were sentenced. While the process of navigating these two sanctums was decidedly different, both held similar means of arriving to the afterlife. They both had a “ferryman” or navigators of their sacred river. There was no other way to reach the gates of Hades or Duat than by that of the River Styx and the River of the Sky, respectively. In this project I will evaluate the distinct similarities and differences between Greek and Egyptian afterlives, the image of death, and an overall view of the ruler of the dead.

33. Anubi in Egyptian Mythology

Presenter(s): Marc Hudson

Advisor(s): Dr. Eileen Jankowski

The Egyptian god Anubis is the god of the afterlife, and is one of the most revered gods among the Egyptian hierarchy. Egyptians worship him but also fear him, although not due him being a cruel god. Being the god of the afterlife, Anubis is commonly depicted alongside death and suffering. This reassuring theme cause him and his symbols to become omens of death and misfortune. Anubis is most recognizable having the body of a human and the head of a jackal. His connection to the jackal came from Egyptians seeing jackals around gravesites and assumed them to be servants of Anubis. Anubis had one of the greatest jobs in all of Egypt due to the Egyptians high view of immortality, afterlife and even rebirth. Being the king of the underworld, it was Anubis’s responsibility to guide the spirits of the dead to the underworld. It was there that he would judge them by weighing their soul against a white feather of truth. If they were deemed good, their spirit was allowed to pass on to Sekhet-Aaru, a heavenly paradise. Whereas is their soul was heavier than the feather, therefore showing a life of sin, Anubis gave their soul to the goddess Ammit to eat, completely destroying their soul or chance of immortality. In relation to Greek mythology, Anubis and Hades are fairly different. While they both are rulers of the underworld, Anubis guides the dead to the judgement and leaves said duties to others. They are similar in that neither does the judging of the souls, they simply make sure the underworld runs smoothly. They are both also depicted as the “bad guy” due to their job position and their relation to death, despite neither of them being inherently evil. This is rather interesting to see a similarity across cultures that shows a fear of death, of not making the gods of death itself evil. Anubis is a great example of a god who was worshipped by a people not out of love or hate, but simply out of culture. Considering how seriously Egypt took the afterlife, to die a mortal death and fail to become like the gods, was not only their greatest shame but their greatest fear.

34. Valkyries v. Moirai: Deciding the Fate of the Fallen

Presenter(s): Marina Logue

Advisor(s): Dr. Eileen Jankowski

In Norse mythology, Valkyries are often portrayed with idealized beauty and strength, but more importantly, these women are the choosers of the slain. Essentially, after a battle, they wander the battlefield in search of men who died during the battle and fought valiantly enough to warrant being taken

to Valhalla, the Norse idea of heaven. These women can be compared to Greek Mythology's Moirai, more commonly known as the Fates, who too decided the fate of the fallen. However, the Moirai have a much greater impact on the whole of a person's life. As suggested by their name —the Fates—they decide a person's journey, from birth, to the length of life, and to the method of death. Valkyries, though, do not have any impact on a person's life while they were living it, simply deciding whether or not they will end up in Valhalla afterward. Still, in both mythologies, every person is subject to his or her own fate, but this fate does not dictate where a person will end up in death. Even in death, if a person fights valiantly enough for a good cause, he or she has the chance to make it to Valhalla or Elysium, both places of honor, happiness, and glory. Therefore, both the Norsemen and the Greeks shaped these creatures to fit the idea that one should not simply surrender or accept his or her fate but rather fight heroically even if he or she will ultimately die; the concept of fate suggests the unexplainable but the idea of an unknown afterlife ensures that people will still strive to live virtuous lives instead of blaming fate for immoral actions.

35. *The Mesopotamian Goddess Inanna*

Presenter(s): Mira Wadehra

Advisor(s): Dr. Eileen Jankowski

Inanna, also known as Ishtar, is more than the Mesopotamian version of Aphrodite. Inanna was the goddess of love, beauty, sex, fertility, war, justice, and power. The myths show that she was the patron god who was fond of both making love and war. She is often associated with the planet Venus and compared to a lion. She appears in more myths than any other Sumerian deity, and she is usually ruling over or assuming different deities roles. In the Epic of Gilgamesh, Ishtar (Inanna) asks Gilgamesh to become her consort, but he refuses. His refusal results in the unleashing of the Bull of Heaven and the death of Gilgamesh's friend, Enkidu. Inanna was worshipped in Sumer as early as the Uruk period (c. 4000 BC – c. 3100 BC). During the post-Sargonic era, she became one of the most worshiped deities in the Sumerian pantheon. The cult of Inanna continued and influenced many other succeeding cultures, including the Sumerians, Assyrians, Phoenicians, and Greeks, as well as significant texts like the Hebrew Bible. Aphrodite is the ancient Greek goddess of beauty, pleasure, passion, and procreation. Aphrodite was constantly unfaithful, and in the Odyssey, she is caught cheating with Ares, the god of war. One key difference between these two goddesses is that Aphrodite was never considered a prostitute in Greek mythology. She represented the two versions of love that the Greeks recognized: Aphrodite Urania (eternal love) and Aphrodite Pandemos (sexual love). So Greeks distinguished between sacred and physical love. The Greeks also separated love and war; they are two different gods. Inanna and Aphrodite share many characteristics as significant members of their respective pantheons, but also display some significant differences. It is interesting to see how another culture influenced the Greeks since they (the Greeks) established and impacted so much of the world that we see today.

36. *Gilded: El Dorado, King Midas, and the Contemporary Myth of the American Dream*

Presenter(s): Sam Evans

Advisor(s): Dr. Eileen Jankowski

Myths often vary greatly between ancient civilizations yet reveal similar truths about humanity. Some examples of this are the Spanish myth of the golden Latin American city of El Dorado and the Greek myth of King Midas and the golden touch. This poster examines how both of these myths describe the lengths a person will go to in search of gold and how they are relevant to modern American society's obsession with wealth. In the Spanish myth, conquistadors are continuously scouring the New World for the legendary city of gold in hopes of acquiring prosperity and glory. They never actually discover the city and fail to become rich and revered. In the Greek myth, King Midas is granted a wish from the god Dionysus and chooses to change everything he touches into gold. This power results in all his food and drink becoming inedible and renders him miserable. In a similar quest for wealth, American society roots itself in the "American Dream," or the belief that one can come to America with nothing to their name and work hard to acquire money and glory. Although both people who were born in or immigrated to America still believe this "dream" to be possible, most people nowadays struggle to make a simple living. Only one percent of Americans are able to fulfill the "dream," and even then, many lose their humanity in the process. Comparing how modern American society places extreme value on pursuing riches despite its massive moral cost with the lessons these myths teach about such a pursuit exposes the "American Dream" as a contemporary myth reminiscent of the unattainability of El Dorado and the agony of King Midas.

37. *Border Angels and Their Strategy for a More Ethical Southern Border Solution*

Presenter(s): Alanna Cronk, Nikki Kalhori, Cloe Johnson

Advisor(s): Dr. Lisa Leitz

Border Angels is a non-profit organization that utilizes what they call "direct community engagement" to create a more humane immigration process. With events like the strategic water drop, clinics with free legal advice for undocumented immigrants and so much more, our aim is to examine how these direct interactions with the immigrant population influence change from the bottom-up. Within the ethnographic research, we will take on an active membership in order to garner qualitative observations at events. Through our interviewing the organization's leaders and experiencing their work first-hand, we will be able to understand not only the necessity of Border Angels' work but also the unique capacity their direct and targeted efforts have to facilitate social justice. Border Angels' identity as a non-governmental agency is essential to their work. This allows them to create initiatives that establish a trusting and working relationship with the undocumented community in a way no government agency ever could. Their acts of civil disobedience contribute in a way that a government office bound to faithfully execute the laws of the land cDr. Annot. It is this special relationship that gives the stability people in the migrant communities need to have their distinct needs visible to law-making bodies. Isolating what makes Border Angels' brand of bottom-up advocacy effective is necessary to understanding the complexity of the southern border and creating real political change.

