

Fall 2015

## Fall 2015 Student Research Day Abstract Volume

Chapman University Office of Undergraduate Research and Creative Activity

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CHAPMAN UNIVERSITY

# STUDENT RESEARCH DAY

WEDNESDAY, DECEMBER 9, 2015

FALL SESSION

## ABSTRACT VOLUME



CHAPMAN  
UNIVERSITY

OFFICE OF UNDERGRADUATE RESEARCH  
AND CREATIVE ACTIVITY

# Message from the Director

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Greetings and welcome to the 2015 Fall Chapman University Student Research Day. This celebration highlights the breadth and depth of scholarly research and creative activity conducted by Chapman undergraduate and graduate students across the campus. It is my hope that all members of the university community engage in and benefit from the Chapman University Student Research Day.

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

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

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

Thanks for joining us, and enjoy the day!

*Dr. Anna Leahy is Director of the Office of Undergraduate Research and Creative Activity (OURCA) and Associate Director of the MFA program in Creative Writing at Chapman University.*

# Acknowledgements

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- Dr. Glenn Pfeiffer, Vice Chancellor for Academic Administration
  - Crean College of Behavioral Sciences
  - Schmid College of Science and Technology
  - Wilkinson College of Arts, Humanities, and Social Sciences



CHAPMAN  
UNIVERSITY

CREAN COLLEGE OF HEALTH  
AND BEHAVIORAL SCIENCES



CHAPMAN  
UNIVERSITY

SCHMID COLLEGE OF SCIENCE  
AND TECHNOLOGY



CHAPMAN  
UNIVERSITY

WILKINSON COLLEGE OF ARTS,  
HUMANITIES, AND SOCIAL SCIENCES

# Keynote Speaker: Kenneth E. Phillips, Ph.D.

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Dr. Kenneth E. Phillips has served as Curator for Aerospace Science at the California Science Center since 1990 and is responsible for creating the vision that shapes the exhibits and programs in aeronautics and space exploration. He is also an Adjunct Professor of Physics and Astronomy in USC's Dornsife College of Letters, Arts and Sciences and teaches the Freshman Seminar course on the space shuttle and the public understanding of science.

His current project is Phase III of the Science Center's 25-year Master Plan featuring the Space Shuttle Endeavour within the new, Samuel Oschin Air and Space Center scheduled to open in 2018. Completed projects include the Samuel Oschin Space Shuttle Endeavour Pavilion that provides temporary housing for the shuttle; the Journey to Space traveling exhibition developed in partnership with the Science Museum of Minnesota; the experimental Sketch Foundation Air and Space Gallery; the Roy A. Anderson A-12 Blackbird Exhibit and Garden and several exhibits addressing single topics that include Astrobiology, International Cooperation in Space, Mars Exploration Past, Present and Future and Lunar Exploration History.

Prior to joining the California Science Center Ken was a member of the Engineering and Applied Sciences Department at the RAND Corporation where he served for 14 years both in Washington, D.C. and Santa Monica, California. At RAND he conducted research on environmental science, energy policy and the military applications of aerospace technology.

Ken has served on the board of directors of several organizations involved in education and the arts including the national board of the United States Academic Decathlon; The Watts Towers Arts Center; Donna Sternberg and Dancers; and the Center for Advanced Learning charter school at the Bilal Islamic Center. He served as a volunteer classroom physics teacher for the Los Angeles Council of Black Professional Engineers Saturday EXCELL Academy and currently teaches the "Living in Space" and "Working in Space" courses in the Hands-On Science Camp program at the California Science Center along with a 39 hour, inquiry-based course on space exploration for high school seniors from the New Village Girls' Academy. In addition to his involvement in education and the arts, Ken serves as a Corazon construction laborer building houses in rural Mexico.

Ken received his B.S. degree in Physics from the North Carolina Agricultural and Technical State University, and M.S. in General Engineering from the University of Wisconsin and a Ph.D. in environmental Engineering from the Johns Hopkins University.



# Schedule of Events

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**9:30 – 11:30 am**

**Poster Session 1**

*Behavioral, Health, and Natural Sciences*

**Bush Conference Center**

*Beckman Hall, Room 404*

**12:00 – 1:30 pm**

**Lunch Keynote Speaker**

*Kenneth E. Phillips, Ph.D.*

*RSVP required*

**Argyros Forum**

*Room 209*

**2:00 – 4:00 pm**

**Poster Session 2**

*Arts, Education, Humanities, and Social Sciences*

**Bush Conference Center**

*Beckman Hall, Room 404*

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**Poster Session 1**  
**Abstracts**

**Behavioral, Health, and Natural**  
**Sciences**



# Graduate Students

## Crean College of Health and Behavioral Sciences – Marriage and Family Therapy Program

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### 1. Integrative Psychotherapy and Experiential Balancing Therapy

**Presenter(s):** Jessica Beyer

**Advisor(s):** Dr. Dave Pincus

Integrative psychotherapy attempts to bridge together various therapeutic theories, techniques, and assumptions to improve upon traditional relatively narrow approaches. Many current clinicians use integrative orientations as it allows them to practice a more flexible therapy; however, such professionals often lack an empirically tested and structured approach upon which to base their practice. The major types of integrative psychotherapy: common factors, theoretical integration, assimilative integration, and technical eclecticism, will be discussed to provide a background. Next will be an in-depth focus on a new theoretically integrative approach: Experiential Balancing Therapy (EBT). EBT uses complex adaptive systems theory as its theoretical grounding, and then organizes strategic therapeutic goals around the concepts of flexibility and structural integration.. Both flexibility and structural integrity are broad enough to enable a practitioner to maintain a degree of freedom in practice, yet specific enough to provide guidance and direction in ambiguous situations. It can also be demonstrated that the various techniques that have been developed within traditional approaches can each be seen to target either patient flexibility, structural integrity, or both. Finally, EBT will be compared and contrasted with the two primary integrative approaches upon which it was built, Acceptance and Commitment Therapy (ACT) and Emotion Focused Therapy (EFT).

# Undergraduate Students

## Solar Decathlon

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### 2. Solar Decathlon 2015: A Study on Affordable Sustainability

**Presenter(s):** Colton Green, Clayton Heard

**Advisor(s):** Dr. Geraldine McNenny

Sustainability and affordability aren't always overlapping concepts, but the Department of Energy's Solar Decathlon includes "Affordability" as one of the ten contests, to challenge university teams to keep their innovative designs and technologies affordable for the average resident. In the competition, homes are awarded full points for final projects that remain under \$250,000 as a part of the affordability contest. The appliances, solar, and water systems are all included in the price of these brand new, net-zero homes. Sustainable architectural design principles such as passive solar, efficient insulation, drought tolerance, and use of local building materials helped many of the teams meet their affordability goals. However, some teams did exceed the affordability benchmark, resulting in a loss of points. Using a cost benefit analysis approach on these teams, researchers found

that safety and technological factors caused higher home prices. This analysis highlights the goals of the Solar Decathlon, showing the feasibility, and cost efficiency of net-zero, sustainable housing. Using technology currently available on the market, with innovation and the drive for self-sufficiency, the general public, as well as students, are able to attain a lower cost for sustainable living.

### **3. Documenting the Process of Making a Sustainable Future Feel Like Home**

**Presenter(s):** Kristina Lamb, Kyle Decker

**Advisor(s):** Dr. Geraldine McNenny, Dr. Fred Smoller

As part of the U.S. Department of Energy 2015 Solar Decathlon, Team Orange County built a net-zero energy solar home called Casa del Sol. This project pursued a vast undertaking of changes in Southern California lifestyle, which challenged the public to see as realistic. The film answers questions a jury of professionals in the communication field measured for the event, including consistency and overall execution of the team's message.

The documentary being made showcases the chronological events that emphasize a spectrum of communication struggles between the team. There were numerous hurdles that had to be overcome when building the home itself including design, budgeting, and artistic opinion. In addition, there were unexpected events that took place during the solar decathlon and as resulting occurrence, with the product of the home and character relationships that were documented throughout the journey.

The film specifically follows a student from each school, as well as the Project Manager of Team Orange County. In addition to the personal narrative of the students, the film also examines the four principles central to Casa Del Sol's design, Passive Solar, Disruptive Innovation, Southern California Market, and Drought Resilience.

We found that the key to a marketable yet sustainable home was to balance the importance of the engineering with the comfort and aesthetic appeal of the design.

When engineering and design are presented correctly we conclude that the public has a natural thirst and curiosity for how sustainable energy can be implemented in their Southern California lifestyle.

### **4. Architecture as a Competitive Criterion of the Solar Decathlon 2015**

**Presenter(s):** Matt Morello, Wyatt Giampa, Peter Heres

**Advisor(s):** Dr. Geraldine McNenny

In hosting a competition among universities to build net-zero energy solar homes, the Department of Energy's Solar Decathlon emphasizes architecture as one of the ten key criteria. Solar Decathlon homes must be attractive, high-performance houses that integrate solar and energy efficiency technologies seamlessly into the design. We had to consider a wide range of variable and components, such as the amount of material used in the construction of the house, how much of that material is recycled, efficient material, and how much the house uses solar technology and energy efficient technology. The essential features of the study method are sustainable architectural design, durable framework of the house, efficient energy usage in construction, and usage of energy in home life. Team members worked to perfect the architectural design while using sustainably sourced materials and environmentally friendly construction strategies. A variety of strategies led to numerous solutions for building affordable and sustainable houses, all of which capture the basis of the competition, which is to increase general knowledge of the practicality of constructing architecturally sound net-zero energy solar homes. Implications for the architecture content combine design for net-zero energy solar homes with sustainable passive and active energy systems. With time and energy being poured into the project by diverse teams of dedicated students, the architecture and design of the Solar Decathlon houses are groundbreaking concepts that further the role of self-sustainable buildings in our nation.

## **5. Market Appeal as a Competitive Criterion of the Solar Decathlon 2015**

**Presenter(s):** Anupreet Singh, Aishwarya Sivaraman

**Advisor(s):** Dr. Geraldine McNenny

1. The U.S. Department of Energy hosts a Solar Decathlon in which teams competing must build net zero energy homes with certain specifications. One such specification is market appeal, in which a team builds its home for a specific target client.
2. Using factors such as livability, marketability, and buildability to create market appeal, this presentation touches upon and explores strategies used by Solar Decathlon participants to create market appeal for a net zero energy home.
3. The receptiveness and practicality of the house design to the features and requirements of the target client are reviewed. Strategies used by different Solar Decathlon teams to achieve market appeal are compared.
4. Multiple strategies for market appeal were found to be applicable in building a net zero energy home. Some strategies include designing and building a home that appeals to homeowners for aspects such as multigenerational living, coastal living prone to hurricanes, gardening, and a “smart home” that can function independently of its residents.
5. All points stated prove that the Solar Decathlon is indeed a competition that fosters innovation and groundbreaking results and the proof is all of the net zero energy homes that were built. The Solar Decathlon also strives to educate the public about sustainable living and how it is truly not a dream for the future but actually attainable and sustainable.

## **6. Engineering Casa del Sol**

**Presenter(s):** Austin Wolf, Fernando Silva

**Advisor(s):** Dr. Elaine Schwartz

Casa del Sol is Team Orange County’s submission to the Department of Energy’s 2015 Solar Decathlon. One critical aspect that contributed to the home’s success was the engineering that went into the technology. Each home engineering score that was judged by the Department of Energy was based on innovation, functionality, efficiency, reliability, and documentation. In our research we analyzed how effective Casa del Sol was in fulfilling each of these aspects.

In order to build a more sustainable home, engineers on Team Orange County built solutions by integrating the AC-DC bidirectional inverter, the 3-D printer, sub-wet bulb evaporative chiller unit, radiant ceiling system, and water-to-water heat pump into the home. We found that these solutions were innovative and function but lacked the reliability for these features to be implemented in today’s home. Future work should study how to make these features more reliable so that families don’t have to compromise dependability when choosing to live a more sustainable life.

## **7. Communications within the frame of the Solar Decathlon**

**Presenter(s):** Kiyoko Nakatsui

**Advisor(s):** Dr. Jason Keller

Communicating ideas with the population around you in an effective and thoughtful manner requires strategy and innovation. Within the competition of the Solar Decathlon the communications section contained five sub groups of communication strategy, electronic communication, public exhibit material, public exhibit presentation, and

audiovisual presentation. Since one of the main goals of the Solar Decathlon is to educate the public this ideal extended through to the communications aspect. Our team focused heavily on public out reach and involvement, whether it was on social media, going to events, speaking engagements, or local school involvement.

We developed a central symbol, the California poppy, as a vehicle for us to communicate our message. The poppy has four petals like our team has four schools and four design principles. From here we engaged the public to help us create public exhibit materials, which were California poppy seed packets, and then invited them to come to the decathlon to see the homes and see what their contributions helped with. We also used social media to reach a wider audience and even those that couldn't attend the competition. Our team set up field trips for over 400 local students to attend the competition. At the competition we gave tours of the home explain the four design principles and innovative technologies used in the home. Within communications our main goal was to reach the public and educate those who wanted to listen about the future possibilities in clean technology.

## **8. Sustainability Analysis of Team OC's Home Life Events from the U.S. DOE's 2015 Solar Decathlon**

**Presenter(s):** Alexandra Sidun, Lauren Sato

**Advisor(s):** Dr. Geraldine McNenny

This project will look at the U.S. Department of Energy's 2015 Solar Decathlon and examine Chapman University's involvement in Team Orange County. This project will further examine the Home Life sub-competition by studying the sustainability of the components of the two Home Life dinners, the movie night party, and the energy budget associated with each of the three events. Reviewing team documents and collecting data from affiliated team members will give us a wholesome overview of the efforts taken to achieve sustainability for the dinners and movie night. We found various practices were incorporated in the menu-concepts for the three nights, during which these events were hosted, which integrated sustainable practices to embody the goal of the U.S. DOE's Solar Decathlon. Finally, the overall sustainability of these three hosted events will be correlated to the net-zero nature of the home, Casa del Sol, and state the impacts of these dinners in regards to the average meal and movie night to understand the sustainability of this sub-competition.

## **Crean College of Health and Behavioral Sciences – Health Sciences and Kinesiology**

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## **9. Determining the Role of PPAR $\alpha$ in the Pathway of IL-15- Induced Mitochondrial Activation**

**Presenter(s):** Shantae Thornton

**Advisor(s):** Dr. Marcia Abbott

Obesity is one of the most pressing modern epidemics. Focus has turned to molecular regulators of metabolism as treatment options. Myokines are molecules secreted from skeletal muscle following exercise and act to increase mitochondrial activity, reducing adiposity. Here we aimed to determine the mechanism by which the myokine interleukin-15 (IL-15) regulates skeletal muscle mitochondrial activity. Studies show IL-15 increases mitochondrial activity, but the specifics of this process remain unknown. We hypothesized this is done through the mitochondrial mediator peroxisome proliferator-activated receptor alpha (PPAR $\alpha$ ). C2C12 skeletal muscle cells were grown in vitro and treated with vehicle control, IL-15 (100 ng/ml), a PPAR $\alpha$  inhibitor (GW6471), or a combination of IL-15



and GW6471, every other day for six days. Following the treatment protocol, RNA was extracted and reverse transcribed to cDNA. Real time qPCR was carried out on cDNA samples to assess mRNA expression levels of PPAR $\alpha$  and other mitochondrial associated genes, UCP2 and PGC1 $\alpha$ .

IL-15 increased PPAR $\alpha$  expression by 688%, UCP2 expression by 110%, and PGC1 $\alpha$  by 220%. When PPAR $\alpha$  was inhibited with IL-15, PPAR $\alpha$  expression decreased by 32.8%, UCP2 expression by 77.2%, and PGC1 $\alpha$  66.7%. Since IL-15 treatment failed to increase UCP2 and PGC1 $\alpha$  expression with PPAR $\alpha$  inhibition, it is postulated IL-15 signals through PPAR $\alpha$  to control expression of mitochondrial associated genes. Our results support the hypothesis and provide important information regarding the signaling pathway of IL-15. Further studies are warranted to fully elucidate the role of IL-15 in metabolism regulation and as a treatment for obesity.

## **Crean College of Health and Behavioral Sciences – Psychology**

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### **10. Maternal Infection and Schizophrenia**

**Presenter(s):** Eve Bettman

**Advisor(s):** Dr. Steven Schandler

A 2010 review of the data suggests that 38–46% of cases of schizophrenia may be associated with prenatal infection. Maternal infection including: *Toxoplasma gondii*, influenza, rubella, herpes simplex virus, and cytomegalovirus have been associated with elevated risk of schizophrenia in adult offspring. This research seeks to address recent advances in the literature on prenatal infection since 2005, as it has been significantly implicated as an environmental risk factor in the “two-hit” hypothesis of schizophrenia. It was hypothesized that if a child is exposed to maternal infection in utero, then they will have a greater likelihood of developing adult schizophrenia than a child who is not exposed to maternal infection in utero. Accordingly, the risk of schizophrenia in adult offspring was examined in relation to maternal infection during pregnancy to investigate the thesis hypothesis. Strong support for the hypothesis was found. However, the findings differ across studies in regards to the results of particular infections. Additionally, exposure to influenza and other infections during early stages of gestation may produce more harmful outcomes. The project determined a need of the current research to identify how the abnormal developmental trajectory of the brain manifests in gestation in addition to the exact mechanisms involved in relation to the development of schizophrenia symptoms in adulthood. Moreover, further research is needed to address inconsistencies in the identification of biomarkers for events from fetal development or birth that could have implications in predicting risk for schizophrenia in adulthood as well as treatment responses.

### **11. An Experimental Extension of Weber’s Law to Interpersonal Conflict Dynamics**

**Presenter(s):** Anika Javaid

**Advisor(s):** Dr. Dave Pincus

This research proposal describes an experimental application of Weber's Law from psychophysics to behavioral dynamics within conflict. The goal of the study is to test a central hypothetical principle of a novel approach to psychotherapy, known as Experiential Balancing Therapy (EBT; Pincus, 2015). Within this approach to therapy, clinicians assess for rigidity in emotion, habits, cognition and interpersonal processes – and generally speaking apply strategic interventions to the most rigid psychosocial dynamic. An iterated prisoner's dilemma paradigm with a simulated partner will be used to test the hypothesis that the size of change needed to produce cooperation is proportional to the rigidity or to the disintegration of the interpersonal conflict dynamics. The study will experimentally vary the degree of predictability versus noise in competition versus cooperation responses made by

the simulated partner. After 100 turns in the game, all participants will experience an identical 20-turn shift toward cooperation. It is predicted that there will be an inverted-U relationship between predictability in the first 100 turns and the number of turns it takes for the participant to shift toward cooperation: A moderate degree of noise should be associated with the quickest perception of, and shift toward, cooperation, with proportionally more turns needed as one moves toward the random and rigid ends of the noise continuum. These results would have far reaching implications not only for psychotherapeutic efficiency, but also for interpersonal conflict more broadly.

## **12. Fractal Conflict Scaling in Dating Relationships: Lots of Little Conflicts Go a Long Way**

**Presenter(s):** Alyia Williams, Anika Javaid

**Advisor(s):** Dr. Dave Pincus

Interpersonal relationships are complex adaptive systems, and thus can be studied using models and methods from nonlinear dynamical systems theory. Nonlinear dynamical systems theory includes a variety of modeling approaches designed to understand the behavior of systems that might otherwise appear random. Previous research indicates that small group dynamics are self-organizing, producing fractal (i.e., inverse-power law distributed) recurrence patterns of conversational turn-taking dynamics. Further, conflict has been shown to be a key control parameter – with higher levels of conflict making fractal interaction patterns more rigid. The present study proposes to extend this line of research, predicting that: (1) conflict dynamics of dating couples will conform to a fractal distribution, with exponentially more small conflicts than large ones. If conflict patterns are indeed fractal, then it may follow that intimate relationships could be studied using similar theory and methods as other natural complex systems, such as earthquake patterns or evolutionary extinction events. It is further predicted that: (2) higher flexibility in conflict dynamics (measured as fractal dimension) will be associated with higher levels of relationship satisfaction and relationship stability over time.

## **Schmid College of Science and Technology – Biochemistry & Molecular Biology**

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## **13. Implications of Telomerase Reverse Transcriptase Mutations in the Etiology of Idiopathic Pulmonary Fibrosis**

**Presenter(s):** Mikaela Biavati

**Advisor(s):** Dr. Christopher Kim

Idiopathic pulmonary fibrosis (IPF) is a terminal, progressive interstitial lung disease with an onset age of fifty years old. While its complete etiology is unknown at this point, there is speculation that it involves environmental factors such as asbestos and animal waste exposure or genetic factors - 3% of patients have a first-degree family member also diagnosed with IPF. Short telomere lengths have been identified in a subset of patients with IPF. A genome-wide association study (GWAS) revealed association between mutations in the gene coding for Telomerase Reverse Transcriptase (TERT), the protein component of telomerase (the enzyme responsible for the addition of telomeres to the ends of chromosomes). Since then, TERT mutations have been found to be the most common genetic defect in families with pulmonary fibrosis (PF). PF associated with TERT mutations is quite lethal, resulting in a mean survival time of three years following diagnosis. This project sought to identify novel mutations in TERT exons of ten probands with IPF in ten unrelated families through the use of polymerase chain reaction (PCR) to

amplify TERT exons and subsequent analysis of Sangar DNA sequencing results to identify mutations. Novel missense TERT mutations were identified in two probands. One mutation was located within exon 3 of TERT and the other in exon 12 of TERT. Both probands were previously identified to have short telomere lengths. The discovery of these mutations is an important part of relating mutations in the TERT gene to telomere length and its subsequent implications in familial IPF.

#### **14. In vivo reduction of arsenic from inhaled mine waste**

**Presenter(s):** Kory Cablay

**Advisor(s):** Dr. Christopher Kim, Dr. Marco Bisoffi

The reduction of As(V) to As(III) in vivo by Glyceraldehyde-3-Phosphate Dehydrogenase (GAPDH) has been seldom characterized, yet it has been shown in literature (Nemeti and Gregus, 2005) that GAPDH has the ability to reduce As(V) to As(III) in vitro. We tested this hypothesis in vivo by exposing rats to arsenic bearing mine wastes followed by analysis of brain and blood samples for presence of As species. Samples were obtained from the Marigold East mine of the Randsburg mining district in Southern California. Samples were separated by size until fractions of particles <10  $\mu$ m were obtained. Extended X-ray Absorption Fine Structure (EXAFS) analysis was performed on the mine wastes to characterize species of As present in our samples. A controlled exposure was performed in which known amounts of mine waste were passed by the nasal region of each rat with a control cohort exposed to ambient air. A GAPDH ELISA assay was run on harvested blood and brain tissues to characterize the presence of GAPDH. Ion Chromatography-Inductively Coupled-Dynamic Reaction Cell-Mass Spectrometry (IC-ICP-DRC-MS) was performed to determine speciation data of As compounds within each respective tissue. Analysis revealed no significant change in As(III) and As(V) concentrations in both brain and blood samples between pre and post exposure tissues. There was a slight increase in Dimethylarsinic acid (DMA) in exposed blood in comparison to control blood. ELISA results revealed an increase in GAPDH levels in the blood and a decrease in GAPDH levels in the brain. In conclusion, GAPDH did not appear to reduce As(V) to As(III) in both blood and brain samples. However, additional analyses with more potent As sources are required to further characterize GAPDH's reduction capabilities.

#### **15. Multi-Walled Carbon Nanotube-Peptide Conjugates as Drug Delivery System**

**Presenter(s):** Matthew Etesham

**Advisor(s):** Dr. Keykavous Parang, Dr. Rakesh Tiwari

Multi-Walled Carbon Nanotubes (MWCNTs) have an unknown level of toxicity. The anticancer drug Doxorubicin (Dox) alone does not have a long retention because of the reflux mechanism in some cancer cells. MWCNTs were conjugated with water soluble cyclic cell penetrating peptides (CPPs) containing tryptophan (W) and arginine (R) through a  $\beta$ -Alanine ( $\beta$ -Ala) linker, [W5R4K]- $\beta$ -Ala, and were physically loaded with Dox. We hypothesized that the toxicity of MWCNTs will be reduced and the drug retention will be enhanced by the encapsulation of Dox onto the MWCNT functionalized [W5R4K] conjugate. The non-polar composition of MWCNT allows for direct diffusion into cells via an energy-independent process that involves the flipping of membrane lipid molecules. The surface of MWCNTs were oxidized with HCl and H<sub>2</sub>SO<sub>4</sub>, followed by chemical conjugation with CPPs. The oxidized MWCNTs were activated by sonication and the Dox was loaded after activation. The MWCNTs were characterized utilizing FT-IR, Scanning Electron Microscopy (SEM) and Transmission Electron Microscopy (TEM), and the CPPs were characterized utilizing Mass Spectrometry. The SEM and TEM images in tandem with the Energy Dispersive X-ray Spectroscopy (EDS) demonstrated functionalized MWCNT conjugation of the CPPs with the loaded Dox. Dox loaded conjugates were examined for their potency in the inhibition of cancer cell lines (CCRF-CEM and DU-145) by

MTT assay and Flow Cytometry. The MWCNTs were found to be much less toxic when conjugated with CPPs and MWCNT-CPP-DOX were found to be highly efficient in utilizing low DOX concentrations against CCRF-CEM cell lines.

#### **16. Elucidating Molecular Pathways of Prostate Field Cancerization: Potential Role of EGR-1 as a Master Regulator**

**Presenter(s):** Kristin Gabriel

**Advisor(s):** Dr. Marco Bisoffi

Field cancerization describes the presence of molecular alterations (genetic, epigenetic, biochemical) in structurally intact cells residing in histologically normal tissues adjacent to tumors. Markers of field cancerization have the potential to detect the presence of cancer, leading to improved diagnostic methods. For example, in prostate cancer, markers of prostate field cancerization can increase the clinically informative area surrounding biopsy cores even in the absence of cancerous tissue in the cores, thereby minimizing potential side effects from repeated biopsies. However, it is necessary to gain a detailed understanding of the functional pathways underlying field cancerization in order to use markers to improve diagnostic methods. We have identified four protein factors as markers of prostate field cancerization: key transcription factor early growth response 1 (EGR-1), lipogenic enzyme fatty acid synthase (FAS), macrophage inhibitory cytokine 1 (MIC-1), and secreted growth factor platelet derived growth factor A (PDGF-A). Using a comprehensive comparison of expression levels of these four factors in human prostate cell models and human tissues, we determined that molecular mechanisms of field cancerization are consistent between cell models and tissues. In particular, we identified a possible regulatory role for EGR-1 in controlling the expression of FAS and MIC-1 (down-regulation) and PDGF-A (up-regulation) in both prostate cell models and human tissues. In summary, our study describes a novel functional pathway of prostate cancerization with a central regulatory role for EGR-1. Knowledge of this pathway could be used in the early and improved detection of prostate cancer in false-negative specimens after initial or repeated biopsies from patients with low risk disease.

#### **17. Synthesis of ca-27 analogs for structural activity relationship study of ca-27**

**Presenter(s):** Timothy Straus

**Advisor(s):** Dr. Justin O'Neill Dr. Marco Bisoffi

Ca-27 is a curcumin analog that has shown promise in fighting prostate cancer. It does this by inhibiting the expression of the androgen receptor which plays a role in prostate cancer, but the mechanism of action is not fully understood. To help clarify this mechanism, we set out to synthesize analogous compounds to ca-27 to determine what parts of ca-27's structure gives it its cancer fighting ability, or if another similar compound could serve ca-27's function better. We synthesized a number of compounds using a combination of synthetic organic chemistry techniques. These compounds were concentrated, confirmed with NMR spectroscopy, and purified for exposure to prostate cancer cells. The research is ongoing.

## **18. Isolation and purification of proteins from Fennel (*Foeniculum vulgare*) Seed**

**Presenter(s):** Micah Sturges

**Advisor(s):** Dr. Aftab Ahmed

Traditional folk medicine continues to serve a large portion of the world population, particularly in less developed areas, in spite of the advent of science based medicine. Most folk medicine derives from local cultures and customs, and spreads from there. The efficacy, mechanism of action and general scientific study of folk medicines can widely vary from none to very little scientific understanding; thus more attention should be placed on the possible benefits that can come out of folk medicines. In previous studies fennel, and more specifically, its proteins and peptides, have reported medicinal value. However, most studies were done with whole fennel samples or crude protein extracts. The proteome of fennel is largely unknown. This study aims to isolate and purify proteins and peptides from fennel seeds which can later be tested for protein-based biologics. Whole fennel seeds were soaked in 1% acetic acid and pulverized using electric blender and stirred for four days at 4°C. Extracted proteins precipitated and purified using two dimensional liquid chromatographic approach using FPLC based Sephacryl-200 gel filtration chromatography and reversed phase HPLC. Further studies are underway to deduce the primary structure of proteins employing N-terminal protein sequencing.

## **19. Improved Data Collection for Finite Element Analysis Calibration**

**Presenter(s):** Kristen Yu

**Advisor(s):** Dr. Elaine Schwartz, Elliot Howard PhD

Component level characterization leads to better performance outcomes for the overall device. At Medtronic, an important component of a device is pericardial tissue. Collagen fibers dominate the structure of the tissue, and are spread unevenly throughout it. This heterogeneity causes the tissue to have anisotropic, hyperelastic material properties. An in-depth understanding of these material properties is a critical aspect of accurate simulations using finite element analysis (FEA). The data that allows the material properties to be calibrated for FEA use comes from a biaxial test. Current limitations of the biaxial test include a long run time, and how the data is collected. The test is time consuming due to sample prep and mounting. The data collection is restricted to only the center point, which doesn't capture the natural heterogeneity of tissue. The test is also currently run on load control, which sometimes results in unusable data.

To compensate for these shortcomings, improvements have been made to the biaxial test method. To shorten the amount of time that the test takes, grips have been implemented, and to obtain better data, digital image correlation (DIC) has been incorporated. In order to add the grips to the tester, the sample geometry had to be updated from a square to a cruciform shape. FEA simulations were run to determine the optimal cruciform shape. A new procedure for preparing a sample was created to implement DIC. To eliminate the potential for unused data, the test runs in displacement control. With these test method updates, new data will be able to be collected that will improve the material model for FEA simulations to more accurately predict trends in full device level simulations.

### **20. Isolation and Purification of Proteins from Aloe vera Leaves**

**Presenter(s):** Caroline Aziz, Soliel Doman, Rukhsana Lalani

**Advisor(s):** Dr. Aftab Ahmed

Aloe vera is a succulent plant that belongs to the family Xanthorrhoeaceae and is known to have medicinal and cosmetic properties. Use of Aloe vera dates back to ancient Egyptian, Greek and Roman times because of the anti-inflammatory, anti-fungal, anti-bacterial properties of the leaf gel. These properties make Aloe vera an ideal ingredient for products used to treat skin conditions such as infections, wounds, sunburn and psoriasis. Although many claims regarding the soothing, moisturizing, and healing properties of Aloe vera are regularly made by cosmetic and alternative health industries, there is very limited scientific research reported on the protein from the Aloe vera leaf gel. In this study, we are reporting the preliminary data on the extraction and purification of proteins using various chromatographic approaches. Aloe vera leaves and brand name Aloe vera juice were purchased from the local market. Proteins were either precipitated directly by ammonium sulfate or extracted in mild acid followed by a three-phase (chloroform: methanol) extraction procedure. Protein purification techniques were successfully employed using combination of HiPrep 16/60 Sephacryl-S-200 HR gel filtration chromatography using FPLC and BioBasic C-18 (150 x 4.6 mm) RP-HPLC. Further studies are in progress to deduce the primary structure of isolated proteins employing N-terminal protein sequencing and mass spectrometry.

### **21. Detection of specific tumor suppressor p53 mutations in tumor and tumor adjacent tissues of human prostate**

**Presenter(s):** Emily Frisch

**Advisor(s):** Dr. Marco Bisoffi

Field cancerization denotes the occurrence of molecular alterations in structurally intact cells in histologically normal tissues adjacent to tumors. We hypothesize that field cancerization represents a state of pre-malignancy and supports subsequent tumor formation (oncogenesis). We have previously shown elevated expression of the key transcription factor early growth response 1 (EGR-1) in prostate field cancerization, potentially leading to the induction of downstream growth factors promoting oncogenesis. The mechanisms of EGR-1 up-regulation in prostate field cancerized tissues remain unknown. The present study tests the hypothesis that cryptic tumor suppressor TP53 mutations are inducers of EGR-1 in histologically normal tissues surrounding prostate adenocarcinomas. Accordingly, in a pilot study we tested the presence of p53 mutations R273H, R249S, and R175H in genomic DNA of tissues derived from prostatectomy and paired adjacent tissues. These mutations are known for inducing EGR-1 expression in prostate epithelial cells. Mutation-specific real time (quantitative) polymerase chain reaction was used to assess the presence of TP53 mutations as compared to wild type TP53 genes sequences. Our studies indicate that both cancerous and field cancerized prostatic tissues harbor R273H and R175H, but not R249S TP53 mutations. Our results indicate that structurally intact cells in histologically normal tissues adjacent to prostate tumors harbor TP53 mutations that define a pre-malignant state in prostate tissues promoting oncogenesis. Our findings have important clinical implications for early prostate cancer diagnosis and/or detection of prostate cancer risk, as well as for prostate cancer prevention.