Film

38. *The Art of Celluloid: A Reclamation of Analog Film and an Exposé of Experimental Cinema*

Presenter(s): Jacqueline Domi

Advisor(s): Jurg Walther

This creative exploration was intended to familiarize myself with the analog film format, utilizing a Super 8mm and 16mm Bolex camera to film a variety of short format films that dabble in the realm of experimental cinema. Over the course of the semester, I have been studying the works of filmmakers who pushed the boundaries of cinematic storytelling, such as Shirley Clarke, Andy Warhol, Maya Deren, and performance artists such as Martha Rosler, Allan Kaprow, John Cage, who utilized body and space as tools to revolutionize the modes of artistic formatting from the canvas into reality. Combining the strategies of these artists, I wrote a variety of short format films that would be produced on the smallest means; using only myself and a few colleagues, with minimal props and natural settings to depict performative stories. My limitations for myself were to rely on in-camera editing as well as no dialogue, only sound recorded outside of the shoot. After drafting these treatments, I moved into the production phase, and over the course of several weeks managed to shoot each project in less than a day at a time. My end results are intended to provide a portfolio of experimental and dynamic films, showcasing my ability to convey a story on the timeless format of celluloid and within the language of anecdotes, physicality, and poetic realism. The contents of the films should stir the senses and require the audience to think deeply about their ideas, rather than presenting the audience with straight information and narrative driven stories. Using the film camera will require me to be incredibly decisive while shooting to maximize the amount of footage that I have. So this will make for a more intentional film practice to inspire a most precise mode of filmmaking and a conservation of materials.

39. *Here to Win, Not Here to Settle*

Presenter(s): Sarah Kaino

Advisor(s): Dr. Jocelyn L. Buckner

Ethnic representation goes beyond color blind casting, the diversity of actors, or non-stereotypical casting choices. It is not just a matter of minorities being included in mainstream storylines, but minorities being able to tell their own stories as well. The relevance and relatability of storytelling in film and theatre transcends culture, which is in part the beauty of these mediums. But the impact of Asian Americans seeing stories from their own culture cannot be exchanged for anything less because there is no substitute for visibility. Movies are the source of inspiration for many. Movies can also reinforce a transparent ceiling of what is and is not possible for specific groups of people. Asian Americans are no exception. It has only been within the last two years Asian American representation has become a hot topic in the entertainment industry. The conversations happening right now are at the highest level of visibility and traction it has ever had, due in part to the 2018 film, *Crazy Rich Asians*. With the debut of this movie came an exponential growth of discussions about the importance of Asian representation. The momentum from *Crazy Rich Asians* has continued to build with new films, namely, *The Farewell* (2019) and *Always Be My Maybe* (2019), and more Asian actors gaining visibility in recent years such as Lana Condor, Alex Landi, and Awkwafina. I will make a case for the importance of Asian American ethnic representation in casting and the stories being created by demonstrating through my research and analysis, the importance of Asian Americans having Asian American role-models on screen and their experiences accurately portrayed.

Health Sciences and Kinesiology

40. *The Association Between Sleep and Abnormal Cytokine Levels in Women*

Presenter(s): Sarah Nunes

Advisor(s): Sophia Wang

The objective of this project is to determine if sleep is associated with abnormal cytokine levels. The main source of the data for this project comes from the California Teacher's Study. This is a large cohort of female teachers who have been studied since 1996 by questionnaires that are sent out periodically. Bio-specimens have been collected from some of the participants which is how the cytokine data was measured. Cytokines are hormone like proteins that are part of the immune system and trigger certain responses such as inflammation. Chronic inflammation and overactive immune responses have been linked to an increased risk of cancer and other diseases. The goal of this project is to see if sleep is associated with an increased risk for abnormal cytokines that are putting people at greater risk for disease. The reason for looking into sleep as a possible cause or being related to abnormal cytokine levels is because poor sleep is linked to a number of diseases such as inflammatory bowel disease and cardiovascular disease in which inflammation plays a key role. Other articles have found significance between certain sleep activity and abnormal inflammatory biomarker levels. This study will further investigate the connection between sleep and inflammation and attempt to determine if there is a causative or correlated relationship between sleep and cytokine levels. We hypothesized that Risk Factors associated with an unhealthy lifestyle such as lack or difficulty of sleep and unhealthy weight will be statistically correlated with abnormal levels of cytokines.

Interdisciplinary

41. *"Theory" In-Practice: Sustainability Through Art*

Presenter(s): Daniel Barba

Advisor(s): Dr. Jocelyn L. Buckner

Imagine the hottest day you've ever experienced. Now triple that temperature. Imagine Miami underwater. Imagine what widespread-famine looks and tastes like. Currently, that is the future we have in store for humanity at the rate we are going. But that doesn't have to be the case...there are alternative, better futures. It turns out that the problem of human-driven climate change isn't actually the problem. The problem is our perspective and mindset towards the environment. By learning about how our psychology plays into our currently unsustainable ways of living, we can unlearn our conventional wisdoms and learn how to make the necessary changes which will allow us to create a better future for ourselves and the generations that follow us. The best way to solve the problem of sustainability is through art. Art is the most powerful perspective-changing tool that we have available to us, and by using science to inform art, psychology to communicate effectively, and technology to make sustainable art and tell more immersive stories, we can use art to educate the world about sustainability and set an inspiring example for a sustainable future. If we don't want to end up like so many failed civilizations before us, we must synthesize the ideas and information given to us by previous generations and build upon them,

consequently progressing past that which previous generations have been able to achieve, and thus furthering the progress of human intelligence and our ability to understand and act upon the world in which we live. Art can do that for us, and since, according to science, human-driven climate change is only going to make things worse for us, we have no choice but to try and ensure a better future for humanity. And maybe, one day, we can live in a cooler, happier, healthier world, where love reigns and life thrives.

Mathematics

42. Characterization of Idempotent Involutive Residuated Posets

Presenter(s): Melissa Sugimoto

Advisor(s): Dr. Peter Jipsen

An involutive residuated poset $(A, \leq, \cdot, \sim, -, 0)$ is a partially-ordered (that is, reflexive, transitive, and antisymmetric) set A equipped with an associative binary operation \cdot , two unary operations, \sim and $-$, and a constant, 0 , satisfying the conditions that for all x and y in A , $x \leq y$, $x \cdot \sim y \leq 0$, and $-y \cdot x \leq 0$ are equivalent. The class of such objects is denoted by InRP . We hypothesize that all finite idempotent InRPs (IdInRPs) are commutative, and further that all finite IdInRPs can be represented using the monoid order imposed by the binary operation as a gluing of Boolean algebras, forming a meet-semilattice with top element 1 , with 0 less than or equal to 1 . We postulate also that there exists a process of combining Boolean algebras in which every gluing of this form produces the monoidal representation of a commutative IdInRP . The result has recently been shown in the lattice case [P. Jipsen, O. Tuyt and D. Valota, Structural characterization of commutative idempotent involutive residuated lattices, preprint, 2019]. Furthermore, we have found the result to be true for all commutative IdInRPs that are not lattices up to size 14.

43. Commutative Doubly-Idempotent Semirings Determined by Chains and by Preorder Forests

Presenter(s): Natanael Alpay

Advisor(s): Dr. Peter Jipsen

In this project we will try to describe the commutative doubly-idempotent semiring (cdi-semiring). A cdi-semiring $(S, \vee, \cdot, 0, 1)$ is a semilattice $(S, \vee, 0)$ with $x \vee 0 = 0$ and a semilattices $(S, \cdot, 1)$ with identity 1 such that $x0 = 0$, and $x(y \vee z) = xy \vee xz$ holds for all x, y, z in S . Bounded distributive lattices are cdi-semirings that satisfy $xy = x \wedge y$, and the variety of cdi-semirings covers the variety of distributive lattices. Chajda and Länger showed in 2017 that the variety of all cdi-semirings is generated by the 3-element cdi-semiring . We show that there are seven cdi-semirings with a \vee -semilattice of height less than or equal to 2. We construct all cdi-semirings for which their multiplicative semilattice is a chain with $n+1$ elements, and we show that up to isomorphism the number of such algebras is the n -th Catalan number. We also show that cdi-semirings with a complete atomic Boolean \vee -semilattice on the set of atoms A are determined by singleton-rooted preorder forests on the set A . From these results we obtain efficient algorithms to construct all multiplicatively linear cdi-semirings of size n and all Boolean cdi-semirings of size 2^n .

Peace Studies

44. Prisoners of War Amidst Border Crises

Presenter(s): Josey Dunbar

Advisor(s): Dr. Hilmi Ulas

This paper will examine prisoner of war (POW) mistreatment across chronic border disputes. The goal of this essay is to consider the degree to which inhumane treatment of prisoners correlates with the severity of a given border conflict. Ultimately I will test what sorts of conflicts are most likely to result in hostile treatment of prisoners. I will begin by considering three border disputes as they are today. Firstly, the conflict between India and Pakistan; followed by that of Ukraine and Russia; finally the border relations between Israel and Syria. I will then retrace the history of these conflicts. While considering the histories of these disputes, there are several key variables I predict will influence the severity of POW mistreatment. The first of which, is religious persecution on either side of the border conflict. I predict that border disputes between nations with different religions and a history of religious tension, will be more likely to mistreat POWs from their neighboring country. Next I will consider the influence of language, and differing race on the history of the conflict. Finally this paper will examine the colonial and cultural impacts on each conflict. I hypothesize that border conflicts which are more influenced by these specific tensions, will more severely mistreat prisoners of war. This essay aims to convey both the humane crisis of POW mistreatment as well as the specific types of conflicts which are most likely to result in this strain of hostility.

Pharmacy

45. Effect of Diabetes Mellitus on Ocular Surface Goblet Cell Density

Presenter(s): Amulya Madhav

Advisor(s): Dr. Ajay Sharma

Goblet cells are specialized cells present in the fornix of the eyes that secrete gel forming mucin, MUC5AC. The function of MUC5AC is to keep the ocular surface lubricated. Patients with diabetes mellitus have been shown to have a higher incidence of dry eye. Therefore, the objective of this study was to investigate the effect of type I diabetes mellitus on the density of ocular surface goblet cells using a mouse model. Diabetes mellitus was induced in mice using a single intraperitoneal injection of streptozotocin. Blood glucose was monitored to confirm hyperglycemia. The eyes from age-matched, non-diabetic mice and diabetic mice were harvested at week 1 and 2 after the induction of diabetes mellitus. The eye tissue was sectioned into 10 micrometer thick slices using a cryostat. The goblet cells in the eye tissue sections were stained using periodic acid Schiff's stain. The stained sections were imaged using a brightfield microscope and the number of goblet cells were counted. Quantification of goblet cells is currently underway to detect a difference between the eyes obtained non-diabetic and diabetic mice.

46. A Mutant SK Channel that is Hypersensitive to Ca²⁺

Presenter(s): Adam Viegas

Advisor(s): Dr. Miao Zhang

Small-conductance Ca²⁺-activated K⁺ (SK) channels mediate medium afterhyperpolarization in the neurons which limits the firing frequency of action potentials and, thus, play a key role in the regulation of neuronal excitability. Given their importance in neurons, SK channels are potential drug targets for movement disorders, including ataxia and Amyotrophic Lateral Sclerosis (ALS). The SK channels are activated exclusively by the Ca²⁺-bound calmodulin. Previously, we identified an intrinsically disordered fragment that is essential for the mechanical coupling between Ca²⁺/calmodulin binding and the channel opening. Here, we report that substitution of a valine to phenylalanine (V407F) in the intrinsically disordered fragment caused a ~6 fold increase in the Ca²⁺ sensitivity of SK2-a channels. Subsequent tests with equivalent valine to phenylalanine substitutions in SK1 and SK3 channels also exhibited Ca²⁺ hypersensitivity. Additionally, an equivalent phenylalanine substitution in the *Caenorhabditis elegans* (*C. elegans*) SK2 ortholog *kcnl-2* partially rescued locomotion defects in an existing *C. elegans* ALS model, in which human SOD1G85R is expressed at high levels in neurons. This supports the idea that the phenylalanine substitution impacts SK channel function *in vivo*. This work confirms that the intrinsically disordered fragment plays a crucial role in SK channel regulation and – for the first time – provides a critical reagent for future studies: an SK channel that is hypersensitive to Ca²⁺ concentrations with increased activity *in vivo*.

Political Science

47. Fear of Illegal Immigration in America: How Media influence Its Viewers

Presenter(s): Alexandra Leon Oliva

Advisor(s): Dr. Ann Gordon

Illegal immigration has been an ongoing social problem, leading to a great deal of variety in public opinions. Conservative media have propagated fear of illegal immigration and have influenced their viewers' perception. This past year, media coverage has been used to promote ideas on illegal immigration. The different coverages were used to explain their own examples of what they thought about the current immigration issue. Due to this, people were influenced to create their own opinions based on the information broadcasted. The framing theory implies that an individual preferred media influences their perception of illegal immigration. Using Chapman's survey of American fears, I analyzed how the fear of illegal immigration is related to media choices. To what extent does media influence the fear of illegal immigration, and if the fear of illegal immigration is formed only through media influence. The analysis of the responses focused on the correlation between fear and media influence. There is a significant relationship between the fear of illegal immigration and conservative media coverage. The analyses revealed that media influence is related to an increased fear of illegal immigration. The findings determined that the person's media preference will shape their public opinion on illegal immigration.

48. *Ghosts and God: The Convergence and Divergence of Religious and Paranormal Beliefs*

Presenter(s): Eli Haas

Advisor(s): Dr. Ann Gordon

Deviance theory and deprivation/marginalization theory imply that there is a negative relationship between conventional religious beliefs and beliefs in the paranormal. An alternative theory suggests that there is a positive relationship between conventional religious beliefs and the belief in the paranormal. The goal of this article is to examine these two competing theories by analyzing The Chapman Survey of American Fears of people's religiosity and comparing it with beliefs in the paranormal. By examining the survey data, these two competing theories can be analyzed and the distinctions between paranormal beliefs and conventional religious beliefs can be revealed. Furthermore, the effects of attending religious services and the effects of different religious denominations on paranormal beliefs is examined. The findings reveal that people who are religious show a higher belief in the paranormal than those that are not religious. This provides evidence to back the natural laws of science theory. However, findings from this research show that the attendance of religious services will have a negative effect on the belief in the paranormal for those who are religious. Finally, this research shows that religions whose fundamental beliefs are more in tune with paranormal beliefs and deviate less from the belief in the paranormal will be more likely to hold paranormal beliefs. This article provides a clear and concise analysis of the effects of religion on the belief in the paranormal. It moves past previous findings and evaluates the effects of multiple variables on paranormal beliefs to come to a distinct conclusion. The larger implications of this work are to understand people's beliefs and reveal that religious beliefs and paranormal beliefs are not that different from one another. By understanding these beliefs and people's natural tendencies to believe in certain supernatural and religious things, it can help progress the understanding of religion in today's society.