## **22. FIELD EXPERIMENTS DEMONSTRATE THAT HEAT SPELLS CAN REDUCE TERRITORY DEFENSE IN THE OWL LIMPET, LOTTIA GIGANTEA**

**Presenter(s):** Nelson Gould, Christina Chavez, Tracy Gunanto, Jessica Martinez

**Advisor(s):** Dr. William Wright

The intertidal zone may provide insights into how global climate change will impact natural ecosystems because its inhabitants are so vulnerable to heat stress during daytime low tides. The territorial limpet, *Lottia gigantea*, significantly changes the mid to high intertidal landscape by removing sessile organisms (barnacles, mussels, coralline algae), removing or redistributing gastropod grazers (snails and limpets), and encouraging the growth of micro-algae. We measured temperature and behavior to ask whether heat spells impede territorial behavior. During daytime low tides we artificially heated tagged limpets (25-35°C, vs. 15-24°C in unheated control limpets) in a shaded habitat and returned during the evening high-low tide to test for movement and territorialism. Only 25% of experimentally heated limpets moved during subsequent evenings, while 70% of nearby unheated control limpets moved during the same observation period (Fisher's exact test,  $P = 0.015$ ). Correlations of territorial behavior and the temperature of those territories showed limpets in warm microhabitats moved less and were less aggressive than those in cool habitats. Together, these observations support the ideas that the territorial impact of *L. gigantea* is compromised after intense heat spells, and non-lethal effects of heat spells may reduce their impact on the intertidal community.

## **23. Effects of novel tri-aryl organic small molecule peptide complexes on the proliferation of prostate cancer cells**

**Presenter(s):** Cynthia Kakish, Amir Shirazi

**Advisor(s):** Dr. Marco Bisoffi

Prostate cancer continues to be a major contributor to cancer death in men in the United States and worldwide. Therapeutic efficacy of anti-prostate cancer drugs is often compromised by the inability to penetrate target cells. Thus, the delivery of therapeutic drugs to cancer cells continues to be a challenge. In this regard, cell and nuclear membrane penetrating peptides hold promise to overcome this limitation. The purpose of the present study was to test the anti-proliferative/anti-metabolic effect of new tri-aryl organic small molecules (TMP) linked to cell delivering penetration peptides (TRP). TRP (peptide alone), TRP-TMP-NO<sub>2</sub> (nitrate), and TRP-TMP-OCH<sub>3</sub> (methoxy) were tested on the human cell cancer cell models LNCaP (androgen dependent) and PC-3 (androgen independent), representing early and late stage disease, respectively. The effect on cell proliferation was determined using mitochondrial dehydrogenase mediated formazan salt conversion representing cell metabolism (WST assay; 96-well tissue culture format). Cells were exposed to the TRP, TRP-TMP-NO<sub>2</sub> (nitrate), and TRP-TMP-OCH<sub>3</sub> were tested at 1-100 micromolar final concentrations for 72 hours. Formazan salt conversion was determined quantitatively by absorbance of product at 450nm. Phenotypic changes of cells exposed to the experimental drugs were determined by bright field light microscopy. Our results show that TRP-TMP-NO<sub>2</sub> is a more potent inhibitor of prostate cancer cell proliferation than the control TRP and TRP-TMP-OCH<sub>3</sub>. This finding is accompanied by a distinguished contra-spindle form phenotypic change observed by microscopy. We conclude that tri-aryl organic small molecules linked to cell delivering penetration peptides are new anti-prostate cancer lead compounds.

## **24. Designing and Evaluating of Dasatinib-Peptide Conjugates as Anti-Cancer Agents**

**Presenter(s):** Young Jae Kim, Siva Kotla

**Advisor(s):** Dr. Rakesh Tiwari

Dasatinib is an oral BCR-ABL tyrosine kinase inhibitor, which is currently in use for patients with chronic myelogenous leukemia and acute lymphoblastic leukemia. Dasatinib inhibit cellular phosphorylation by binding to ATP binding site in protein tyrosine kinases and inhibit the activity of kinases through competition with ATP. One of the major disadvantages of Dasatinib is being non-specific to kinases, which leads to many and/ or major side effects and toxicity in patients. However there are many ways to develop inhibitors against target cells. The study of specific kinases have shown that there are regions that are non-conserved within the tyrosine kinase family. The kinase of focus in this study is the Src Kinase which has been reported to have two unique binding sites. Peptides specific to these regions can therefore be conjugated to Dasatinib and allow the drug to conserve its potency while showing tremendous improvements in specificity to target cancer cells.

## **25. Effects of novel diarylpentanoid analogs on the proliferation of prostate cancer cells**

**Presenter(s):** Victor Levi, Haili Coffin

**Advisor(s):** Dr. Marco Bisoffi

The incidence and mortality of prostate cancer in the US continues to be approximately 240,000 and 30,000, respectively. Dietary components have been shown to affect prostatic health and impact the possible mechanisms underlying cancer initiation and progression. The consumption of naturally occurring phytochemical compounds can reduce the risk of developing prostate cancer. We have previously identified the diarylpentanoid analog ca27 of the natural product curcumin (diferuloylmethane) from the plant *Curcuma longa* and an ingredient of the spice Turmeric to exert inhibitory effects for prostate cancer cell growth and androgen receptor expression; this plays a critical role in prostate cancer development and progression. The purpose of the present study was to conduct functional structure activity relationship (SAR) studies for analogs of ca27 to determine the pharmacologically active groups. Of particular interest, we examined the symmetric position of the hydroxyl moiety on the aryl rings, as well as their substitution with other chemical structures, including methoxy groups. The effect on cell proliferation was determined using mitochondrial dehydrogenase mediated formazan salt conversion representing cell metabolism (WST absorbance assay; 96-well tissue culture format). Our results using final concentrations of 10 micromolar of the drugs and an exposure time of 24 hours indicated elevated anti-proliferative potency, associated with ortho-positioned hydroxyl groups compared to those that are meta or para-positioned. Methoxy substitutions were also taken into consideration in a comparative manner. This finding was accompanied by a distinguished contra-spindle form phenotypic change observed by bright field light microscopy. We conclude that diarylpentanoid analogs of curcumin may be new anti-prostate cancer lead compounds.



## **26. The Impact of Caloric Restriction and Resistance Training on Bone Mineral Density and Bone Strength in Growing Male Rats**

**Presenter(s):** Brady Slater, Haley Folta, Brandon Gettleman, Jonny Hernandez, Kassandra Lee, Quinton Wong

**Advisor(s):** Dr. Ken Sumida

The purpose of this study was to examine the impact of caloric restriction (CR) and resistance training (T) on bone mineral density (BMD, in g/cm<sup>2</sup>) and bone strength (Fmax, in Newtons) of the tibia during growth. 32 male rats (8 wks old) were randomly divided into: a non-exercised Control group (n=8), a non-exercised group fed a 20% CR diet (n=8), a T group (n=8), and a T group fed a 20% CR diet (n=8). The T groups were conditioned to climb a 1 meter vertical ladder 4X/session with weights appended to their tail 3 days/wk for 6 wks. After 6 wks, the BW was significantly lower for CR animals (383.8 ± 6.8 g) compared to ad libitum fed animals (459.9 ± 9.3 g). There were no interaction effects (exercise x diet). The main effect of exercise on BMD was significantly greater for T groups (0.215 ± 0.002) compared to non-exercised groups (0.206 ± 0.002) whereas the main effect of diet was not statistically significant for ad libitum fed groups (0.214 ± 0.004) compared to CR groups (0.207 ± 0.002). The main effect of exercise on Fmax was significantly greater for T groups (139.5 ± 5.1) compared to non-exercised groups (118.7 ± 3.8) and the main effect of diet was significantly greater for ad libitum fed groups (138.8 ± 5.3) compared to CR groups (119.4 ± 3.8). The results indicate that T elevated BMD and Fmax whereas a 20% CR diet lowered Fmax in the absence of a decline in BMD.

## **27. Cysteine and arginine-rich peptide amphiphiles as molecular carriers**

**Presenter(s):** Kathy Tavakoli, Naglaa Salem El-Sayed, Matthew Etesham, Dindayal Mandal, Amir Nasrolahi Shirazi

**Advisor(s):** Dr. Keykavous Parang, Dr. Rakesh Tiwari

A number of linear and cyclic peptides containing alternative arginine and cysteine residues, namely linear (CR)3, linear (CR)4, linear (CR)5, cyclic [CR]4, and cyclic [CR]5, were synthesized. The peptides were evaluated for their ability to deliver two molecular cargos, fluorescence-labeled cell-impermeable negatively charged phosphopeptide (F'-GpYEEI) and fluorescence-labeled lamivudine (F'-3TC), intracellularly in human leukemia cancer (CCRF-CEM) cells. We investigated the role of cyclization and the number of amino acids in improving the transporting ability of the peptides. The flow cytometry studies suggested that the synthesized peptides were able to work efficiently as transporters for both cargos. Among all compounds, cyclic [CR]4 was found to be the most efficient peptide in transporting the cargo into cells. For instance, the cellular uptake of F'-3TC (5 µM) and F'-GpYEEI (5 µM) was enhanced by 16- and 20-fold, respectively, in the presence of cyclic [CR]4 compared to that of the parent compound alone. The mechanism of F'-GpYEEI uptake by cells was found to be energy-independent. The results showed that the number of amino acids and their cyclic nature can impact the efficiency of the peptide in transporting the molecular cargos.

## Schmid College of Science and Technology – Chemistry

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### **28. The Contribution of Oil to the Dissolved Organic Matter pool in Southern California Coastal Waters**

**Presenter(s):** Sovanndara Hok

**Advisor(s):** Dr. Warren De Bruyn

Salt marshes are wetlands at the interface between terrestrial and marine ecosystems and are key transformers of carbon as it moves between adjacent terrestrial and marine ecosystems. Carbon is exported and exchanged in a number of forms including dissolved organic matter (DOM). This marsh-derived DOM plays an important role in the adjacent marine ecosystems where it serves as the base for microbial food webs, regulates photochemistry and light availability, and can mediate the availability of both nutrients and pollutants. Southern California saltmarshes are unusual in that they are often in the vicinity of oil extraction operations and can be impacted by oil seeps. Little is known about the potential contribution of oil to the DOM pool in these systems. The long term goal of this work is to determine if this contribution is significant.

## Schmid College of Science and Technology – Computer Science

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### **29. Investigating Fine Grained Clock gating technique in Transmission Gate Flip Flop**

**Presenter(s):** William Cortes

**Advisor(s):** Dr. Peiyi Zhao

Used Magic layout and Hspice simulation to compare the power usage and delay of a traditional transmission gate flip flop to a UC Berkeley designed clock gated transmission gate flip flop.

### **30. Investigating Non-Intrusive Performance Bugs**

**Presenter(s):** Donovan Matsui, Tyler Demshki

**Advisor(s):** Dr. Adrian Nistor

For the past couple of decades, technology has followed a semi predictable upwards curve in terms of computer processing power. This curve is beginning to plateau, however. An ever increasing demand for higher performance has led engineers to shift focus towards increasing the number of cores in a machine, consequently shifting developer's needs in terms of software bugs. Performance related bugs are becoming higher and higher priority every day, but developers lack the tools necessary to locate and fix them easily. Our research into non-intrusive performance bugs aims to result in the development of a tool which can aid developers in finding and patching such performance bugs.

## Schmid College of Science and Technology – Environmental Science and Policy

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### **31. Social Determinants of Health lab: Research in Progress**

**Presenter(s):** Harmanpreet Bhatti, Cora Byers, Lauren Sato

**Advisor(s):** Dr. Georgiana Bostean

The social determinants of health are aspects of the environment, physical and social, that affect health outcomes. These projects examine various topics related to how environment impacts health and well-being.

Project 1 is a content analysis of newspaper articles about e-cigarettes in the US and UK from 2010-2015. We will utilize unsupervised machine learning techniques to identify article themes, including health-related claims, smoking-cessation claims, avoiding tobacco smoking restrictions, social or lifestyle benefits, product engineering claims, and government regulations and policies. In analyzing these themes, we aim to understand how newspaper thematic content and bias regarding e-cigarettes differ in the US and UK over time.

Project 2 examines the association between e-cigarette retailer density and socio-demographic characteristics of residents ages 18 and older in Orange County census tracts. We combine socio-demographic data from the U.S. Census Bureau with locational data on e-cigarette-specific retailers compiled from internet searches. Using GIS, we examine the correlation between retailer density (measured per kilometer of roadway in each census tract) and the following characteristics: race/ethnicity (percent of residents who are Hispanic, etc.), median income, education (percent of residents with a high school education).

Project 3 addresses the mediators of the association between neighborhood stressors and mental health. Using path analysis, we examine data from the 2015 Chapman Survey of American Fears to understand the association between neighborhood stressors and victimization, neighborhood cohesion, fear of crime, and mistrust, and how those, in turn are associated with mental health (anxiety and self-rated life satisfaction).

### **32. Cu(II) adsorption and retention rate to iron oxyhydroxide nanoparticles: effects of nanoparticle aggregations and sulfate concentration**

**Presenter(s):** Lauren Smith

**Advisor(s):** Dr. Christopher Kim

Iron oxyhydroxide nanoparticles are commonly found in natural aqueous systems and are known to be effective adsorbents for metals due to their high surface area and surface reactivity. Natural geochemical processes such as increase in salinity as the particles move from fresh water to salt water can affect the nanoparticles' ability to adsorb and retain metals. In this experiment the change in salinity is represented by increases in sulfate concentrations from 0.03M SO<sub>4</sub> to 0.18M SO<sub>4</sub>. The metal analyzed in this study is copper (Cu<sup>2+</sup>), which contaminate aquatic systems through mine waste pollution, and cause harm to aquatic life. In a batch metal uptake experiment, synthetic iron oxyhydroxide nanoparticles, at varying aggregated states of pH, ionic strength, and temperature were exposed to dissolved copper and zinc under varying sulfate concentrations. The sulfate concentration ranged from, to simulate the particles moving through the aquatic system towards the ocean. Each batch is separated into three samples to record the initial amount of metal adsorbed by the nanoparticles, the percent uptake after salt (0.03M SO<sub>4</sub> to 0.18M SO<sub>4</sub>) is added, and the retention rate of the metal when the pH is dropped. These samples were analyzed with Atomic Absorption Spectroscopy (AA) to measure the amount of

metal uptake. Results will allow interpretation of the role of increasing sulfate concentrations on metal adsorption and retention processes by control iron oxyhydroxides.

## Schmid College of Science and Technology – Mathematics

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### **33. On the Representation of Boolean Groupoids and Boolean Semilattices**

**Presenter(s):** Mohammed Kurd-Misto, James Wimberley

**Advisor(s):** Dr. Peter Jipsen

A Boolean groupoid is a Boolean algebra with an additional binary operation  $\ast$  that distributes over finite Boolean joins. We prove that all integral idempotent Boolean groupoids are embedded in complex algebras of idempotent groupoids. This solves a problem in a recent paper by Clifford Bergman. A Boolean semilattice is a Boolean groupoid where the  $\ast$  is associative, commutative, and square increasing. Let  $SL$  be the class of semilattices and let  $S(SL+)$  be all subalgebras of complex algebras of semilattices. All members of  $S(SL+)$  are Boolean semilattices and we investigate the question of which Boolean semilattices are in  $S(SL+)$ . There are 79 eight element Boolean semilattices that satisfy the currently known properties of  $S(SL+)$ , and we are able to show that 72 of them are indeed members of  $S(SL+)$ .

## Schmid College of Science and Technology – Physics and Computational Science

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### **34. Searching for a true explanation for gravity through statistical mechanics**

**Presenter(s):** Aaron Goodman

**Advisor(s):** Dr. Ali Nayeri

Gravity is at the center of Physics' biggest questions. Quantum Mechanics, Relativity and Statistical Mechanics have all successfully recovered Newtonian Limits for all systems. Furthermore, quantum mechanics can recover statistical dynamics and statistical dynamics can produce quantum mechanical results in the correct limit, however neither can recover or successfully be blended with Relativity. Attempts such as Quantum Gravity have tried to bridge the divide but with inconclusive results. Nayeri (1997) showed that the thermodynamics of gravitating systems could only be recovered from statistical mechanics through the introduction of a short distance cutoff. Through studying the specific heat a binary system in a confined region of length,  $R$ , Nayeri shows that without a short distance cutoff, the specific heat of a gravitating system increases asymptotically. By introducing the short distance cutoff, a region of negative specific heat is introduced, exactly what we know is experimentally expected for gravitating systems. In this investigation, quantum and relativistic corrections are added to the classical statistical mechanical approach to gravitating systems in an attempt to fundamentally resolve the need for a short distance cutoff.