49. *The Effects of Political News Sources on Voting Habits*

Presenter(s): Ella Scott

Advisor(s): Dr. Ann Gordon

For decades, people have researched how people consume political media and how that affects their voting habits. Due to technology, how people consume their political news has been changing drastically over the last two decades. We have gone from print news to cable news to internet news to social media news. The evolution of the 24-hour news cycle has impacted us and our political decision dramatically. Using data from the ANES survey, this paper will explore political news consumption and its impact on people's voting habits. This paper will analyze a variety of hypotheses and questions regarding media usage and voting habits of those 18-30 years old. The theoretical framework used for this paper will be Marshall McLuhan's classic analysis that the medium itself, rather than the message, is the key to understanding media effects.¹ It is expected that social media will be the primary platform for obtaining political news for this age group. As methods of communication change so do the ways those messages in those new channels affect us as voters. It is especially important to understand the habits of young people as they are quickly becoming the largest voting block in America.

50. *The Sweeping Fear of Becoming a Shooter's Victim*

Presenter(s): Giovanna Potestio

Advisor(s): Dr. Ann Gordon

On average, there is a mass shooting every 12.5 days in the United States of America. The frequency of this event has caused panic amongst the population, with many fearing they will personally become victimized. According to The Fear Survey by Chapman University, conducted for the past six years, becoming someone's random shooting target is the fastest rising fear in our country. This paper examines how the consumption of certain media platforms such as Fox News, CNN, local television stations, and social media apps heighten a person's internal worry regarding the event of a random shooting. Social media is predicted to impact a person the most due to the fact that information is commonly exaggerated and glorified repeatedly. Also, gender will be looked at in terms of seeing which sex retains a greater amount of apprehension when it comes to protecting themselves in such an event. Women are assumed to be more likely to express more fear than men because of their typically weaker physical attributes. In theory, there will be a conclusion as to what elements contribute to the most rapidly growing fear in America.

51. *Gender and Race: Why White Women Voted for Trump in the 2016 Election*

Presenter(s): Gracie Fleischman

Advisor(s): Dr. Ann Gordon

Gracie Fleischman Professor Gordon POSC 410 3 November, 2019 Gender and Race: Why White Women Voted for Trump in the 2016 Election I will be examining the reasons why the majority of white, female voters in the United States voted for President Donald Trump in the 2016 presidential election. My research will include the American National Election Study (ANES) of 2016 to see the demographics of voters that voted for President Trump. In addition to the ANES, I will be incorporating Ann C. Gordon and Robert P. Watson's research in their book *Anticipating Madam President*. This book explores what a successful female presidential campaign would look like and what factors need to align in order for her to win the election. I will also utilize *Change and Continuity in the 2016 Elections* by John H. Aldrich, Jamie L. Carson, Brad T. Gomez, and David W. Rohde. Their research analyzes voting behavior and trends in the 2016 election and will help me pinpoint why a white female would not vote for a white female presidential candidate. Sarah Kittilson's study titled *Gender and Political Behavior* stresses the importance of treating female voters not as a monolithic group, but as a highly varied and diverse base. I will examine why Hillary Clinton's campaign and values did not appeal to the majority of white female voters by looking at not only their gender and race, but their sexuality, socio-economic status, and other important factors. In addition to researching why white women voted for President Trump, I will explore the reasons why women of color did not.

52. *Fear of the Badge: Results of Media Influence and Party Identification*

Presenter(s): Jessica Cardenas

Advisor(s): Dr. Ann Gordon

Police brutality has been a popular topic over the past few years due to the rise of social media and other news outlets. According to the American Fears Survey, approximately 26.6 percent of Americans said they are “afraid” or “very afraid” of police brutality in 2018. In addition, the American Fears Survey provides in-depth, quantitative data on people and their fear of police brutality as well as what media outlets they follow and their party identification. Media sources such as FOX news, CNN, and social media have a strong influence over their audiences’ opinions and are able to illicit or suppress fear. Those who are more dedicated to hearing the news everyday are more likely to be afraid of being a victim of police brutality. In addition, these media outlets have certain target audiences and is discovered that those who lean on the democratic side of politics, are more likely to be afraid than that of republicans. It is seen that party identification has the largest influence concerning fear of police brutality over media sources. In order to confirm their bias, party members will stoke the fires of their fear of police brutality by frequenting certain media outlets. Due to this media influence, the fear of police brutality will lead to a split in society, officers being placed in a dangerous position, and raising the next generation to have a negative impression of law enforcement.

53. *Fears of Immigration and the United States*

Presenter(s): Kevin O'Connor

Advisor(s): Dr. Ann Gordon

Immigration and the perceived issues associated with it are more salient topics than ever before. Utilizing the Chapman Fear Survey to conduct secondary data analysis examining the relationship between party identification, news media usage, and socio-economic issues. A correlation may indicate the effects of media on public opinion and explain why the United States citizenry has arrived at such a divisive stance. The primary dependent variables will be the fear of immigrants being a drain on the economy and of committing crimes. I also examined the independent variables of media consumption. I found that people who watch the local TV news have a greater fear of immigrants being a drain on the economy than people who watch national nightly news networks. Both immigrants being a drain on the economy and of committing crimes are frequently cited in the news media and by the current administration as a justification for building a wall at the Southern Border. Beginning with an analysis of immigration policy in the United States will lay a framework explaining the current state of affairs. While immigration is a controversial topic, often rooted in partisanship and personal framework, by examining it carefully, I hope to contribute to the field to understand why some Americans fear immigrants.

54. *The Role of Physical and Sociological Fears in Gun Purchasing*

Presenter(s): Luca Espinosa

Advisor(s): Dr. Ann Gordon

According to The Gun Violence Archive, there were 14,798 deaths by gun violence in the United States in 2018. This number has more than doubled to 32,904 deaths in only the first 10 months of 2019. Americans constantly face the question: why do we continue to buy guns? Most of the current research on this question tends to focus on our culture of masculinity, nationalism, and the aptly named gun culture. These previous approaches only targets an abstract concept as opposed to specific corrigible dilemmas. This

research explains the fear-based factors behind the decision to purchase a firearm. I use the Chapman University Study of American Fears to compare gun purchases with fears of physical threats and sociological fears, especially xenophobic fears. The results show that, although there are many factors at play in the decision to buy a gun, sociological fears more often result in gun purchases than fear of physical threats alone. I also expect to find that sociological fears, more so than demographics such as region, or sex, impact one's idea of safety. Understanding the reasoning behind gun purchasing can help us move toward teaching social narratives that lower unrealistic fear of crime and debunk stereotypes about who commit these crimes. This, in turn, will hopefully help Americans navigate towards a safer society overall.

55. *The Relationship Between Environmental Injustice and Fear of Environmental Burden*

Presenter(s): Mallory Warhurst

Advisor(s): Dr. Ann Gordon

Environmental injustice refers to the disproportionate exposure of marginalized communities, specifically low-income communities and communities of color, to environmental risk. Considering the increasing concern over unequal environmental burdens and the relationship to racial and economic injustice, understanding the emotional impacts of disproportionate environmental risk has become exceedingly important. Over time, as environmental problems have become more concerning for many people, it becomes interesting to understand the disparity between those who have been traditionally fearful of environmental risks, and those who have only recently become afraid. This research conducts analysis of public opinion data from the 2016, 2017, and 2018 Surveys of American Fears to assess the extent to which fear of environmental threats is related to racial and economic status, and how this relationship has changed over time. Multivariate regression results indicate that individuals with a low-income and people of color have traditionally experienced greater fear of enduring environmental burdens compared to white people and people of high economic status, but these results have shifted as environmentalism has increased in salience for all people. The environmental risks included in the results are air pollution and pollution of drinking water. The correlation between fear of environmental threats, income, and race adhere to the traditional understandings of environmental injustice, and portray the underrepresented emotional burdens that those subjected to disproportionate environmental risk may experience. Despite the increased fear of environmental risk for many people, it remains critically important to address the burdens marginalized communities face, as they continue to be disproportionately exposed to environmental threats happening in the present.