# Poster Session 1

## Quick Reference – Student/Poster #

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| Eve Bettman           | 10    | Dindayal Mandal        | 27     |
| Jessica Beyer         | 1     | Jessica Martinez       | 22     |
| Harmanpreet Bhatti    | 31    | Donovan Matsui         | 30     |
| Mikaela Biavati       | 13    | Matt Morello           | 4      |
| Cora Byers            | 31    | Kiyoko Nakatsui        | 7      |
| Kory Cablay           | 14    | Lauren Sato            | 8      |
| Christina Chavez      | 22    | Amir Nasrolahi Shirazi | 23, 27 |
| Haili Coffin          | 25    | Alexandra Sidun        | 8      |
| William Cortes        | 29    | Fernando Silva         | 6      |
| Kyle Decker           | 3     | Anupreet Singh         | 5      |
| Tyler Demshki         | 30    | Aishwarya Sivaraman    | 5      |
| Soliel Doman          | 20    | Brady Slater           | 26     |
| Naglaa Salem El-Sayed | 27    | Lauren Smith           | 32     |
| Matthew Etesham       | 15,27 | Lauren Soto            | 31     |
| Haley Folta           | 26    | Timothy Straus         | 17     |
| Emily Frisch          | 21    | Micah Sturges          | 18     |
| Kristin Gabriel       | 16    | Kathy Tavakoli         | 27     |
| Brandon Gettleman     | 26    | Shantae Thornton       | 9      |
| Wyatt Giampa          | 4     | Alyia Williams         | 12     |
| Aaron Goodman         | 34    | James Wimberley        | 33     |
| Nelson Gould          | 22    | Austin Wolf            | 6      |
| Colton Green          | 2     | Quinton Wong           | 26     |
| Tracy Gunanto         | 22    | Kristen Yu             | 19     |
| Clayton Heard         | 2     |                        |        |
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| Anika Javaid          | 11,12 |                        |        |
| Cynthia Kakish        | 23    |                        |        |
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| Mohammed Kurd-Misto   | 33    |                        |        |
| Rukhsana Lalani       | 20    |                        |        |
| Kristina Lamb         | 3     |                        |        |
| Kassandra Lee         | 26    |                        |        |



## **Poster Session 2**

### **Abstracts**

## **Arts, Education, Humanities, and Social Sciences**





# Graduate Students

## Wilkinson College of Arts, Humanities, and Social Sciences – Communication Studies

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### 1. Has the Pharmacist Become the Modern Drug Dealer? Exploring Nonmedical Use of Prescription Stimulants in College Students

**Presenter(s):** Kristina Kraus, Michelle Williams

**Advisor(s):** Dr. Sara Labelle

Due to an increasing prevalence of nonmedical use of prescription stimulants (NPS) on college campuses, it is imperative to understand the reason behind the students' dependency on it. In this study we aim to understand the relationship between an individual's level of health literacy, their perceived knowledge of NPS, their actual knowledge of NPS, their personal NPS use, and their attitude toward intervening on a friend who is engaged in excessive NPS. An online survey was administered to N=109, 18 and over, full-time college students. We predicted that (H1) there will be a positive association between perceived knowledge of NPS and health literacy; (H2) there will be a positive association between perceived knowledge of NPS and NPS; (H3) there will be a negative association between health literacy and actual knowledge of NPS; and (H4) predicted there will be a positive association between high NPS and attitude toward intervention on a friend engaged in excessive NPS. Due to the small amount of participants in the survey, NPS use was determined to be negligible. The results of this study will help researchers better understand NPS in the context of college settings and ultimately create more open and effective communication to help minimize this abuse.

### 2. College Students' Communication about Nonmedical Use of Prescription Stimulants

**Presenter(s):** Sarah Miller

**Advisor(s):** Dr. Sara LaBelle

The purpose of this research study is to examine and understand college students' communication surrounding nonmedical use of prescription stimulants (NPS). Specifically, the researchers for this study will explore the attitudes, social norms, and perceived behavioral control surrounding the behavior of intervening on behalf of a friend engaging in NPS. Demographic and communication predispositions are also measured. This study seeks to investigate the following hypothesis: College students with a high interpersonal competence will report more positive attitudes toward interventions on behalf of a friend engaging in excessive NPS use. The subjects of this research study must be 18 years of age or older and currently enrolled as a full time college student. Participants will complete an online survey that is entirely anonymous.

**3. The Effects of Assertiveness, Responsiveness and Education on Attitude Towards NPS Intervention**

**Presenter(s):** Dominique Stewart

**Advisor(s):** Dr. Sara Labelle

The use of non-prescription stimulants (NPS) on college campuses has grown tremendously over the past decade. The increased use of illicit stimulants throughout campuses has built a foundation of acceptance within many students (DeSantis et al., 2008). This research study seeks to understand student's attitude towards intervening on the use of illicit stimulants and the effects that determine that attitude. Communication style and education are two factors that contribute to the way in which we interact with others. This study examined the communication styles of assertiveness and responsiveness as well as actual knowledge of NPS in relation to a student's attitude towards intervention. Students from a mid-size private western university were surveyed on their level of assertiveness and responsiveness in a communication setting. Participants were also surveyed on their actual knowledge of NPS. A correlation test showed that there was a significant positive relationship between responsiveness and attitude towards intervention. The results also showed a significant positive relationship between actual knowledge of NPS and views towards intervention. However, the data showed that a student's level of assertiveness had a significant negative relationship with attitude towards intervention. These results aim to provide a greater understanding of illicit use of NPS on college campuses and factors that effect a student's view of intervening.

**4. Communication and Prescription Stimulant Use in College**

**Presenter(s):** Daniel Sullivan

**Advisor(s):** Dr. Sara Labelle

This study examined the relationships between perceived health competence, knowledge of nonmedical use of prescription stimulants (NPS), actual NPS behavior, and full time college students' attitudes towards intervening for a friend engaging in NPS behaviors. One hundred and nine participants were gathered using non-probability social network sampling. Participants were all volunteers and took an online survey. Participants did not receive compensation. Data were analyzed using T-Tests and binary logistic regression in SPSS 23. No significant relationships were found. Perceived health competence was not able to predict participant use of nonmedical prescription stimulants as hypothesized. The findings of this study were limited by a small sample size of participants that completed the survey. Expanding this study to reach a larger sample of college students should be the next step in continuing this research.

**5. An Investigation of Collaboration between Internal and External Groups within e-Science**

**Presenter(s):** Michelle Williams

**Advisor(s):** Dr. Kerk Kee, Mona Sleiman

As the practice of virtual organizing becomes more prevalent, there is an urgent need to understand the processes that are required for successful virtual communication. Grand challenges in science today require diverse expertise, but diverse expertise is often not collocated. Therefore, e-science projects often require dispersed professionals to coordinate and collaborate in order to maximize their success. These collaborators face challenges due to the complex nature of the organizational structure, as well as the lack of established communication routines. In order to investigate issues of collaboration, this project analyzed 133 interviews with domain scientists

and computational technologists. Through qualitative data analysis employing the grounded theory approach (Corbin & Strauss, 1990), we extracted common themes occurring within virtual e-science projects. Findings show that the relationships (i.e., internal, external, hybrid) between the collaborators determine the selected communication medium (i.e., FTF, CMC, hybrid), which in turn affects the outcomes of the e-science projects. Furthermore, the selection of the communication medium is influenced by the different communication needs of each target audience (i.e., internal, external, hybrid). How groups utilize these mediums will ultimately affect the quality of their interactions within the context of the project.

## Undergraduate Students

### College of Performing Arts – Dance

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#### 6. Does The Outfit Make The Dancer?

**Presenter(s):** Sophia Dawidoff

**Advisor(s):** Robin Kish

A dancer's performance, self-esteem, and body image are challenged every time they enter a dance technique class. For a collegiate dancer expected to switch among ballet, modern, jazz, contemporary, hip hop, and tap classes, dressing the part can be challenging. Wearing a dark colored leotard, pink tights, hair in a bun and ballet shoes, a ballerina is ready to assume the role. Just as a ballet dancer needs to look the part for class or performance so does a commercial dancer. The commercial world of dance perpetuates an image of sexuality with revealing clothing, high heels, make-up, and styled hair. This study investigates the influence of dress on performance level in a commercial jazz combination and body image issues associated specifically with this style of dance.

By performing the same commercial jazz combination in dance practice clothes, simple make-up, and hair styling, and then with an audition-ready appearance, the research examines how a dancer's performance, self-esteem, and body image are affected by the need to present a sexual appearance. Additionally, the research investigates the dancer's relationship with the mirror and their body image while dressed differently. The outward appearance of a dancer is a significant factor in career choices and success in the commercial industry. Understanding how dress influences a dancer's performance and body image is important in the education of of collegiate dancers preparing for the field of commercial dance.

### College of Performing Arts – Hall-Musco Conservatory

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#### 7. From Bach to Bartók: The Application of the Golden Ratio and Fibonacci Sequence in Different Musical Periods

**Presenter(s):** Stephanie Calascione

**Advisor(s):** Dr. Jessica Sternfeld

When both musicians and non-musicians hear music from the Baroque period vs. 20th century they can tell quite easily the differences between the two. Perhaps the Bartok string quartet sounds a bit harsher than the Bach prelude or just overall the Baroque style is more pleasing to listen too. Some people might even say that the

Baroque sound is boring In comparison to the 20th century sound. In the modernist world of music many composers have discovered the joys of incorporating mathematical principals into their pieces. One of the most common mathematical applications in music is the Fibonacci sequence and the very close knit Golden Ratio. By examining these two related mathematical concepts, this paper proves the understanding of the Fibonacci sequence and Golden Ratio and shows through example the musical application of these principles in the Baroque period. By the close comparison of a few of Bach's pieces with a selection of compositions by Bartok I will argue that the Fibonacci numbers and the Golden Mean were understood by Bach and applied in ways similar to that of Bartok. Listening to these famous works, the layperson typically will not hear the amount of complexity implemented into the music like what might be interpreted in Bartok's compositions. Although it is a bit a more subtle, Bach applied these concepts in surprising similar, yet inaudible, ways to Bartok.

#### **8. Feminism Represented by Leitmotifs in Buffy the Vampire Slayer**

**Presenter(s):** Elizabeth Chadwick

**Advisor(s):** Dr. Jessica Sternfeld

In the television series Buffy the Vampire Slayer, the writer and creator Joss Whedon explores themes of feminism in the actions and personalities of the characters. His work, combined with the compelling music written by the show's central composer Christophe Beck, helps to create the image of successful feminism for the female characters. Thus, the strong female characters tackle and dominate the otherwise normal social standards of a patriarchal society. In my paper, I will explore the themes of feminism by analyzing musical leitmotifs to argue that though Joss Whedon and Christophe Beck intended to create a culture that was female dominant and empowering for women all around, they were not completely successful or committed to this stance because it would have made the show difficult to relate to. Though I will pull examples from the show in which Whedon and Beck gave masculine qualities to women and feminine qualities to men, I will also provide examples in which they do the opposite, creating a more realistic environment for the characters in the show.

#### **9. That's a Rip Off: The Rise of Plagiarism Accusations in the 20th and 21st Century**

**Presenter(s):** Brian Clemens

**Advisor(s):** Dr. Jessica Sternfeld

In early 2014, singer-songwriter Sam Smith released a single titled "Stay With Me". The song was a huge hit in the US and UK along with several other countries. In January of 2015, it had become clear that publishers of another singer-songwriter, Tom Petty contacted Smith's publishers after noticing similarities between Stay With me and Petty's 1989 song I Won't Back Down. Petty's publishers demanded that Petty and co-writer Jeff Lynne gain 12.5% credit for "Stay With Me" based on the similarities during the chorus. These two songwriters were not only given royalties but recognition based on their participation in Sam Smith's work even though they had nothing to do with this song. In the past 100 years, this situation has become all too common. Several genres of music require simplicity in their harmony and melody and eventually songs have begun to sound like one another because of the limited system that musicians have to work with. In this article I will be arguing how this particular example isn't plagiarism and why Petty and Lynne deserve none of the credit for the song. I will also be analyzing several other examples of plagiarism cases within the last 100 years to argue that while some qualify as plagiarism, others are the result of greed and pride within the music industry.

**10. “And find the box that’s gay and crush it” : How Musical Theater is Perpetuating The Negative Stereotypes of the Gay Community**

**Presenter(s):** Michael Hamilton

**Advisor(s):** Dr. Jessica Sternfeld

The American Musical is a leading form of entertainment that provides a scene and story that can take a audience members out of reality and put them in a world that they can enjoy and relate to. While this may be the innocent explanation of what is supposedly happening on stage, it is not exactly welcoming and supporting of all identities. Musical theater is perpetuating the negative stereotypes of the gay community. Everything in musical theater is extremely exaggerated so that the audience can quickly and easily identify and categorize a character. While this may be an efficient strategy for a director or even an audience member, it is furthering the divide between gay culture and the heteronormative society that we live in. While on the surface, musical theater appears to be solely entertainment, the politics that are rooted in these shows are very apparent as well. This paper will dive into America’s favorite musicals like Book of Mormon and Rent, and dissect and create an understanding for what these shows are subconsciously teaching the audience about the identities in the gay community and their social construction. My intention is not to bash musical theater and disregard the beauty, talent, and hard work that goes into each production, but rather to open the conversation to bridging the gap between the heteronormative society that we live in, and how those ideas are carried onto stages across America and belittling the gay community on the way.

**11. Internet and Recording Technology: The End of the Music Industry as We Know It**

**Presenter(s):** Donner Hanson

**Advisor(s):** Dr. Jessica Sternfeld

This paper will delve into the economic changes in the popular music industry. It explains the change of the music industry since the dawn of recording technology and includes analysis of current statistics of the cost of production of popular music, using Warner Brothers artist Taylor Swift, while drawing on economic ideas and trends posed by other scholars, such as copyright expert Lawrence Lessig. This paper will argue that the music trends since pre-recording technology through to post-recording technology have initiated the decline in profits in popular music and will ultimately cause the production of music to become wholly unprofitable. This argument will include the explanation of the current hybrid of commercial and sharing economies that are incorporated into entertainment industries. The oversaturation of markets, based on the hybrid economic trends of today, will ultimately lead to the end music performance as a viable career opportunity.

**12. Brainwaves to Capital Gains: A Review of Auditory Entrainment and the Ensuing “Neurobabble”**

**Presenter(s):** Robert Loustaunau

**Advisor(s):** Dr. Jessica Sternfeld

“The embedded frequencies of this 3D soundscape have been designed by scientists to increase serotonin production, repair DNA, and facilitate miracles, and it only takes 15 minutes!” In an age where information runs rampant, novel prospects of science have become extremely accessible to the general public. While this integration can be beneficial, the value is offset when the findings of empirical research become bolstered in advertisements such as this. I intend to argue audio-visual entrainment to be a credible therapeutic method.

Regrettably, malignant corporations have capitalized on the research that supports it, and have made outlandish claims regarding the benefit of their “entrainment” products, congealing their legitimacy with the key phrase, “Scientifically proven.” This exploitation of research is not only dishonest to the consumer, but it undermines the integrity of empirical discourse. Through its commercialism, entrainment has become associated with a pseudoscientific counter-culture, leaving it to be shunned by the majority of the scholarly community. Conversely, studies using audio-visual entrainment to alter an individual’s brain-wave frequency have yielded positive results. Recent findings support the theory that audio-visual entrainment could serve as a valuable therapeutic tool for individuals suffering from pathologies like ADHD, and anxiety and I will provide credible evidence that purports this. Until now, the integrity of entrainment research has been sullied by entrepreneurs’ intent only on manipulating data in to sell their product. I intend to parse out such fraudulent scientific claims from their factual predecessors, in turn restoring validity to a potential therapeutic avenue: audio-visual entrainment.

### **13. Queen of Soul vs. Queen Bey: R&B Icons and Female Empowerment**

**Presenter(s):** Ysobella Lucareli

**Advisor(s):** Dr. Jessica Sternfeld

“Queen of Soul” Aretha Franklin created her legacy through powerful vocals and lyrics in R&B songs, without being labeled as a sex symbol during her time. In the 1960s, R&B was a genre that called for social change and gave African Americans a voice. “Respect” (1967) remains an anthem of female empowerment, reclaiming female independence and demanding the respect that wasn’t being given to women of color at that time. Franklin was crowned “Queen of Soul” shortly after the release of the song. In today’s music scene, Beyoncé, or Queen Bey, reigns as the face for female empowerment in R&B and pop music. After the release of her album, Beyoncé, in 2013, she embodied feminist thought in her songs, especially “\*\*\*Flawless” (2013) which features a sample of a speech by renowned feminist Chimanda Ngozi Adichie. However, Beyoncé’s identity with feminist ideals has caused controversy, as she capitalizes on her sexual appeal to the male gaze in music videos and live performances. The messages in her lyrics create controversy over what it takes to be an empowered woman in today’s world. Using a comparison of their careers, I argue that Beyoncé’s success proves to be much more dependent on her sexual appeal compared to Franklin. Being an icon of music and female empowerment has a much different meaning now than it did in the 1960s, when R&B first emerged as a genre and music hadn’t been hypersexualized.

### **14. The Voice of The Motherland: Exploring the Development of Russian Music Before Mikhail**

**Glinka**

**Presenter(s):** Alvin Ly

**Advisor(s):** Dr. Jessica Sternfeld

When learning about early western classical music history, the first countries often discussed include England, Germany, France, and Italy beginning around the time of Gregorian chant. It is not until approximately the early Romantic Era that we begin to learn about Russian composers such as Mikhail Glinka, Pyotr Tchaikovsky, or those of the “Mighty Handful” including most notably Modest Mussorgsky, Nikolai Rimsky-Korsakov, and Alexander Borodin. The emergence of Russian music into the western classical world is often taken for granted and seldom asked how or why it happened. In this study, I will compare the development of Russian music alongside the development of Western European music, primarily focusing on the differences of development in the church chants of both regions, the catalyst that sparked the exchange of music between Russia and the rest of Western

Europe, and the lasting effects of Russian church music on notable Russian composers. Thus I propose an early, cohesive history of Russian music from its early development to its eventual breakthrough to a unique Russian style of Western music.

### **15. Prodigies In YouTube: Finding the Genuine Artist in Youth**

**Presenter(s):** Priscilla Peraza

**Advisor(s):** Dr. Jessica Sternfeld

There seem to be more child prodigies today than ever before. This growth can be attributed to the way society contributes to and facilitates young talent. For instance, shows such as “America’s Got Talent”, “American Idol”, and “The X Factor” cultivate the younger generation to desire fame. Though these children are exceptionally talented, they are also discovered and forgotten at such a rapid pace as well, no doubt due to the amount of social media accessible in the 21st century. YouTube has become a part of the easily accessible social media trend and is often used as a common source to discover these children. Therefore, an untrained society now determines what constitutes musical talent and ability. There is an overemphasis on the performance of technical ability as opposed to the performance or scholarly interpretation. Children may be capable of musical abilities but to what extent is it imitation as opposed to individual creativity? At 300 hours of video per minute, at what point do these prodigies stop becoming extraordinary and will their story stand the test of time? This paper explores how child prodigies are pushing the technical boundaries of our century but also asks whether genuine musicianship can be found in each one.

### **16. Diva Diversity: National Vocal Schools and Qualities**

**Presenter(s):** Emma Plotnik

**Advisor(s):** Dr. Jessica Sternfeld

Hearing the term “opera singer” for many triggers an image of a German dramatic soprano bearing viking horns and powerfully bursting into a high C. Yet, what is it that perpetuates this stereotype that German singers possess weighty instruments with dark timbres? Why are classically trained North American vocal students told by their teachers to sing lightly and delicately when performing French *mélodie*, and not any other genre?

Research in vocal pedagogy has demonstrated that singers from particular regions have been typified by their vocal qualities in terms of size and color. These qualities by nation mainly stem from contrasting educational models. Language also plays a role in determining one’s resonance, as native speakers of more guttural languages tend to place their sounds in the throat cavity when they sing, whereas native speakers of languages which border on nasality are prone to focusing their sound in the mask of the face. With this project, I will examine the pedagogical techniques employed in the French, German, Italian, and, to a lesser extent, Slavic and Nordic schools of singing. I will further delve into the musical literature produced by each region, and the performance methodologies presumed to be applied to each. Lastly, I will address modern controversial theories of voice science and morphology in assessing regional vocal quality, ultimately concluding that the stereotypes underlying people’s voices are a result of the theoretical constructs of Western art music, and the ideals set in place by the German *Fach* system.

### **17. From a Chat in the Parlor to Viral Music Videos: An Analysis of Music as a Social Occasion**

**Presenter(s):** Emma Plotnik

**Advisor(s):** Dr. Jessica Sternfeld

Imagine an intimate room filled with people playing cards and casually chatting, while one of Chopin's piano sonatas plays elegantly in the background. This scenario is characteristic of the atmosphere surrounding Classical and Romantic European salons. Salons served as havens of musical discourse from the Baroque era to the early twentieth century. However, with the advancement of technology from the mid-twentieth century to the present, there has been a decline, or, arguably, even a cessation of salon life.

The aim of this project was to recreate the salon environment through the generation of the online discussion forum, "Music Soirée." To compare the successes and failures of this salon with those of earlier salons, statistics were gathered on the quantity of site views over the course of ten weeks. Historical research was also completed on Viennese salons of the late eighteenth century and on Parisian salons of the nineteenth century. Factors which have contributed to differences in salon gatherings include: the political climates surrounding particular salons, musical conventions, the changing role of the artist, and the geographic locations of salons themselves. The technological aspect of the twenty-first century salon represented in this project is incoherent with the geographic locations portion of the argument, as not everyone logged into the site to comment at one moment. It was consequently concluded that the implementation of technology in salon formation has resulted in musical discussions becoming more passive than active, as people were more engaged in reading the blog than in commenting.

### **18. A Triangle Smells Like Peaches: Synesthesia and the Learning Process**

**Presenter(s):** Carolynn Schmahl

**Advisor(s):** Dr. Jessica Sternfeld

Synesthesia is a rare phenomenon where a person, called a synesthete, involuntarily experiences a sense caused by another sense, such as when a synesthete might taste lemons when she sees the color green. The most common form of synesthesia is chromesthesia: seeing colors upon hearing sounds. Synesthesia is often found in art and has proven extremely influential in the development of the artists themselves. I will examine how musicians in particular have been affected by synesthesia, such as in the works of Olivier Messiaen, Amy Beach, and Vassily Kandinsky, though I will also explore artists of other media, such as visual artists Melissa McCracken and I. J. Belmont. Though a system of diagnosis for this condition exists, synesthesia has historically been received with skepticism from non-synesthetes, as this system is based largely on personal testimonies. This thesis serves to argue first that the phenomenon is diagnosable and second that early diagnosis heavily impacts synesthetes, both in their creative development and their creative output.



## College of Performing Arts – Theatre

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### **19. Exploring Parallels Between the Theatre and Advertising Worlds**

**Presenter(s):** Elly Bannon

**Advisor(s):** Dr. Jocelyn Buckner

Studying theatre and all of the beautiful and original characteristics that make it exist has been one of the most eye opening experiences of my educational career. Learning to not only appreciate theatre but also practice the lifestyle it offers is extremely rewarding to say the least. While all elements of theatre are arguably powerful enough to stand on their own, I have come to find that their qualities are influential and valuable when applied to many other working fields. In this paper I plan to conduct and examine a careful study of successful advertising agencies. In addition I will parallel the elements of the successful company with my own experience in National Student Advertising Competition. While doing so I will be addressing how the collaboration and communication that theatre so strongly practices benefits a given company, which in turn provides for a more successful campaign. Theatre demands constant collaboration more than any other field. Students who study theatre are trained to be and are often more collaborative workers, effective communicators, and exceptional listeners. Theatre students seek to take the initiative to complete tasks as well as reach out to others to ensure collaboration is at its peak in order to produce the most successful and powerful work. It is qualities like these that I will explain in more depth and give examples of how their characteristics prepare theatre students for a variety of fields, specifically advertising.

### **20. Music or Sound The Affectual Nature of Repetitive Sound**

**Presenter(s):** Adam Breunig

**Advisor(s):** Dr. Jocelyn Buckner

In this project I explore the themes and motifs both explicitly stated in the text of Eurydice by Sarah Ruhl and reinforced by the action as created by the Director, Dr. Theresa Dudeck, to support the overall production with audio. Through my exploration research the relationship between repetitive sound and music, as well as how tonal frequencies affect individuals within an audience differently. The goal of this design and research is to create an experience for the audience where they are challenged when deciding whether the audio stimulation they receive during key parts of the Eurydice project are musical in nature.

Understanding audience perception of sound within a theatrical setting is a key factor of how sound is designed for production. This is especially true when attempting to understand audience perceptions of intentionally ambiguous audio stimulation. Additionally, studying human perceptions is extremely difficult because of the copious potential sources of human and methodical error.

This study sought to determine what musical factors were more or less likely to influence the study participant to perceive a sound as musical. To do this, I created a single track then altered that track to be in different meter, tempo, level of background (white) noise, and the level of a lower percussive sound. The sounds were then placed in a survey that was digitally delivered to the study participants. The study's question order was individually randomized for all participants and asked the participants to listen to the eight audio tracks and rate them individually on a scale from one to five. One represented the opinion that the track bore no semblance to music, whereas five represented the opinion that the track was music. The findings of this study were that the low frequency percussive noise represented a significant role in the participant's perception of musicality. Additionally,

the findings indicated that audio played in a 3:4 meter were more likely to be perceived as music as compared to a 4:4 time signature.

My design for the show will incorporate audio production, reproduction, and reinforcement to entertain and to help the audience better understand the production. I will work within the production team to create a cohesive piece that the audience enjoys. Through this project I will learn more about my own design process as a theatrical artist and about the audio design medium as a whole.

## **21. "The Technique and Art of Adaptation in the Theater"**

**Presenter(s):** Saul Bruenell

**Advisor(s):** Dr. Jocelyn Buckner

This paper was inspired by two theatrical productions I saw this summer in New York on Broadway. Both the 2014 Tony-award winning play, *The Curious Incident of the Dog in the Night-Time*, and the 2014 Tony-award winning musical, *Fun Home*, were unique theatrical experiences and both were adapted from unusual and compelling stories that started as published books. In the play's program, Mark Haddon, author of *Curious Incident*, describes his novel as "a story about difference, about being an outsider, about seeing the world in a surprising and revealing way." *Fun Home* is also about how being an outsider affects a family. In the musical's program, Alison Bechdel says she "had to tell this story because it was such a vivid, demonstrative example of the impact of homophobia in real life, on an actual family." Lisa Kron, who wrote the book and lyrics for *Fun Home*, joked that a book about "butch lesbians, a funeral home, closeted gay men, suicide? Obviously, musical comedy." On the surface, neither book seems like an obvious choice for live theater. Seeing the productions made me want to read the books and reading the books got me interested in exploring the process of adapting books to theater productions, concentrating specifically on these shows. Vincent Murphy, in his book *Page to Stage* (2013), discusses six basic building blocks of adaptation, starting with "Find Literature That Compels You and Define Its Theme." These two Tony-winning productions absolutely meet that initial threshold.

## **22. From the Ground Up: Building a Professional Theatre Company**

**Presenter(s):** Lukas Castor

**Advisor(s):** Dr. Jocelyn Buckner

Southern California is home to one of the strongest media markets in the United States. In addition to the omnipresence of film and television in and around Los Angeles, there are numerous large- and small-scale theaters that provide a unique playgoing experience for consumers across the local area. In this project, I will study the feasibility of establishing a brand--new, professional repertory theater company in the region.

In the course of my research, I'll be examining regional theaters that have had success growing from small companies to local institutions, such as South Coast Repertory and the Chance Theater in Orange County and the La Jolla Playhouse in San Diego (and conversely,

examine the geography and demographics of the areas that have supported those theaters); I will collect data on my intended market to determine what sort of potential subscriber base is present, and formulate a plan as to how I would focus my marketing efforts to attract those subscribers; and I will develop a mission statement that clearly articulates the company's goals for the community as well as for our own artistic endeavors. By the end of the process, I hope to have a working proposal that I will be ready to put into action shortly after my graduation.

### **23. Blurring Lines and Empowerment: Queer Artistry in Contemporary Musical Performance**

**Presenter(s):** Connor Duffey

**Advisor(s):** Dr. Jocelyn Buckner

The realm of music and the arts in general has commonly been a place for individuals who would otherwise be considered outcasts in mainstream society to join and channel their frustrations into listenable art. Thanks to notable flamboyant, gender-bending performers such as David Bowie and Grace Jones, young artists of differing genders and sexual orientations are arising more openly and clearly than ever before in the public eye. This paper will develop critical analyses of the works of contemporary musicians that communicate their queer identity authentically both in the mainstream and underground music scenes. Additionally, I will analyze how these musicians' artistic social expressions take on a uniquely modern context. I will focus specifically on three musicians: Lady Gaga, a bisexual singer-songwriter who has taken modern pop music by storm, Khalif Diouf (otherwise known as "Le1f"), a gay African American rapper who subverts traditional hip hop tropes and Alejandro Gheri (otherwise known as "Arca"), a gay Venezuelan experimental producer who bucks gender norms and arguably embraces the "queer" persona the most extremely of the three musicians.

Though musicians expressing socially progressive concepts in their art is nothing new, gender, race and sexuality are bubbling to the forefront of popular culture discussion and modern queer musicians represent those discussions through performance and music in a strikingly immediate fashion. This is especially expressed through live performance spectacle and frequently jarring music videos. Overall, these artists bring unique ideas about personal identities and what music can become to the forefront of their work.

### **24. A Need for Tinkers: An Ostranenie Approach to Prop Design for Sarah Ruhl's Eurydice**

**Presenter(s):** Nita Faulkner

**Advisor(s):** Dr. Jocelyn Buckner

"Why are umbrellas so pleasing to watch on the stage? The illusion of being outside and being under the eternal sky is created by a real object. A metaphor of limitlessness is created by the very real limit of an actual umbrella indoors ... A real thing that creates a world of illusory things."<sup>1</sup>

"The purpose of art is to impart the sensation of things as they are perceived and not as they are known. The technique of art is to make objects 'unfamiliar'."<sup>2</sup>

Sarah Ruhl's *Eurydice* provides a playground for designers as it tears the world in two-- the world and the Underworld. While Ruhl recontextualizes the Greek myth of Orpheus and Eurydice, she emphasizes the juxtaposition between remembering and forgetting. When Eurydice descends to the Underworld, she loses most of her memory, causing her to see the world as simultaneously familiar and unusual. I seek to create a design that cognitively and viscerally engages audiences with the characters' own experiences of displacement.

Shklovsky's artistic concept of *ostranenie* aligns with Eurydice's perception of Earthly objects once she is in the Underworld. As an audience is presented with unusual objects which seem familiar, the process of perception will be enhanced. I will explain how my properties design conveys the concept of *ostranenie*, reinforces the theme of memory, captures the attention of a modern audience, and creates a dynamic relationship between property and character.

1 Ruhl, Sarah. "Umbrellas on Stage." 100 Essays I Don't Have Time to Write: On Umbrellas and Sword Fights Fights, Parades and Dogs, Fire Alarms, Children, and Theater. 6. Print.

2 Shklovsky, Victor. "Art as Technique". Theory of Prose. 12. Print.

## **25. Living Between the Lines: Intersectionality and Self-Actualization in Shakespeare's Plays**

**Presenter(s):** Morgan Green

**Advisor(s):** Dr. Jocelyn Buckner

More than four hundred years after his death Shakespeare is still the most performed playwright in the English-Speaking World, and even in some cultures vastly different from Shakespeare's England. Theatre companies continue to make him relevant by exploring new themes and tailoring the productions to the social mores of contemporary audiences. One particular theme being examined more and more by both scholars and theatre artists is diversity and the role of identity in Shakespeare's works. Three works in which this can be easily examined are Antony and Cleopatra, The Merchant of Venice, and Othello with particular attention paid to characters Cleopatra, Portia, and Othello respectively. Cleopatra, Portia, and Othello represent examinations and intersections of race and gender in their respective plays when examined through the lenses of both Early Modern English audiences and the culture of the Elizabethan and Jacobean worlds, and late-20th and early 21st century American audiences and the cultural of increased sensitivity to those traditionally 'othered' by society. As we continue to perform the works of Shakespeare in an ever-evolving culture we must look to new and different themes that will connect an audience rather than disengage it. Cleopatra, Portia, and Othello are particularly affected by perceptions of their sexuality and the role of performative ghosting as they are influenced by cultural attitudes related to their race, gender, and levels of empowerment.

## **26. The Art of Collaboration Within Your Generation**

**Presenter(s):** Natasha Gualy

**Advisor(s):** Dr. Jocelyn Buckner

Theatre is an outlet in which artists from across the spectrum come together to create a powerful, compelling artistic production. Theatre is synergetic - complex togetherness of a production team defines each show. Its dependency on teamwork is what sets theatre apart from other art forms. It takes the unhindered involvement of every cast and crew member to pull together successful theatre. It is a generous art, requiring people to fully commit themselves. Unfortunately, the importance of collaboration is not generally emphasized within typical academic theatrical programs. Theatre has become dysfunctional by teaching young artists to plead for a piece of the action. No art form should make artists feel lucky to be included, but rather feel empowered and balanced. To prepare young artists entering the industry, I propose an educational system which requires every student in a theatre department to work together. This system will continue throughout all four years of college. Each graduating class will come into the department prepared to work as a production team. The students will spend time learning the various responsibilities of the production team and at the end of the year, will be responsible for developing their own theatrical production using teamwork and intelligent use of resources. Students will be destined to learn what their individual and collective strengths and weaknesses are, and how to balance them. This will be beneficial to the young adults who hope to flourish in creating theatrical entertainment in the future and prepare them for the world of responsibility.