56. *Americans and Government Surveillance: Friend or Foe?*

Presenter(s): Mara Hughes

Advisor(s): Dr. Ann Gordon

Who is more likely to be wary of government mass surveillance and why? This project seeks to analyze what factors may make Americans more or less likely to fear or accept cohesive surveillance and personal data tracking as conducted by the government. The issue of mass surveillance is more relevant than ever before; increasing revelations have come to light as to the extent and use of personal data tracking by powerful institutions including the U.S. government. Americans are still dealing with the aftermath of the Bush administration's "War on Terror" launched after 9/11 that led to the wide-ranging, and many say,

overstepping Patriot Act as exposed by Edward Snowden in 2013. On a technological level, data is easier than ever to collect, and to attempt to make meaning of. While the capability of governments to enact authoritarian usages of data-tracking is increasing, some believe that government surveillance is a worthwhile price to pay for national security. The hypotheses tested in this project are the following. First, Americans who view white supremacists as more of a threat to national security are more likely to fear government surveillance, whereas Americans who view Islamic extremists/Jihadists as more of a threat to national security and Americans who think Muslims are more likely to engage in terrorist activity than non-Muslims are more likely to accept government surveillance. Second, Americans who fear the corruption of government officials are more likely to fear government surveillance. Third, Americans who fear cyber-terrorism are more likely to fear government surveillance. Fourth, Americans who fear government use of drones within the U.S. are more likely to fear government surveillance. And finally, fifth, Americans who fear government restrictions on firearms and ammunition are more likely to fear government surveillance. This project utilizes secondary data analysis of the most recent CSAF American FEARS survey data using SPSS.

57. Political Indicators and the Corresponding Perceptions Towards the LGBTQ Community

Presenter(s): Marvin Roca

Advisor(s): Dr. Ann Gordon

Feelings towards the LGBTQ community whether positive or negative can derive from a numerous amount of places including those of party identification and the ideological stances behind them. Demographic predictors such as income, race and religion have long been used to determine how an American citizen may identify and eventually vote. However, what if these identifiers can also forecast feelings towards the LGBTQ community and transgender individuals? Predictors can easily be tied to partisanship and ideological beliefs behind the parties. Thus, there is a clear correlation to attitudes about homosexuality and gender identification. Using data from the National Election Survey, this research adds to the important field of political variables, party identification, ideological behavior, and attitudes towards the LGBTQ community in the United States. The results explain the line of thought between party identification, how that correlates to an overall ideology and ultimately the perception of the gay community all deriving from traditional researched demographics. This work proves that not only can statistical indicators be used to predict voting behavior and political party alignment, they can also be used to predict feelings and attitudes about major politically “hot” topics and their corresponding minority communities.

58. Examining the Fear of Being Involved in Mass Shootings in Relation to Political Identity and Media Exposure

Presenter(s): Riley Cooke

Advisor(s): Dr. Ann Gordon

As of September 1, 2019, there have been a total of 283 mass shootings in the United States, and September 1st is only the 244th day of the year. A mass shooting is defined as an event in which four or more individuals are shot. This essay will examine the fear of being involved in such mass shooting events in relation to political identity and media exposure in an effort to observe the influence partisanship and

media holds over the fear of gun violence in the United States. Relying on The Chapman Survey of American Fears, I explore how members of both political parties are influenced to feel fearful of various possibilities based on the media they engage with, the politicians they listen to, and the party agenda they believe in. This essay is an effort to identify the importance of being aware of why political groups express the messages they do, and how it affects American citizens in their day to day lives. The more research that can be conducted on the mass shooting crisis and the ways in which partisanship is affecting reform, the more likely that useful reform will be passed.

59. *American Fear of an Iranian Nuclear Attack*

Presenter(s): Sabrina Ghashehbaba

Advisor(s): Dr. Ann Gordon

Since 9/11, the American perception of Muslims, Islam, and Middle Eastern people, and countries have shifted in seemingly a negative way. Countries like Iran, one that has been branded as part of the “Axis of Evil” may often be perceived as hubs of terrorism. The United States’ development of the Iranian Nuclear Deal and its subsequent withdrawal from the deal contributes to this negative narrative surrounding the Middle East that peaked post 9/11. This paper will look into American's opinions on Iran and fears of a nuclear strike by Iran, while examining the American fear of terrorism and if it has any relation to American fear of an Iranian nuclear attack. I predict the more Republican one is the more they will fear an Iranian nuclear attack because of conservative rhetoric used. I also predict that the more news one receives from social media the more afraid they will be of an Iranian nuclear attack and the more one fears being a victim of a terrorist attack the more one fears Iranian nuclear attacks. To examine this, I will be using The Chapman University Survey on American Fears to analyze public opinion surrounding fear of being a victim to terrorism, their political ideology, how often they receive their news from social media, and fear of an Iranian nuclear strike. Some results include strong evidence that fear of being a victim of a terrorist attack greatly influences fear of an Iranian nuclear attack, while political ideology and news from social media are significantly less important. Often representation of Middle Easterners in media and news is mainly acts of terrorism and radicalism, thus there is still space to examine public opinion and fear of Muslims, Middle Easterners and countries like Iran.

60. *Mass Shooting Implications on Gun Control*

Presenter(s): Sarah Cash

Advisor(s): Dr. Ann Gordon

Fear is an intrinsic part of being human whether we choose to act on it or not. Some of our fears afford us an almost luxury to avoid them if we choose to, such as boats if you’re afraid of open water or night lights if you’re afraid of the dark. But what happens when the fastest growing fear in America has to do with being the victim in a completely random, but extremely violent, crime during your everyday life? Mass shootings in America have skyrocketed since children and educators were gunned down in Sandy Hook Elementary on December 14th, 2012. Specifically, there have been 2, 218 shootings in the United States since Sandy Hook. According to data gathered by the Chapman University Survey of American Fears, being the victim of a random mass shooting is rising, but why? I would like to focus my research on what kind of experiences every day Americans have that are causing their fear to continuously rise, and if I am able to track it, to make a meaningful connection between Americans, their fear, and why the role of

governments is to act to reduce the potential causes. If Americans are afraid of being in a shooting, what kind of policy is needed to remedy it? Whether the action is through extensive gun control reform, directing state governments to modify their own gun laws, or allow for more extensive research to be done in the field of gun violence and its effects on Americans, research must prove that something has to be done.

61. *Shifts in Public Opinion: The Impact of Media on Islamophobia Post Enaction of Muslim Ban*

Presenter(s): Shelby Seth

Advisor(s): Dr. Ann Gordon

The Muslim Community in the United States has been held under great scrutiny by American society ever since the terrorist attacks on September 11th, 2001 in New York and the other multiple tragedies committed by the terrorist organization, ISIS, within the following years. This religious prejudice has paved its way through the public and political realms of society and is sustained through legislature and strategic use of mainstream media corporations. A prime example can be clearly seen in the Executive Order 13769, also titled “Protecting the Nation from Foreign Terrorist Entry into the United States”, which enacted strict immigration policies targeting refugees from the Middle-East and are practicing Muslims. The current study has focalized on Executive Order 13769, also known as the “Muslim Ban”, and its impact on the level of islamophobia within the United States since its enaction on January 27th, 2017. The main premise of this study is to determine whether media has an impact on changing public opinion on islamophobia following the enaction of the Muslim Ban or not and what type of individuals are most likely to make this shift. In order to fully examine the impact of media on islamophobia following the Muslim Ban, the research utilized a cross-sectional data analysis to determine if specific demographics such as race, age, and party influence the perception of Muslims in the United States in 2019 after the media’s depiction of Executive Order 13769 in 2018 by specifically comparing data collected from Chapman University’s FEAR survey on Fear of Muslims in America Society from October 2016 to 2018 for any variance in public opinion. The results displayed that there has been a decline in population distrust towards the Muslim community in American society from 2018 to 2019. However, those possessing islamophobic views were still more likely to be rural, white, male, older, and lacking college education (same demographics as Trump supporters).