## **27. YOU Should Be a Bully Free Zone**

**Presenter(s):** Juliana LaBarbiera

**Advisor(s):** Dr. Jocelyn Buckner

Growing up, the only education I received on bullying was what a bully was and that no student should be one. As a victim to bullying myself, I know that when a bully is told to stop by an adult, they usually do not listen. I do believe, however, that there are steps that can be taken to ensure that bullied children and bystanders are able to be heard and understood and then can proceed to stand up for themselves or fight back in a way that encourages positive change. Bullying is ultimately an imbalance of power. One child forces dominance over another and thus the victim feels oppressed and at a loss as to how to solve the problem. In this thesis project I will develop a bullying prevention curriculum for the children who participate in Higher Grounds at Lincoln Elementary School, an after-school program for children who come from low-income parts of the community. The goal is that this program will allow students to identify and begin to address bullying through various theatrical methods. I will devise a curriculum mainly centered around Augusto Boal's Theatre of the Oppressed that I feel will best allow each student to be heard and allow them to feel safe enough to open up and feel creative so that should they find themselves in a real situation where bullying is taking place, they are able to stand up and help.

## **28. WED Enterprises**

**Presenter(s):** Taylor Maurer

**Advisor(s):** Dr. Jocelyn Buckner

Walt Disney Imagineering, the creative force behind Disney parks, shows and attractions, is an industry leader in pursuing the latest technology and implementing it in theme parks and cruise ships around the world, setting the standard for the rest of the entertainment industry to follow. I have always been passionate about the way Walt Disney Imagineering has used technology to tell stories that are so adored and have been a part of childhood memories for generations. Through this thesis, I will demonstrate The Walt Disney Company's influence on the entertainment industry, particularly through the implementation of lighting technologies in Walt Disney Imagineering projects. I will also discuss the various possible career trajectories and opportunities to work for the company in a management capacity, creating and implementing lighting designs and creating drafts for future shows, attractions, lands and parks on an international level.

By looking into the structure of management and design positions, I will be able to assess and analyze the various roles within Walt Disney Imagineering to best set a career goal to suit my skills in lighting design and drafting. By interviewing current and former Imagineers, I will be able to relate a designer's personal experiences with the technology used behind a particular project. Walt Disney's legacy of keeping one foot in the present and one foot in the future lives on through the creative minds at Walt Disney Imagineering. By pushing the boundaries of technological limitations, Walt Disney Imagineering is the forerunner for the entertainment industry internationally.

### **29. Olympics: Democracy and Semiotics of Artistic Spectacle**

**Presenter(s):** Hotaru Morita

**Advisor(s):** Dr. Jocelyn Buckner

The Olympic Games is a long held tradition that allows numerous nations to converge together to celebrate and compete on an international level in sports. At the same time, the Olympics is an opportunity for hosting nations to showcase their history, achievements and nationalism to both domestic and international audiences. Thus, the artistic spectacle of the opening and closing ceremonies is of equal importance to the athletic competitions and is a rich site for semiotic analysis. For the purposes of this paper, I compare and contrast the opening and closing ceremonies in the Olympics of both democratic and non-democratic nations and analyze them through the Rousseau model of democracy in practice and democracy in appearance. Through a specialized focus on the theatrical props designed for and used in the performances, this semiotic analysis will demonstrate the construction of democracy in the creation and the execution of these artistic spectacles. In the 21st century there have been eight Winter and Summer Olympics. Out of these eight, I will focus on the semiotic analysis of props in the Games in Salt Lake City 2002, Beijing 2008, London 2012 and Sochi 2014. I argue that these large scale Olympic events demonstrate that democracy influences artistic output but form and content may be distinct.

### **30. Preservation and Reality - Cultural Representations of Austria and their Impact in Im Weissen Rössl and In Den Alpen**

**Presenter(s):** Katie Neubert

**Advisor(s):** Dr. Jocelyn Buckner

In this paper I examine the ways Austrian culture is represented and how those representations impact Austrian society through two plays: first, a nostalgic and comedic operetta, *Im Weissen Rössl* (1931) by Ralph Benatzky and the second, a contemporary critique of modern Austria, *In Den Alpen* (2002) by Elfriede Jelinek. Often mistaken for German culture, Austrian culture is rarely connected to the country of its origin in the average American citizen's mind and the historical nation is forgotten, until reminded of the Lederhosen and Dirndl version of Austria that ignores the reality of historical and modern Austria. Though the world famous *Im Weissen Rössl* accurately portrays pieces of historical Austrian culture – including Austrian dialects, traditional dress, the non-fictional town Sankt Wolfgang and imperial Austria – the frequently produced operetta attempts to preserve Austria in a historic and nostalgic state that is idyllic and stereotypical. This representation then impacts tourism in Austria and tourists forget the reality of Austria's history throughout the twentieth century, including Austria's involvement in the Holocaust. Jelinek combats the Lederhosen version in her analytical play, *In Den Alpen*, where she draws attention to the more pressing modern issues of nature, technology, the Holocaust and Austrian identity. Through the simultaneous cultural study of Benatzky's and Jelinek's theatrical works, I analyze the validity of the famously idyllic version of Austrian culture and the current cultural focus in modern Austria to understand the impact these theatrical works have on Austrian society.

### **31. "Punk Rock as Theatrical Public Commentary"**

**Presenter(s):** Nathan Nociar

**Advisor(s):** Dr. Jocelyn Buckner

In the 1970s and into the 1980s "Punk rock," as a subgenre of what was commonly known as "rock-n'-roll," communicated theatrical spectacles and confrontational approaches using guitar-based, electric sounds and raw

vocalizations. It was often dismissed in the annals of music history as a lesser form of musical expression. "Phil Collins, lead singer, Genesis: A friend videoed the group (The Sex Pistols) on the 'So It Goes' tv programme (August) and following all this publicity we played it over and over out of curiosity and all we found was a lack of talent. (Meldody Maker, December, 1976)" (Coon 3). The aesthetics of such bands and musicians may have been considered sub-standard to the current music of the period, however, the message was a very clear one. Johnny Rotten, aka John Lydon, of the Sex Pistols in the recorded song "God Save the Queen," makes reference to Queen Elizabeth II by singing "God Save the Queen, She ain't no human being[...]And there's no future, In England's dreaming." I argue that even though the level of musicianship was one that may have been contested, the themes and content are ones of social commentary, using theatrical devices and technique to comment on class and social inequality.

### **32. The Evolution of Costume Design in the Circus: Then and Now**

**Presenter(s):** Alina Novotny

**Advisor(s):** Dr. Jocelyn Buckner

The circus has always been seen as a world of mystery and wonder. A traveling, global community of performers and animals who has no zip code and call the road their home. Known for its cultural and historical whimsy, the circus has made a reputation for itself as they transport its audiences to a different world filled with modern marvels. In order to continue this streak, however, the industry has had to constantly evolve and adapt to the change of the times. My thesis will explore the evolution of costume design in the circus and the design process that follows it. It is my hope that with this study of technological and design advancements, we will not only be able to better understand the history of the magic behind the curtain but also potentially predict where we are going with our technology in the future.

### **33. The Impact of Performance Media on Public Perception of Emerging Technological Ideals**

**Presenter(s):** James Trocme

**Advisor(s):** Dr. Jocelyn Buckner

Emerging technological ideals such as Artificial Intelligence, Nano-Technology, Bio-technological augmentation, and Robotics will have an enormous positive societal benefit over the next century. However, many people will be reluctant to employ these technologies due to the perception that they are in some way unnatural. Significant opposition will come from those who find it difficult to imagine scenarios other than worst-case. Though powerful new technologies are not without risk, these risks are outweighed by the potential benefits. The opposition to the use of new technologies will have been made worse if current trends regarding depictions of advanced technologies in performance media continue. Performance media is massively impactful on public opinion because it can employ suspension of disbelief and relatable characters to engage the audience far more effectively. I believe that the entertainment industry should use its power to better educate the public about the realities of new technology. This subject should not be ignored by content creators because societal changes and new technologies impact the entertainment industry just as the entertainment industry impacts society. The digital revolution changed the way films were made. New technologies of the 21st century will not only expound on this, but will impact the way live theater is made as well. In addition, the internet has allowed people to access entertainment from anywhere, and this has already changed so much about how we consume performance media. I am excited to see how much will change about how performance art is produced in the next 100 years.

#### **34. Portraying Reality; Theatre that Presents the Truth about Sexual Assault on College Campuses**

**Presenter(s):** Kristianna Zacharias

**Advisor(s):** Dr. Jocelyn Buckner

The crisis of sexual assault on college campuses has come to the forefront of our nation's attention in the past few years. Universities who have published results of sexual assault surveys provide evidence of large-scale sexual violence. MIT revealed that 17% of its female undergraduates experienced unwanted sexual behavior during their college career. Similarly, the University of New Hampshire published results stating that 16% of their undergraduate women suffered from unwanted sexual contact or intercourse through force, threat, or intoxication.

What efforts should colleges make to prevent the endangerment of their female, and male, students? Many universities have begun to educate incoming freshman about what legally constitutes rape and what consequences could ensue from committing sexual violence. Chapman University's sexual assault and rape prevention program, Healthy Panther, requires all freshmen to attend a lecture concerning sexual abuse and assault. In contrast, Rutgers University has been praised for creating a unique approach to sexual violence education. SCREAM Theater is a program that employs students to act out scenes of sexual assault. In result, Rutgers has collected impressive data demonstrating that these peer interactions help their students better relate to victims and grasp the seriousness of sexual violence.

I propose that college students are more responsive to a theatrical presentation of sexual violence rather than a lecture. My mission is to write a play in the style of SCREAM Theatre that is geared toward Chapman Students.

### **University Honors Program**

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#### **35. A Tale Retold: Disney's Expanding Ambiguous Lens**

**Presenter(s):** Tellis Aucoin

**Advisor(s):** Dr. Jylve Bidmead

This research examines Disney productions as a major player in our cultural narrative through time since their creation. The magnitude of the influence that these productions have had mandates critical observation. This research looks at how these tales have influenced generational ideas about our limitations in understanding individuals out side of ourselves and the realm of possibility in our own experience of this life. Original Disney movies have been critiqued for marginalizing groups of people, but credited at the very least to teach kids to differentiate good and evil and stretch the limits of their imagination. However, this research challenges even that last remaining positive notion by examining the correctional products that are being put out by Disney in the modern day and contrasting them with the culturally harmful Disney productions of the past. In more recent times, correctional material from Disney has contextualized the actions of the "villain" in order to humanize characters that have been portrayed one-dimensionally, as well as recognizing the interplay between reality and imagination by putting magic into the modern world. This research will focus on the portrayal of original Disney character tales in season 1 of the ABC series Once Upon a Time while contrasting them with their original Disney Portrayals. Through this analysis it should be brought to light that the key factor which influences the progressive evolution of Disney is the expanding ambiguous lens that composes our cultural narrative and therefor illustrates our known reality.



### **36. "The Evolution of Disney Gender Roles"**

**Presenter(s):** Kira Baird, Christina Berardi

**Advisor(s):** Dr. Julye Bidmead

The leading characters in many Disney films create and fulfill problematic gender stereotypes. In classic Disney films, such as Snow White and the Seven Dwarfs (1937), Cinderella (1950) and Sleeping Beauty (1949), these stereotypes were extremely rigid, sexist, and followed a traditional family structure. In the more recent years, these roles have relaxed a little and have taken on more progressive stance. In one of Disney's most popular films, Frozen (2013) the female leads stray from the traditional "Disney Princess" roles by their manner and attitudes. Princess Tiana in The Princess and the Frog (2009) also differs from the classic Disney princess because she works and eventually owns her own business. The newer princesses no longer are characterized as ignorant, domestic, pretty faces, but move into an era of being self-sufficient, educated, and independent. Although both the male and female roles have evolved over time in Disney films, the males in the recent films display less change in their gender role portrayals than their female counterparts. The male role remains to solely save and assist the female character. Analyzing gender roles in the Disney films creates awareness of the flaws in popular culture and the society that consumes it.

### **37. Disney Channel: Changes in Morality and Representation Over Time**

**Presenter(s):** Callan Keeter, Mia Scibelli

**Advisor(s):** Dr. Julye Bidmead

This research examines the different eras of Disney Channel and analyzes the lessons and values they perpetuate through original television shows, both the animated and live action features. The scope of series that will be analyzed ranges from The Proud Family to Girl Meets World. The purpose of evaluating the variety of popular shows is to determine whether Disney Channel is progressing or regressing as time goes on. We will be collecting and analyzing information regarding gender, racial, and religious diversity, stereotypes, and morals they support. What does Disney Channel deem 'appropriate' to teach children, and how is that affecting past, present, and current generations?

### **38. Stereotypical Symphonies: An Analyzation of Stereotypes in Disney Soundtracks**

**Presenter(s):** Aidan Jones, Benjamin Bond

**Advisor(s):** Dr. Julye Bidmead

This research examines various Disney 2-D animated films, such as Mulan (1998), Princess and the Frog (2009), and Peter Pan (1953), analyzing how the soundtracks in these films contribute to existing racial, social, and gender-based stereotypes present within the films. This will be done by analysis of compositional techniques and instrumentation in comparison to standard film scoring techniques in addition to traditional musical cultures and styles of the societies presented in the films. Our research will reveal that many of the techniques used to compose the soundtracks for various Disney films contribute to and even invent various stereotypes present within the films. One example is the song "Dig a Little Deeper" in The Princess and the Frog. This song was composed in a gospel style but is sung by an African-American voodoo priestess which attributes the gospel style to African-Americans instead of Christianity. Our work not only brings this seldom discussed topic into the conversation about stereotypes in Disney film, but also relates to the greater world of Western film scoring on the whole.

### **39. Inside Out and Gender**

**Presenter(s):** Julia Ross, Jacqueline van Bronkhorst, Reagan Shrum, Samantha Waugh

**Advisor(s):** Dr. Julye Bidmead

This research covers gender constructs throughout Pixar's revolutionary film, *Inside Out*, and how it genders emotions stereotypically. Our research draws upon our own critical analysis of the film, societal gender constructs, and articles regarding gender within the film. We would like to question Disney's decision to associate specific emotions with certain genders and why they were gendered at all. In identifying and analyzing the theories surrounding *Inside Out*'s portrayal of gender, we seek to both applaud Disney's advancements and also highlight its regressions.

Pixar made the authoritative emotion in each character a vital element of the story, one worth examining. Throughout the movie, "Joy" runs Riley's mind, "Sadness" leads the mother, and "Anger" controls the father, which clearly portrays emotional gender stereotypes. Riley also has emotions portrayed by both genders. This also may have resulted from societal norms that dictate classically male and female expressed emotions. The effect of these gendered emotions could ultimately leave the child with a stereotypical view of emotion. Fear is portrayed as a negative and laughable male emotion instead of one important for survival. "Disgust" causes children to refuse to try new things, while "Anger" is portrayed as an uncontrollable, dangerous volcano. The two most successfully represented emotions are "Joy" and "Sadness", who are shown as dynamic, adaptive, and vital to a healthy existence.

These gender stereotypes throughout the film could influence young children's minds as they mature, and result in insecurities and false ideas of what emotions they are expected to express.

### **40. Creatures Misrepresenting Cultures**

**Presenter(s):** Hayley Scarano, Clay Dirkse

**Advisor(s):** Dr. Julye Bidmead

This presentation will examine a select group of Disney and Disney Pixar animated films in which non-human creatures represent non-white characters. We will look into how these creatures depict racial stereotypes, and how Disney may have been racially insensitive when creating certain characters. These generalized and inappropriate stereotypes can be seen replicated across the Disney movie cache, as well as through history. Many of Disney's stories, such as *Mulan* and *Pocahontas*, contain historical inaccuracies, resulting in the disrespecting of many different cultures and races. Our research draws upon primary source films produced by Disney and Disney Pixar where this disrespect occurs, including *The Jungle Book*, *Cars* and *Dumbo*. Further research is supported by secondary sources such as academic research articles that explore Disney's faults in relation to racial and cultural representation. It is also important to acknowledge the specific time period in which these films were created. Understanding the bias of the times allows for insight about specific characters' stereotypes. Insensitive and inaccurate depictions of Disney and Disney Pixar characters encompass movies from earlier in the "Disney Kingdom" archives with famous characters such as King Louis from *The Jungle Book*, to current family-favorite films such as *Cars* with the character of Ramone. These depictions can be found across the Disney timeline and these unfair stereotypes continue to be relevant today.

#### **41. Pixar vs. Princess**

**Presenter(s):** Julia Sirkin

**Advisor(s):** Dr. Jule Bidmead

This project, titled Pixar vs. Princess, will compare and contrast the male and female gender roles in three Pixar and three Disney princess films. The analysis will focus on one Pixar and one princess film from the following time periods: the early 1990s, the turn of the century and the end of the first 2000s decade. The films compared will be no further than four years apart in release; Toy Story (1995) will be matched against Beauty and the Beast (1991), Monsters Inc (2001) versus Mulan (1998), and Tangled (2010) opposed to Up (2009). From a gender binary perspective, this project will examine how both Pixar and Disney princess films have evolved over the past fifteen years.

#### **42. Studio Ghibli: The Feminist Side of Disney**

**Presenter(s):** Vanessa Stahel

**Advisor(s):** Dr. Jule Bidmead

This research project will analyze the films created by Studio Ghibli, a Japanese animation studio whose films were released through Disney. The classic Disney princess films, such as Snow White and Cinderella, have been criticized for containing potentially sexist ideas and for creating harsh stereotypes for women in terms of gender roles. However, Studio Ghibli's films carry almost the opposite message to these Disney classics. The founder of Studio Ghibli, Hayao Miyazaki, created extremely feminist works. This project will analyze these films, and investigate the female characters that he has created. His female characters that are not sexualized, their personalities do not revolve around their looks, their gender lines are blurred, they are strong and independent, and are not passive in the sense that they do not need to be rescued by a man. These characteristics all strongly oppose the typical Disney princess. This study is important as it analyzes a side of Disney that many of its audience members might not be familiar with. It also shows that Disney has begun releasing more progressive films with characters that have moved away from their stereotypical Disney princesses.

#### **43. Race, Segregation, and Pixie Dust: An Analysis of the First Tinker Bell Film**

**Presenter(s):** Cassidy Vo

**Advisor(s):** Dr. Jule Bidmead

The "Disney Fairies" line is a direct-to-DVD Disney film series that has branched off to become an entire franchise of its own. One of the few Disney films without the stereotypical "prince saves the princess" scenario, Tinker Bell (2008), the first film in the series, focuses on a diverse cast of female characters with a variety of ethnicities - a rarity in the majority of Disney films that have been released to theaters. However, the film's biggest flaw is its approach on the topic of social segregation, wherein they impose a model where privileges exist in a class system. This project aims to conduct an in-depth video analysis of how fairies with a particular "talent" are able to enjoy opportunities that other fairies cannot, similar to how the class system of the United States. In addition, the representation of race in the film will be analyzed. With over three million copies sold for the first movie alone, the "Disney Fairies" series can be a powerful influence on children, and this research seeks to examine what morals it may be imparting.

#### **44. Disney, Pixar, and the Mentally Ill**

**Presenter(s):** Gabrielle Vujovich, Natalie Kowell

**Advisor(s):** Dr. Julye Bidmead

A figure with large ears, wide eyes, and a vacant, grinning expression shuffles across the screen, his tongue falling out of his mouth. His arms and legs move like noodles and as a child his appearance and behavior seems comical -- he elicits laughter. This human manifestation of physical humor is Dopey from Snow White and the Seven Dwarfs (1937). He obviously suffers from a mental disorder, yet instead of sympathy, Dopey has been associated with something laughable. Our research will explore ableism throughout classic Disney films as well as more recent Pixar films. Specifically, we will look at how Disney addresses mental illness in a different way than Pixar and see how these portrayals have changed in the course of time. In classic Disney films such as Snow White, Lion King (1994), and Winnie the Pooh (1966), as well as Pixar movies such as Finding Nemo (2003), Cars (2006), and Inside Out (2015), characters with various mental illnesses are included. From our initial research it is clear that the treatment and portrayal of these disorders varies between films, companies, and time periods. We will investigate these and other factors that have led to different portrayals of the mentally ill. In addition, we will acknowledge what has worked and what hasn't worked in creating a positive and considerate image of people with mental illness. Finally, we will offer suggestions for future Disney and Pixar writers outlining what they could do to improve the way they address mental disorders.

## **Wilkinson College of Arts, Humanities, and Social Sciences – Art**

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#### **45. Video Art Collection of Works**

**Presenter(s):** Morgan Mein, Jimmy Xie, Haley Hopkins, Santiago Cervantes, Alessandra Rosser, Dani Planto, Alison Pirie, Gi-Ling Lo

**Advisor(s):** Micol Hebron

Our research project is a collection of video art works that our class has made this semester. Video art is a genre of art that became popular in the 1960s. Many video art works address the presence of media in our society and the medium of video itself. Like any other art form, video art can start conversation about any kind of topic whether political, societal, or global. Each video project presented in this collection is a conceptual piece individually researched and worked on by each student in the course. Not only is research of past video art works important, but a dense amount of research is done on the individual subject of which the video explores. Subjects such as gender equity, private and public spaces, sociological surveys, experimental and ethnographic film, and art history are addressed in these student works. In conclusion, much like any other research project, a great deal of planning and data collection goes into creating video art and to be represented at this research fair would be gratifying for us as developing artists. This piece is an attempt to express the frivolous nature of human behavior by portraying man in his "natural habitat".

#### **46. Conceptual Art as Institutional Critique**

**Presenter(s):** Sophia Nielsen, Jordyn Williams, Maggie Mirrioni, Liatris Hethcoat, Dani Planto

**Advisor(s):** Micol Hebron

Our project, as part of the continued exploration of the New Genres studio class, investigates various avenues within the realm of new genres in contemporary art. New Genres encompasses the intersection of mediums and the dissolution of traditional methodologies of art and art making. Often combining and re-interpreting multiple genres and mediums, New Genres art-making can include video, performance, and installation, but often references more traditional and historical art-making such as sculpture, painting, and drawing. With this project, we would like to demonstrate how New Genres art making can fit into and contribute valuable ideas into research fields.

## **Wilkinson College of Arts, Humanities, and Social Sciences – Communication Studies**

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#### **47. The Recursive Cycle of Sustainability in e-Science Organizations.**

**Presenter(s):** Tyler Bice

**Advisor(s):** Dr. Kerk Kee, Mona Sleiman

Projects in e-science are usually funded between three to five years, presenting a challenge for collaborators to coordinate and produce deliverables in such a limited time (Kee, 2015). Under such a funding condition, many of the e-science projects are one-off efforts. However, the goal of most of e-science projects is to achieve long-term sustainability with continuous funding. This poster examines the sustainability of e-science projects by looking at its relationship with funding, organizational structure, and track record. Through qualitative data analysis of 133 interviews, we concluded that there is a recursive cycle in which funding is needed to create organizational structure. In essence, a well designed organizational structure leads to a successful track record, which in turn leads to more funding opportunities. These three components make up a recursive cycle of necessary practices for sustainability in e-science organizations.

#### **48. Media Literacy for Parents with Children Ages 5-10**

**Presenter(s):** Whitney Carroll, Rylee Boland, Annabelle K. Bosch, Karinne H. Van Heuven

**Advisor(s):** Dr. Riva Tukachinsky

A media literacy intervention was designed to educate parents of children ages 5-10 about common positive and negative media practices. The topics included general media usage, advertising, sex, and violence in the media. This presentation to parents a complete understanding of media literacy and how it relates to their child. Research-based tools were shared with the parents so they can personally make the best media decisions for their child and heir family. A survey was distributed before the presentation to parents asking about their family's media practices at home. A second survey will be distributed to those who choose to participate after the presentations to gain an understanding of the effectiveness of the media literacy intervention.

**49. The Group Approach to Spreading Awareness of Cyberinfrastructure in the Larger US Scientific Community**

**Presenter(s):** Erica Dean

**Advisor(s):** Dr. Kerk Kee, Mona Sleiman

Cyberinfrastructure and e-science are not widely accepted as a research approach and adoption across fields has been uneven. However, limited research has been done in investigating how to increase cyberinfrastructure awareness. Given the limited literature, this poster looks into research models that have been developed in strengthening nonprofits (Backer, 2000), capacity for policy advocacy (Edwards et al., 2000), and integration into kindergarten (Maxwell & Clifford, 2004). Through systematic reviews of eight articles, this poster concludes that using groups (instead of individuals) in spreading awareness is more effective. Although some articles advocate for the individual approach, they primarily dealt with smaller populations and were observed over a longer period of time. Implications and conclusions will be discussed.

**50. Turn Off the Tap! The Effect of Water Conservation Messages on Attitude and Behavior**

**Presenter(s):** Lauren Henderson

**Advisor(s):** Dr. Jake Liang Dr. Kerk Kee

Due to California's fourth year of exceptional drought conserving water is more important than ever. One effective means to conserve water is to develop and send water conservation messages (e.g. "Take 5 minute showers instead of 10 and save 150 gallons of water per month"). Messages can affect receiver's attitudes and actual behavior. To evaluate existing messages, we developed an original 2 (Conservation Tips: Absent/ Present) x 2 (Loss Aversion: Absent/ Present) x 2 (Evidence of Drought: Absent/ Present) factorial experiment that uses a pre- and post-attitude measure to test whether the messages affected participant's attitude towards water conservation. Additionally, a new strategy we used to measure behavior included timing how long the participants' took to wash their hands. Results provide interesting implications for water conservation campaigns.

**51. Who Will Roll? Testing the Effect of User-Generated Content on Human-Robot Interaction**

**Presenter(s):** Lauren Henderson

**Advisor(s):** Dr. Jake Liang

Robots are more interactive than ever; they can now work, communicate, and collaborate with humans. This research focuses on shaping human-robot interaction. One way to shape this interaction is to employ user-generated content. This type of content has been shown to be persuasive and may effect human-robot interaction. In an original two condition experiment, participants either saw favorable online reviews (user-generated content) or basic descriptive information about a new collaborative robot named C.A.S.E.Y., before playing a trust game with the robot. Results suggest that user-generated content moderates the relationship between participants' trust in the robot and their entire experience with the robot (i.e., mood, perceived usefulness, perceived ease of use, and credibility).

**52. Learning the Ropes: Fostering positive culture through documentation, mentorships, and socialization within organizations.**

**Presenter(s):** Sami Jarjour

**Advisor(s):** Dr. Kerk Kee, Mona Sleiman

Virtual organizations often face difficulties in establishing a culture that eases the process of new members integrating into the organization. This investigation employs the grounded theory approach (Corbin & Strauss, 1990), analyzing 133 interviews conducted with domain scientists and computational technologists. Through qualitative data analysis, we identified components of culture, which in turn, encourages successful learning of the ropes. This poster sets forth three key processes that foster positive culture: documentation, mentorships, and socialization. These factors are imperative for new members to effectively learn the ropes of an organization. Conversely, leaders must actively promote a culture that facilitates these processes in order to ensure the sustainability and livelihood of an organization throughout transitional phases.

**53. Social Perceptions of Race in Counter-stereotypical Relationships**

**Presenter(s):** Karlie Jeneson, Haley Hull, Rachel Kang, Nayobi Maldonado-Ochoa, Molly Savant

**Advisor(s):** Dr. Riva Tukachinsky

Media narratives of all kinds can shape people's views of race. It is important to understand people's views and opinions of racial stereotypes, how they are reflected in the media, and how society communicates these attitudes.

In this study, we examined perceptions of race in relation to counter-stereotypical narratives. We hypothesized that among readers of a counter-stereotypical story, stronger White racial identity will increase the chance of misperceptions of a Black character's race. In turn, less accurate perceptions of a

counter-stereotypical character's race will lead to greater negative attitudes towards Blacks. To test the hypothesis, we conducted an online experiment where students were asked questions regarding their racial identity strength.

Afterwards, they were instructed to read a counter-stereotypical romantic story about a relationship between a White male and an African American female character (the control group featured both characters being White).

Then, participants were asked to choose a photograph of an actor they thought would best represent the two lead characters of the story out of 14 photos of Black men, 14 photos of White men, 14 photos of Black women, and 14 photos of White women. And finally, participants were asked about their attitudes toward blacks.

**54. The Social Factors of Virtual Organizations: Fostering Relationships, Promoting Motivation, and Establishing a Lead Coordinator**

**Presenter(s):** Amanda Lee

**Advisor(s):** Dr. Kerk Kee

Oftentimes, organizations fail to foster relationships and promote motivation among team members, resulting in a plethora of negative outcomes. As virtual organizations become increasingly prevalent, it is imperative to understand the role of social factors in computer-supported cooperative work. Through grounded theory analysis (Corbin & Strauss, 1990) of 133 interviews with participants of various e-science projects, we identified three

major themes across virtual organizations: (1) the importance of building relationships, (2) the importance of instilling motivations among team members, and (3) the importance establishing a lead coordinator for the project. This poster offers practical strategies that will promote relationship-building, increased motivation, and effective coordination in e-science virtual organizations.

#### **55. Does Love Conquer All?: An Examination of Interracial Narratives and Romantic Beliefs**

**Presenter(s):** Lindsay Robb, Kaajal Ali, Gabriela Houghton, Frances Naude, Karinne Van Heuven

**Advisor(s):** Dr. Riva Tukachinsky

The current study investigates how prior racial stereotypes affect readers' perception of race in written narratives. Specifically, this study examines how readers of a romantic narrative correctly or incorrectly identify the race of an ethnic minority character. Further, we investigate whether the correct or incorrect identification of the characters' race affects the reader's romantic ideal, "love conquers all." We hypothesized that readers who hold racial stereotypes prior reading the story will be less likely to accurately identify the race of the Black character in an interracial romantic story. Further, we hypothesize that those who do perceive the relationship in the narrative as interracial will be more likely to endorse the romantic ideal that, "love conquers all." To test these hypotheses, an experiment was conducted in which participants read a romantic narrative in which an interracial relationship emerged between a white man and a black woman. Before the participants read the story, they answered questions about their attitudes towards social groups (Blacks, women, and people on welfare). After the participants read the story, they identified the race of both the male and the female character, as well as answer questions that measured levels of romantic beliefs.

#### **56. Assessing Organizational Readiness in e-Science Projects**

**Presenter(s):** Alex Rushka

**Advisor(s):** Dr. Kerk Kee, Mona Sleiman

Cyberinfrastructure (CI) is a sociotechnical system made up of a diverse network of interdependent technologies, remote instruments, big datasets, dispersed experts, and diverse institutions. However, the diffusion of this complex system is full of challenges. Meanwhile, the STEM fields are transforming as scientists increasingly integrate computations of big datasets into their e-science projects, thus requiring tools that can process large-scale data. These e-science projects require a certain level of readiness to adopt new pieces of CI. The construct of readiness has been studied and measures have been developed in other contexts, e.g., public health agencies, non-profit organizations, and non-governmental organizations in developing countries. Through analysis of existing literature, we extracted and synthesized relevant components of readiness measures translatable to the e-science context. This research provides the beginning steps for organizational readiness assessment in e-science projects.

#### **57. A Media Literacy Intervention for Parents of 0-4 Year Olds: Effectiveness and Outcomes**

**Presenter(s):** Gaby Strnad, Katie Ashby, Jimmy Johnson, Kaitie Smith

**Advisor(s):** Dr. Riva Tukachinsky

The purpose of this research is to determine the effectiveness of a media literacy intervention involving parents of children between the ages of 0-4. Drawing from the wealth of previous research and theory regarding media effects on children, our aim is to provide a comprehensive program promoting healthy media habits. This intervention consists of two sessions discussing the following topics: screen time recommendations, promoting



literacy and vocabulary acquisition in infants and preschoolers, marketing to children, and frightful media content. Parents' media literacy was assessed prior to and after the intervention, and results were compared to parents of the same demographic who did not attend the program.

## **Wilkinson College of Arts, Humanities, and Social Sciences – Political Science**

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### **58. Iran's Nuclear Development**

**Presenter(s):** Ahmed AL Hamed

**Advisor(s):** Dr. Ann Gordon

One of the most pressing international crises-in-waiting is the inevitability of Iran successfully enriching weapons-grade plutonium for use as an agent of destruction. This dialogue has led to a divided argument in which there are, nominally, two opposing sides: those that feel Iran's bid for nuclear armament is only a matter of time, and those that feel Iran is functioning as a scapegoat for Western (and Israeli) aggression in the Middle East. This paper seeks to explore the public opinion on the matter and, in the process, reveal the dangers of ignorance regarding the likelihood of the nuclear Iran that predictors forecast. The implications for Iranian armament are, without doubt, of an almost singular importance for the relative homeostasis of the Middle East. Outward aggressions on the part of Tehran towards neighboring countries—friend or foe of the West—would undoubtedly elicit a response from the United States, as well as other superpowers. Thus, were Iran to gain nuclear capability, the outsized power it would yield would foment into a state of hyper-anxiety between it and what it sees as its enemies. The current US policy of hypersensitive reproach regarding Iran, while cautious, may prove ineffectual if intervention is unduly delayed. Using a study of extant literature, both cross-sectional and, in particular, the 2012 American National Election Study (ANES), it is anticipated that the dependent variable—that Iran is attempting, in earnest, to build 'the bomb'—is a phenomenon that is widely-underappreciated in its severity by the majority of Americans. This dialectic, the dependent variable, contends that insufficient levels of American higher education have ill-prepared the average citizen to understand the severity of this threat. While American public opinion may be typified by a generalized distrust of the Mideast, the lack of finite knowledge regarding the particularities of Iranian armament poses another substantive danger in its own right. A populace that does not demand that its representative government intervenes prior to nuclear capability is guilty in absentia by virtue of its obliviousness.