62. *Who Believes? A Glimpse into Government-Related Conspiracy in America*

Presenter(s): Steven Santoro

Advisor(s): Dr. Ann Gordon

Distrust in the American government amongst its citizens has been a common theme throughout its history. Though coming in many forms within this country’s time, concerns about federal lies and deceptions began catching substantial ground in the late 1960s through conspiracy theories. This article looks to turn to conspiracies and similar suspicions surrounding the American government, hoping to illuminate the political allegiances of the believers as well as possible sources that feed their ideas. Current literature on the subject has been successful in pinpointing the attributes of believable conspiracies, as well as individuals likely to believe them - but there is little written about conspiracies regarding the American government and their political implications. Data analyzed within this piece comes from The Chapman University Study on American Fears (2018). Several variables will be studied in conjunction with one another. This includes whether individuals believe the government is concealing information about

certain events (alien encounters, 9/11, global warming, the JFK assassination, the moon landing, a New World Order, etc.), how individuals within this survey consume information (types of media and specific outlets), and how these individuals feel towards certain political groups in the United States (do they have animosity or appreciation towards the Republican or Democratic Party, as well as towards the current president?). By running correlational analyses on these variables, this article functions to localize the source(s) of conspiracies and general government-aimed distrust within the American public. I expect data to draw a positive correlation between higher consumption of right-wing news outlets and higher mistrust in the federal government - a trend that's been eluded to throughout the most recent American elections.

63. Understanding Present-Day Kurdish Border Disputes

Presenter(s): Matthew Smith

Advisor(s): Dr. Hilmi Ulas

The purpose of this research is to find out why the Kurdish ethnicity is still discriminated against and continues to have major border disputes in the post Saddam Hussein era. It will examine various aspects of why the Kurdish are being pushed towards a potential humanitarian crisis while also identifying all the key players, both in terms of countries and regional groups. Currently, the Iraqi government to the south and the Turkish government to the North have effectively blockaded Kurdistan with their militaries. The recent October 2019 U.S military pullout of assets in the region has sparked a rapid geopolitical nightmare for the defacto state of Kurdistan. To gain a better understanding of what is at stake various international relations and middle eastern intellectuals/experts will be interviewed to attain knowledge as to why there is such ethnic hatred towards the Kurdish people and their potential for sovereignty. Statistical data from various think tanks such as the Rand Corporations and The Center for Strategic and International Studies will be used to help identify how this dispute can be handled and deescalated through proactive change. The results from this study will be two-fold in the sense that it could identify the reemergence of extremist groups in northern Iraq and Syria while it could also show us various types of social changes Iraq, Kurdistan, and Turkey need to make within their culture to push for peace. These social changes could include but are not limited to combating Racism towards Kurdish, denying extremism a platform, and protesting against right wing militarism.

Psychology

64. Clock-Based Effects on Reported Timing of Intention to Move

Presenter(s): Alexandra Van Der Hoeven, Jake Gavenas, Alice Wong

Advisor(s): Dr. Uri Maoz

The readiness potential, a negative electrical shift in brain activity that precedes spontaneous actions, seems to emerge before reports of conscious intentions to move (Libet, Gleason, Wright, & Pearl, 1983). However, it has been suggested that the reported onset of a conscious intention (W) is just a retroactive inference (i.e. we spontaneously move, and only then say to ourselves “oh, that’s when I first intended to move”). In a recent study, reported times of intention onset depended on whether subjects also reported times of actual movement (M). When using a rapid serial visual presentation (RSVP) clock, in which letters serially appear onscreen, W was reported as fairly close to movement if only W was reported. However,

if both W and M were reported, W was earlier by almost exactly one letter interval. This “push-back” effect is consistent with W being retroactively inferred. In the present project, we manipulate the presentation interval of letters in the RSVP clock, using intervals of 200, 500, and 1000 milliseconds. If W is retroactively inferred, W will be further from movement for 1000 ms intervals, and closer to movement for 200 ms intervals. Positive results will show that reported times of intentions are likely inferred from the time of movement.

65. *Exploration of Motivational Interviewing in Secondhand Smoke Clinical Trial*

Presenter(s): Hashini Weerasekera

Advisor(s): Dr. Vincent Berardi

Research has shown that cigarette smoke is one of the most pernicious hindrances to the development of a child. To address this public health risk, Project Fresh Air (PFA) clinical trial was performed. This project aimed to collect a significant amount of data as well as conduct numerous coaching sessions and give adequate feedback to homes that may be severely at risk through repeated smoke exposure. PFA enrolled in nearly three hundred homes, each having at least one consistent smoker in the house with young children living with them. An air particle monitor was installed and measured smoke particle levels going above or below specific thresholds and the coaches orchestrated roughly four visits per home where, in motivational interviewing (MI) procedure, they asked the client to detail the activities at the time of peak particle admission and to come up with SMART (specific, measurable, attainable, realistic, and time-specific) goals to help decrease their level of emission. For my initial work on this project, I transcribed audio recordings of the PFA coaching visits to extract common themes resulting between the homes. More recently, I began to focus on familiarizing myself with the best practices of MI and assessed interviewers on their quality, with the goal of determining skillful MI implementations that increased the likelihood of the client changing their particle emission patterns. To assess these features, I began using the MITI (Motivational Interviewing Treatment Integrity) scale to assess interviewers. Our research is still ongoing; however, we have been able to make some interesting connections between the quality and efficacy of the interviewer and the likelihood of the client making significant progress in their SMART goals. As we continue to implement the MITI scale on our transcriptions and recordings, we hope to see more results connected to MI quality.

66. *Mindfulness-Meditation Based Treatments for Preventing Relapse in Individuals with Substance Use Disorders: A Systematic Review*

Presenter(s): Samantha Scherba

Advisor(s): Dr. Vincent Berardi

Substance abuse is a global problem that intersects with myriad health, familial, and socioeconomic factors. Increasing rates of illicit drug use and prescription opioid and alcohol abuse reflect a gap in effective treatment, and therefore calls for a re-evaluation of recovery and relapse prevention treatment protocols. One promising alternative approach to treatment is mindfulness meditation, which involves the intentional, accepting and non-judgmental focus of one's attention on the emotions, thoughts and sensations occurring in the present moment. This systematic review examines the efficacy of mindfulness meditation-based treatments for relapse prevention in persons recovering from Substance Use Disorders

(SUDs) published between 2009 and 2019. The review will lay the groundwork for a meta-analysis of randomized controlled trials of mindfulness treatments for substance misuse. Comprehensive bibliographic searches in Cochrane Central Register of Controlled Trials, PsycInfo, Science Direct and Taylor & Francis Online, identified 13 pertinent studies. Results revealed significant small-to-large effects of mindfulness treatments in reducing the frequency and severity of substance misuse, intensity of craving for psychoactive substances, and severity of stress. Mindfulness meditation-based treatment for substance misuse and SUDs is a promising intervention, although more research is needed examining the mechanisms by which interventions exert their effects and the effectiveness of mindfulness treatments in diverse treatment settings. Furthermore, additional research is needed to evaluate longitudinal relapse prevention potential. Research incorporating mindfulness meditationbased supportive therapies that promote well-being, emotion regulation, and stress relief are important for the future of effective and successful SUD treatment.