### **59. Egalitarianism and Its Effects on Abortion Attitudes**

**Presenter(s):** Cianna Allen

**Advisor(s):** Dr. Ann Gordon

Secular, young, liberal women are known to be most likely to have positive attitudes towards abortion; but what about people with egalitarian attitudes or positive views of feminism? Much research has been done on overall attitudes towards abortion—but little has been researched about its correlation with egalitarian or feminist attitudes. This article provides insight into this correlation. Much research has been done on demographics such as age, race, religion, and education and their effect on abortion attitudes, but less research has been done on the correlation between egalitarian attitudes and abortion attitudes. The little research that has been done on this correlation varies widely and has changed drastically over the years.

This article seeks to find the connection between attitudes towards (and opinions on) gender roles, gender stereotypes, and overall egalitarian attitudes and overall abortion attitudes (pro-choice, anti-choice, in between,

etc.). Abortion has been a divisive issue that has affected people throughout the nation and throughout the world. Over time, egalitarian attitudes have become much more common among a wide variety of people, and my goal is to show that egalitarian attitudes lend themselves to a higher likelihood of pro-choice attitudes and to predict the effect this will have on abortion laws.

#### **60. A Quantitative Examination of the Intersectionality of Race and Gender**

**Presenter(s):** Alina Ambrosino

**Advisor(s):** Dr. Ann Gordon

There is a lack of recognition of diversity and intersectionality within the field of gender. Many libraries now carry a respectable amount of literature concerning gendered issues. However, the majority of this literature concerns issues of gender as if they exist within a vacuum, without accounting for the numerous other factors that affect gendered issues. As it stands, far too many existing works on the topic of gender limit themselves to examining gender as if it were a singular demographic, with inalienable truths applying to all members of a particular gender regardless of their race, nationality, or other factors. But gendered divisions of the human population constitute so enormous and diverse a portion of the total populace that one could not possibly make many overarching conclusions concerning gendered issues. The objective of this paper is to examine the relationship between race and gender, and the ways this relationship affects peoples' perceptions of themselves, and others. I am looking to see if the political stances of individuals of various iterations of race and gender have noticeable patterns. Many theories influencing contemporary scholarly rhetoric surrounding gender is based on empirical or qualitative data, rather than quantitative data. By making a deliberate choice to focus on quantitative data, I am contributing a fresh perspective using some of the few measurable points of knowledge we have on what might seem to be a profoundly subjective topic.

#### **61. Party Identification Analyzed**

**Presenter(s):** Jackson Balla

**Advisor(s):** Dr. Ann Gordon

Party Identification is defined as an important attitude that influences the vote of an individual. Most voters in the US identify with one of the two major political parties, and these basic partisan loyalties influence voting. This research paper will go in depth to look at the influences that shape individual party identification. It will examine the tendencies in which people switch parties and how often that happens using the Likert 7 point scale going from strong republican to strong democrat with everything in between. Then the age and education of the voters will be observed to see tendencies in which they vote along with an in depth look at why that is. Finally, income will be closely looked at to give a thorough analysis of the influence it has on voters picking their party, answering if income is the most significant factor in a voter's party choice. My research, from polling taken during the 2012 national election will show how young Americans, the well and poorly educated, and the wealthy/poor tend to vote.

**62. Voter Trust and the Power of Direct Democracy: An Exploration into the Importance of Legitimate Forms of Governing in a Democracy**

**Presenter(s):** Emma Brent

**Advisor(s):** Dr. Ann Gordon

Legitimacy is the only concept that gives a government control of a population. For a democracy, legitimacy is especially imperative to its function. Current polling in the United States reflects the lowest approval ratings of Congress in history. Civil unrest has become a trademark of the 21st century, and much of the unrest has spawned from voters believing their voice is lost in a system that never valued it to begin with. When it comes to direct democracy in the U.S., initiated through ballot measures, many studies point to trust in government, or a lackthereof, as a main factor for predicting voter preference on policy. And yet, there is little research regarding how distrustful voters prefer to participate. Democracies must prove to its constituents that it is legitimate by actively supporting ways for voters to participate freely and equally, or else the democracy will dissolve; therefore, I argue that understanding how voters wish to participate is imperative to a democracy's success. I hypothesize that voters that are distrustful of government will approve of the use of ballot measures as a way of determining policy. Relying on the 2012 ANES Direct Democracy Survey, I have found that distrustful voters favor the use of ballot measures as a way of determining policy, and I assert that, by utilizing ballot measures, democratic governments give voters a way to reassert their voice within a system they do not trust listens to them, and thus, restores legitimacy.

**63. An Analysis of Local Perceptions on Immigration Policy**

**Presenter(s):** Annie Chapin

**Advisor(s):** Dr. Ann Gordon

Immigration policy is consistently in flux as policy makers attempt to identify the key concerns of our citizens. Attitudes towards immigration have been studied in the context of multiple variables including age, political ideology, and party identification. The variable of location of voters, which may have a profound impact on attitudes towards immigration, is studied significantly less. The internal culture and history of a location is crucial to consider when drafting immigration policy as it influences local's attitudes, which should be addressed. Over the course of our country's history, areas such as New York, Los Angeles, and Miami have had distinct experiences with immigration. Attitudes vary further when considering the population density and media exposure for each location. It is my argument that living location is one of the most defining factors in attitudes towards immigration, due to its history, media exposure, population, and proximity to other countries. Understanding that immigration attitude is specific to each location, such as southern vs. northern regions or cities vs. rural towns, can better prepare policy makers to address the issues and opinions of those citizens. Immigration attitude goes deeper than political ideology, and into a long history of cultural background and coinciding events that shape public opinion. This paper will demonstrate how various aspects of location are at the root of public opinion on immigration, and only by addressing this root will policy makers be able to address and influence attitude on immigration.

#### **64. Attitudes Towards the Death Penalty Within the United States**

**Presenter(s):** Kristin Choi

**Advisor(s):** Dr. Ann Gordon

Historically, capital punishment has been widely accepted as a tool for punishing capital offenses; however, since the 1976 trial *Furman v. Georgia*, the United States Supreme Court rulings set the standard that capital punishment was deemed cruel and unusual punishment as it was in clear violation of the Eighth Amendment. Of all the countries considered as westernized societies of relatively wealthy and advanced capabilities, the United States is only one of five other industrialized countries that continues to utilize capital punishment. However, according to the most recent Gallup Poll on the death penalty, trends pulled from 1936 to 2015 show a fairly consistent majority of U.S. citizens to continue to favor capital punishment. The objective of this research is to primarily explore which factors affect attitudes towards favoring or opposing the death penalty. Accordingly, my research suggests a relationship between how much citizens trust the government to do the right thing and whether or not one would favor or oppose the death penalty. In addition to reviewing variables such as trust in government, my research will cover other variables such as attention to television news and race in relation to attitudes towards the death penalty.

#### **65. The Decline of Political Trust**

**Presenter(s):** Sarah LeMay

**Advisor(s):** Dr. Ann Gordon

Political trust in the United States is declining and without political trust, the government cannot effectively do its job. Concurrently, media consumption have been on the rise, especially with the introduction of the internet and the vast amount of unfiltered information readily available to most Americans. Relying on the 2012 American National Election Study survey, this paper will explore the effect of different media types on political trust. A high level of political trust is essential for government efficiency and active citizen political participation and without some sort of change, it is unlikely that political trust levels will begin to rise. As technology use continues to increase and develop, media will likely become even more readily available to American citizens furthering the effect that it has on American society and politics. Previous research on this subject has produced a positive correlation between newspaper news attention and political trust and a negative correlation between television news consumption and political trust. Among the interesting results, I found that attention to varying types of media had no significant correlation with political trust. This finding challenges previous work on this subject and poses the idea that media no longer has a significant effect on feelings of trust towards the government. This paper discuss alternative factors that could be contributing to the decline of political trust in the United States and stresses the importance of understanding why political trust is in a continual downward spiral.

#### **66. Attitudes Towards Immigration in the United States**

**Presenter(s):** Tianna Martinez

**Advisor(s):** Dr. Ann Gordon

The topic of immigration from Mexico to the United States has been one of great contention for U.S citizens over the past year. Despite being a country built on immigrants, it seems that public attitudes towards the issue are changing. It is hard to pinpoint an exact reason for this change in public opinion as there are so many factors playing a role. This paper will examine quantitative research data provided by the National Election Survey to

assess different factors that are actively playing a role in altering the public's overall opinion on immigration levels. The data reveals how proximity to Border States, party identification, and age can predict attitudes towards immigration levels.

#### **67. Why People Don't Vote**

**Presenter(s):** Marc Moshcatel

**Advisor(s):** Dr. Ann Gordon

Voter turnout rates are low and decreasing in the US, making representation far less representative of the whole population. The goal of this project is to compare some of the possible factors that discourage people from voting, and why they lower turnout rates. Expected findings include education and voter alienation as main factors—less voting among the less educated and the alienated—as well as people not voting because they feel that the wealthy have too much influence over elections.

#### **68. Guns and Accessibility**

**Presenter(s):** Jessica Nicholas

**Advisor(s):** Dr. Ann Gordon

Gun control has become an increasingly controversial issue in recent years. Debate has been spirited as to whether the availability of guns has contributed to increased violence. Using the American National Election Study's 2012 Time Series Study, this research paper will consider the results of this survey, with a main focus on whether the respondent believes the federal government should make it more difficult to buy a gun. Considerations will be placed on questions regarding the respondent's age, gender, and party identification. The survey also asks if the respondent owns a gun, considers gun access to be an important issue, and how often he or she believes people can be trusted. These variables can have an impact on one's opinion on the need for gun control by the federal government. For example, research within the American National Election Study concludes that those who own a gun feel that the federal government does not need to significantly change access to buying guns.

#### **69. Muslim Stereotypes and a Nuclear Iran**

**Presenter(s):** David Norick

**Advisor(s):** Dr. Ann Gordon

Popular opinion among American citizens would attest that the United States should promote the restriction of nuclear weapons being developed. While other nations already have or are developing nuclear weapons, Iran continues to dominate the conversation. It may be possible that the prolonged focus on Iranian nuclear weapons development could be the result of past American intervention, but the United States has not directly attacked Iran since 1988. Still, the past has impacted opinion, but not necessarily because of Iran itself. After the events of September 11th, 2001 and the wars in the Middle East, American paranoia has emerged in racial forms. This paper will analyze both the opinions of Americans regarding the existence of a naturally violent behavior in Muslims as well as the belief of whether or not Iran is developing nuclear weapons and an American response to the development. All polling dates back to the 2012 national election. Primarily due to the biases of the past fourteen years, it is expected that the analysis will reveal that Americans who have a stronger opinion of agreement when asked if the stereotype of Muslims being violent is true will more likely believe that not only that Iran is developing

violent weaponry, but additionally that the United States must take stronger, military based action against Iran to combat the development of nuclear weapons. This paper discusses how stereotypes impact popular opinion and feelings towards the actions of others with the belief that the United States must combat these actions.

#### **70. Gun Control and Economic Outlook**

**Presenter(s):** Earl Schultz

**Advisor(s):** Dr. Ann Gordon

My research will examine the relationship between economic outlook and position on gun control. Economic outlook will be the independent variable and gun control will be the dependent variable. The guiding hypothesis is that the more negative an individual's outlook on the future prospects of the economy, the more likely they are to support looser gun control laws. Reversely, if an individual has a positive view of their economic future, they will be more likely to support stricter gun control laws. The reason for this hypothesis is based in the logic that a gun is theoretically meant to provide a sense of security and if an individual is insecure in their economic prospects than they would be more likely to turn to the security of a firearm. The bulk of research done on this topic has examined the relationship between gun control and views on other topics such as party affiliation however, the relationship between gun control and economic outlook hasn't been heavily examined. Often studies tend to compartmentalize beliefs, comparing economic views against other economic views for example, when I believe that often an individual's beliefs on separate topics are not compartmentalized but rather inform each other. The key takeaway from existing research is that views on gun control are subject to views on other topics outside the realm of gun-related issues. I will show that an individual's views on gun control are informed by their outlook on the economy.

#### **71. Understanding the Motives behind Rejecting Obamacare**

**Presenter(s):** Kunal Sharma

**Advisor(s):** Dr. Ann Gordon

Healthcare has become a widespread battle for millions of Americans as health is one common-denominator every citizen shares; therefore it is important to research the reasons driving public opinion on the Affordable Care Act (ACA). Relying on the 2012 American National Election Study, this paper examines the relationship between the notion of whether respondents feel they will be personally better/worse off financially in one year, where they see the economy headed, and their opinions of Obama's handling of the ACA. President Obama's unveiling of the Patient Protection and Affordable Care Act was met with vicious backlash, but at the same time positive responses. Numerous reasons have circulated as to what circumstances drive one's opinion toward the ACA, with one pervasive theory being that support or opposition was rooted in an individual's perception of his or her current and future financial situations. Previous research points to social psychological variables that drive public opinion such as ideology and values. These are analyzed to fully explore the bases for policy preferences. Findings include that those who believe they will financially be better off in one year, generally favor the President's actions. Additional analyses detail the role perceptions of the whole economy impact views on the ACA. With these findings, one can recognize relationships between personal future financial situations (pocketbook concerns) and perceptions of broader economics (sociotropic evaluations) and opinions of the President's healthcare actions. Finally, the paper considers why some respondents opposed the ACA, even if they stood to benefit from the legislation.

## **72. Opinions on Affordable Care Act: The Role of Self-Interest**

**Presenter(s):** Brad West

**Advisor(s):** Dr. Ann Gordon

Since its passage in 2010, the Affordable Care Act has received some of the most public backlash than any other bill in recent history. The bill attempts to expand healthcare to those who were previously ineligible for coverage due to a pre-existing condition and to those who cannot afford it by subsidising their purchase of private health care plans. One would expect unhealthy, uninsured Americans to support this. However, there are plenty of uninsured, unhealthy, poor Americans who have a negative opinion of the ACA. This paper attempts to reconcile this fact with a popular theory of voting behaviour, Rational Choice Theory, which states that voters will vote based on maximising their utility. Relying on the 2012 ANES data, I investigate how American's opinions on the ACA vary depending on their health, if they are insured, and their socioeconomic class.

## **Wilkinson College of Arts, Humanities, and Social Sciences – Sociology**

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### **73. The “Normal” Vagina: Constructing the Feminine Norm Through Labiaplasty- Women’s Motivations for Labia Reduction**

**Presenter(s):** Emilie Doan Van

**Advisor(s):** Dr. Roberta Lessor

Female genital cosmetic surgery is a growing phenomenon in Western society. Labiaplasty, the reduction of the labia minora, differs from typical cosmetic procedures in that its outcome is only visible to the woman who received the surgery. Little research exists regarding why women pursue labiaplasty. Equally as little research exists on what is biologically normal for the labia. This project attempted to discern motivations for labiaplasty, and utilized the sociological theories of normalization and medicalization of the female body to frame the discussion. Content analysis was performed on 266 posts from two popular message boards populated by women who had undergone or were considering undergoing labiaplasty. Of these results, 38% identified motivation as purely functional, 31% as purely aesthetic, and 23% as both. Eighteen percent mentioned sex partner as motivation, 12% expressed ideation of what was normal for genital appearance, 5% expressed ideation of looking feminine, and 4% mentioned media in their responses. The research found that aesthetic motivation played a significant role in why women pursued labiaplasty, and that there was some aesthetic ideal that was desired. Furthermore, it was found that what was considered aesthetically pleasing was frequently conflated with being “normal”, and that despite a dearth of knowledge regarding standard labial appearance, being considered “abnormal” interacted negatively with women’s abilities to feel feminine and desirable. Analysis of the results produced significant ramifications: that societal expectations of the female body can translate to expectations of female genitalia and sexuality, and these in turn affect women’s pursuit of labiaplasty.

#### **74. Are you a Monster?**

**Presenter(s):** Hotaru Morita

**Advisor(s):** Dr. Stephanie Takaragawa

21st century American television dramas have shown evolution of the monster archetype, From the sociopath depictions of BBC's Sherlock Holmes (Benedict Cumberbatch) to the morally justifiable murders committed by Dexter Morgan (Michael C. Hall), the monster archetype has extended beyond the dichotomies of good versus evil to a shifting discussion of human morality. This research will employ textual analysis and ethnographic approach to exploring this phenomenon.



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