67. *The Effects of Reinforcement Schedule on Behavior Shaping*

Presenter(s): William Blocker

Advisor(s): Dr. Vincent Berardi, Dr. Uri Maoz

Behavior shaping is a process of producing a desired behavior by reinforcing successive approximations to a target behavior. With an eye towards automating shaping procedures, a previous study conducted experiments with a computational model of behavior to explore linear, concave, and convex shaping reinforcement schedules. The intention of this study is to analyze whether human results are congruent with those of the computational model. Each participant (N=24) completed 45 trials of a program designed to emulate behavior shaping. The program placed a hidden circular target on a blank screen and required participants to click their cursor to locate the target. If the click was within some specified distance from the target, positive tone was played as reinforcement; otherwise, a discomforting tone was played. As the trial continued, the required distance from a click location to the target grew smaller at a rate determined by shaping reinforcement function. To analyze these data, the proportion of each click that was within the target area was calculated for each shaping reinforcement schedule to give an average target trajectory. To create a summary metric, the curve (AUC) for these averages were calculated. Analysis of the AUC of trial data using showed that Concave reinforcement functions had the largest AUC (33.20). The Linear (32.12) Function serving as the control had the second largest AUC, and the Convex (29.77) Function had the lowest AUC of the functions. ANOVA was then used to confirm the significance ($p < 0.01$). The Concave and Linear functions outperformed the Convex function, with Concave being the best overall. This finding is congruent with the findings from the computational model. This suggests that a concave reinforcement schedule would be ideal for behavior shaping, and that the computational model used is an accurate representation of human behavior learning.

Religious Studies

68. Shamanism & It's Basic Spiritual Function to Heal

Presenter(s): Carla Frias

Advisor(s): Dr. Nancy Martin

Shamanism is known as the oldest spiritual and mystical practice still existing in our planet. Its presence dates back 30 to 40 thousand years ago, a time where consciousness emerged into the human mind. Through out time and evolution, many of the shamanic practices have spread across the world and remain prevalent in a multitude of religious practices. Nevertheless, over time, their esoteric views on healing have become commonly overlooked and replaced by modern science. The holistic interpretation of human nature is being forgotten by a more a “rational” approach about human kind. But what does shaman medicine truly entail? And how can we reclaim the effectiveness of its practices? This research paper will focus on understanding the religious role of the shamans and their effectiveness of improving people’s physical and mental wellbeing through the engagement of spiritual practices and transcendental experiences. The use of meditation, drums, music, costumes, the intake of psychedelics and even botanical plants are some of the important tools that the shamans use in their ceremonies. These methods will be analysed and compared with scientific data to prove that their medicine is effective and of great value. Hopefully, this paper will set forth the importance of balancing a mind-body-spirit connection when trying to improve ones health. Even in today’s modern world, we need to remember to take care of our internal bodies, become aware of our own thoughts. The shamans provide sacred insight about the importance of belief, faith and reflection as a way to self-heal. Their practices give people the courage to question themselves and their true meaning of life.

Sociology

69. Examining the Outcome of Female Fear of Violent Crime on Political Behavior

Presenter(s): Olivia Schmidt

Advisor(s): Dr. Ann Gordon

Like many fear tactics the media utilizes, the projection of violent crimes is a powerful tool for impelling underlying political themes. This paper aims to show the correlation between the female fear of violent crime and their political behavior. For centuries, the media has extensively covered violent homicides against young women, tales of kidnapping, and sexual violence- quenching the nation’s obsession with the serial killer phenomena and true crime. However, little research has been done to show the effects that these high coverages of violent crimes against women have on women. While the obvious effects such as paranoia are clear, does this fear subconsciously permeate not so obvious spheres of life such as political behavior? A similar study by Janke, Propper, and Shields (2016) on the causal effect of violent crime on walking, found that the fear of violent crime against women correlated with a drop in their overall physical activity. Since their study found that the fear of violent crimes has a direct effect on physical health, I deduct that it also has a direct effect on the psyche, influencing political behavior. As of

2017, there were 165.9 million women in the United States and 159.4 million men, it is important for news broadcasting stations to realize how they are indirectly pushing a certain political bias through extensive coverage of violent crimes against women. This paper will examine the hypotheses 1) Fear of violent crime leads to an increase in voting, 2) Fear of violent crime mostly impacts women over 50 years, 3) Fear of violent crime leads women to vote conservatively, and 4) Fear of violent crime is the result of extensive crime media coverage.

70. *The Success of Outreach on Undocumented Students in Higher Education*

Presenter(s): Isabelle Schoenhofer, Stephanie Yanes

Advisor(s): Dr. Lisa Leitz

Within the current climate of our nation, undocumented students are faced with multiple obstacles preventing them from attaining their goals of higher education. According to the academic journal entitled “College Access for Undocumented Students and Law”, by Jessica Enyioha, as of 2011, there are over 1.5 million immigrant children whose chances of pursuing a higher education become harder due to their undocumented status. However, organizations like the University of California Irvine Dream Center are attempting to make post-secondary education a possibility for the AB540 and undocumented student population. For example, through programs such as DocuALLY and FRESH, the Dream Center provides opportunities for undocumented students in need of a safe environment. Although the UCI Dream center focuses on creating a safe space for undocumented students, they also attempt to support undocumented students through advocacy and guidance. The question remains, how does their outreach impact the educational and personal success of undocumented students? Thus, the purpose of the project is to evaluate the actions of the UCI Dream center as it assists undocumented students affected by the current border situation. Through interviews with members and leaders of the Dream Center and field research of public events, we will attempt to measure the success this organization has with undocumented immigrants pursuing higher education.

71. *Chapman's Berlin Wall as a Display of Tribal Victory*

Presenter(s): Cameron Steiner

Advisor(s): Dr. Paul Apodaca

From early contact between hunter-gatherer tribes, through the Middle Ages and to even modern times, societies in conflict would frequently engage in the intimidation tactic of severing the heads of their rivals and placing them upon spikes or poles. More than a means to warn away those who came upon it, these displays would exhibit the power and superiority of one tribe over the other. While the most explicit forms of this custom are no longer in widespread use, their gestures of dominance continue to be practiced in objects and figures that are given symbolic significance, typically representing the victory of a particular ideology. This understanding of modern displays of superiority forms the basis of (my/this) analysis of Chapman University’s prominent Berlin Wall monument. The concrete slab commemorates the fall of the Berlin Wall, significant as the reunification of East and West Germany and, on a larger-concept scale, as “the first irreversible sign of the collapse of communism” (Todorov 44), the point in which western capitalism becomes the dominant international economic system. Professor Rachel Somerstein characterizes American and British celebrations of the anniversary of the fall of the Wall with this acquired

economic superiority in mind: “The notions of identity and power that this perspective ‘accommodate[s]’ (Zelizer, 1995), and reaffirms, are capitalism’s (and the U.S.’s) ‘win’ of the Cold War” (Sommerstein 716). Furthermore, who are we to celebrate notions of democracy’s triumph over belligerent regimes when, “in the name of promoting democracy and human rights, the western democracies...have gone to war against countries that are strategically or economically important” (Todorov 47)? Providing this alternative perspective would be beneficial to our student body because it will move students to critically question the symbols of authority they are confronted with in their everyday lives and aid in deconstructing what philosopher Tzvetan Todorov described as the “ideological messianism” of the post-Cold War western world.

Software Engineering

72. Food Scan Mobile Application

Presenter(s): Curren Taber, Andrew Bauer, Charlie Story

Advisor(s): Dr. LouAnne Boyd

Food restrictions pose a serious issue for Chapman students, with consequences as extreme as anaphylactic shock and death. Our team started the Food Scan project with a simple goal of streamlining how individuals with dietary restrictions find safe places to eat or buy food. The project name highlights our intention to clarify restaurant menu items for users by displaying important allergen and dietary information. Using Human-Computer Interaction methods, our team chose to develop a technology that is usable, effective, enjoyable, and inclusive by involving users during the entire design process. By integrating multimodal interfaces (including speech to text inputs), we strive to make our application accessible to a highly diverse group of people. Our team strives to create enjoyable user experiences through throwaway-prototyping, a process that involves conceptual models that may eventually be discarded in order to quickly test our UI with users. We conducted our first research survey on a sample of 29 potential users, with only 17.2% claiming to have a dietary restriction. Despite the small number of people affected by dietary restrictions, 89.6% of our research participants described an interest in previewing the restaurant menu before going to a restaurant, supporting the need for an app like Food Scan.

Theatre

73. Autism and Theatre: An Undiscovered Playground

Presenter(s): Kenna Maedel

Advisor(s): Dr. Jocelyn L. Buckner

With recent developments in the research of Autism Spectrum Disorder (ASD) and more understanding of the development of children diagnosed with it, there has been a push to integrate those with autism into theatre and arts education. Theatre as a form of education and therapy for individuals on the autism spectrum has benefits in the emotional, social, and intellectual realms. Theatre is a safe space for children

on the spectrum to navigate the world and difficult, complex social situations through improv and designed play. Though theatre programs are available for those with autism, more could be done to welcome ASD diagnosed children into theatre education by making programs designed specifically to fit the way they learn. In this thesis, I will explore recent developments and programs in the field, studies of emotional, social, and intellectual effects of theatre on those with autism, the way students with autism learn. and steps that the theatre industry can take to make itself more inclusive towards those on the spectrum. I will achieve this through analysis, research, interviews with those working in the field of adapted theatre, and my own personal experience of working with autistic children and young adults. Through these means, I wish to prove the importance of the continued development of theatrical play and education that is not only inclusive but also socially and emotionally enriching for individuals with autism.

74. *But Just You Wait: Musical Theatre and its Emergence into the World of Theatre for Social Change*

Presenter(s): Lindsey Alterman

Advisor(s): Dr. Jocelyn L. Buckner

Since its earliest conception, the American Broadway Musical has popularly been known for one thing: Entertainment. This it has done well, however these accolades have left the genre with a less than reputable claim towards the social impact that so many award-winning “straight-plays” covet and achieve, consequently excluding it from the spectrum that is commonly known as Theatre for Social Change. The various attempts that have been made to fabricate musicals around more serious topics have done well critically, but comparatively poorly at the box office when looking at the success of its peers. Until very recently it was believed that in choosing between a musical with depth and a musical that gathered an excess of attention and revenue one could not have both, as though in order to make money and stay afloat depth had to be sacrificed. In this thesis I will endeavor to prove that we are entering a time when that unfortunate opinion no longer has ground. Musicals have recently proven the ability to hold serious issues and topics while simultaneously attracting a significant number of viewers. Through the advancement of the technological age, the rise of a generation capable and willing to utilize it, and a new sociopolitical environment that is willing to accept such a change, we have finally reached a time when such serious topics can not only excel on the stage but, under the right circumstances, become nationwide favorites.

75. *The Art of Sound Designing Live Performances in Theatre*

Presenter(s): Maddi Deckard

Advisor(s): Dr. Jocelyn L. Buckner

Sound design operates as a crucial element in connecting audiences to the action of theatre, on stage and off. It creates immersive environments and builds entire worlds, heightening emotions in any play or musical. The acoustics of sound are the essence of live theatre; they produce a sensory environment that cannot be replicated or experienced to a similar capacity through a recording. This is, in part, due to the kinetic energy that travels through audiences as sound emits from speakers within a performance space. During live performances, sound is felt as vibrations pulse through the air at varying wavelengths and

make contact with people. This stimulus assists in immersing audiences as they are sensorially impacted through this intimate connection. Live entertainment has continued to thrive partially due to this energy that can be provided with experiencing true live sound, even with the variety of other forms of entertainment available with modern media. Yet, it is difficult to talk about sound in a way that all theatre professionals understand the discussion since sound design can be shrouded in technical audio terminology and is often articulated through visual references when collaborating. This thesis aims to expand the conception of sound designers' work and the collaboration that occurs in the creation of their art by adding to the conversation surrounding sound design in theatre. This will be accomplished through examining how sound is designed for plays and musicals, with reference to personal sound design experience. This analysis will entail significant details of the sound design process as it aids the directorial concept. I expect to demonstrate how sound design works in unity with other production elements and establish its role within the art of live performances in theatre.

76. *Nice Work if You Can Get It: An Economical Breakdown of Broadway*

Presenter(s): Matthew D'Arrigo

Advisor(s): Dr. Jocelyn L. Buckner

Broadway is on an uphill climb, breaking records that we have never seen broken before. The economic system of Broadway is complex, and the analytics of each production is unique. Each show develops its own budget, ticket prices, marketing strategy, etc. to attract a certain demographic while trying to produce a show that will be received well in American popular culture. Broadway is now at the center of popular culture, with stars such as Lin-Manuel Miranda and Ben Platt headlining. Benj Pasek and Justin Paul's *Dear Evan Hansen*, Tiny Fey's *Mean Girls*, and Disney's *Frozen* continue to redefine what is produced on Broadway stages, all going viral within our technology filled worlds. The commercialized pricing of each Broadway show contributes to the growth of the industry. It is safe to say that Broadway is producing works of art that will not only last for years but will continue to provide a steady amount of revenue. In this paper, I expand upon my previous efforts about this topic to examine the world of Broadway combined with the business industry. A theatrical producer is overseeing the project at hand from both the business and theatre perspective, guiding every avenue of the production until they close their doors on Broadway. Broadway continues to show the world that it isn't a dying art form, but rather an industry that is hitting new records every year. In examining the economic system, analysis of the core infrastructure, and trends both past and present, the business of theatre is hitting a new golden age that will have a long effect on the industry in the future.

77. *The Happiest Place on Earth: Breaking Down the Design of Successful Theme Parks*

Presenter(s): Taylor Winter

Advisor(s): Dr. Jocelyn L. Buckner

In my research project I explore what elements of theme park design make a park successful, citing Disneyland and Universal Studios Orlando specifically. I have broken down my research of successful elements of theme park design into four categories: the art of theme park design, the psychological relationship between physical space and emotion, how guest co-production and participation is essential to creating successful experiences, and methods to facilitate positive guest experiences outside of design. I have taken data and research regarding Disneyland and Universal Studios Orlando to argue the correlation between these subjects. Through my research I have learned that while it is impossible for designers to evoke an exact reaction from a guest, strategic subliminal messages utilizing the senses can encourage certain emotional responses. When these stimuli and subliminal messages are attached to a physical space detached from the real world that contains a consistent theme and narrative, an immersive environment is created. In this immersive world guests are invited to suspend their disbelief and indulge in the fantasy of this pretend world. The success of this fantasy world relies heavily on the willingness of guests to believe that it is real. Employees prime park guests for this the moment they enter a park through subliminal messaging, which reinforce the rules of the space and encourages certain behaviors. Well-trained employees are crucial to the success of theme parks as their interactions with guests set the tone for the park, and employees must act in such a way so as not to break guests' willing suspension of disbelief. In conclusion, successful theme park design takes into consideration the psychological effects that the aesthetic of a space will have on guests, and utilizes this knowledge to create a space separated from reality that allows park guests to indulge in play.

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