

Poster Session 2

1. *The Representation of Women and Minorities in Science*

Paris Gilstrap and Ronald Doel, Florida State University

Historically, documentation of scientific lab work, seen through text and photography, focused on the achievements of male scientists who were predominantly wealthy and well educated while marginalizing women and minorities who worked alongside them. Typically, photographers framed their photos with men in the foreground, whereas women and minorities were on the periphery. Often, the names of these individuals were absent from textual documentation and their achievements attributed to the lead scientist. This project seeks to explore the representation of women and minorities in the photographic documentation of lab work, specifically relative to textual evidence. This work in progress studies the work of Dr. Carl S. Marvel and Roy Chapman Andrews, two Caucasian male scientists whose research necessitated working with other cultures and genders. Dr. Marvel was an American chemist who discovered new forms of rubber and plastic during WWII; Andrews was an American archaeologist who led expeditions in East Asia. While these two men worked in different contexts, the contributions of women and minorities were obscured in both. Preliminary findings from archival research has shown that these scientists were running the experiments, expeditions, and discoveries, but women and minorities were working in the labs and on expeditions as photographers and scientists. Despite their contributions, they were largely ignored in text, leaving photographic portraiture as the only evidence of their work. These cases of misrepresentation are reflective of a larger systemic issue that is being addressed today. This project seeks to recognize these women and minorities whose work has been overshadowed.

2. *Genetic Engineering of KSHV to Study the Role of Individual Lytic Viral Genes*

Juan Alonso and Zsolt Toth, University of Florida

Kaposi's sarcoma-associated herpesvirus (KSHV) is a cancer-causing virus in humans. It is a large DNA virus encoding nearly 100 different genes. Importantly, this research group has a recombinant clone of KSHV called BAC16, which can be maintained in *E. coli*. Using the homolog recombination system of the bacteria, it is possible to modify any KSHV gene to make viral mutants thereby investigating the function of viral genes. The expression of lytic genes of KSHV depends on the viral factor RTA encoded in KSHV. Our group has previously made an RTA knockout KSHV mutant, which cannot express its lytic genes. It is now hypothesized that inserting a constitutively active promoter in front of a lytic gene in the RTA knockout KSHV, a virus could be constructed, which selectively expresses a viral gene of interest thereby being able to study the role of an individual viral gene in infected cells. As a proof of principle, I inserted a constitutively active CMV promoter in front of the lytic viral gene vIRF1 in the RTA knockout BAC16, which can drive the expression of vIRF1 in the absence of RTA and other lytic genes. In addition, a 3xFLAG epitope tag was inserted before vIRF1 allowing the detection of vIRF1 by FLAG antibody. Afterwards, the recombinant BAC16 DNA was transfected into 293T cells and tested the expression of vIRF1. The results show that 3xFLAG-vIRF1

was expressed in the absence of RTA indicating that our method is suitable to make KSHV clones expressing individual lytic genes to study their function in cells.

3. *Synthesis*

Zachary Mease and Sheila Goloborotko, University of North Florida

This creative research project emphasizes the need for design-based responses to the global climate change crisis. The models created present innovative and utopic solutions to some of the disruptions caused by human dominance of the Earth. These solutions are as follows: CITY+NATURE - a system of urban identity which embodies, creates, and preserves natural space. Unique components converge to create organic space.

TOPO+ROOF - the use of natural topography and flora to determine the roofing of each structure. The public land is connected through a network of bridges. All roofing is dedicated to natural land, therefore there are no private roofs. Individuals may access the roofing via elevators and stairs. GROUND+WAY - a series of tunnels which provide multi-modal access to and from the city without disrupting the surface ecosystem.

Underground car storage saves space on the surface by minimizing street widths, and enabling a pedestrian-dominant network. GREEN+GRID - a street level grid which provides park access to the entire city. The organically flowing network is designed for people, and facilitates the multi-modal transit network. And SMART+STREETS - an advanced system of streets designed for pedestrians, public transit, and bicycles. Flora incorporated in streets and on facades provides water purification, drainage, and some food resources. Technologically outfitted streets manage lighting, traffic flow, and resource collection. These solutions, when utilized in tandem, are designed to foster a sense of respect, responsibility, and appreciation for the environment, while improving the quality of both the human and non-human life

4. *Seasonal Changes in Male Size and Alternative Mating Tactics in Sailfin Mollies (Poecilia latipinna)*

Ivonne Arriola Mendieta and Kimberly Hughes, Florida State University

In many taxa individuals display discrete variation in both morphology and behavior. Although these “alternative tactics” are relatively common, their maintenance within populations has yet to be adequately explained. Sailfin mollies (*Poecilia latipinna*) are live-bearing fish that show extreme variation in mature male size and reproductive behavior. Adult male size is genetically determined but highly variable within populations, and reproductive behavior covaries with genetically-determined size. Large males display courtship behavior, small males use sneaking behavior, and males in the middle of the size distribution exhibit behavioral plasticity that depends on the social context. Large males also mature more slowly than small males, so the size distribution of adult males within a population can vary dramatically over time. To determine if temporal variation and behavioral plasticity could play a role in maintaining these genetic polymorphisms, we asked if individual male behavior covaries with the male body size distribution across seasons within a population. We collected males in March, June and October 2015 and measured their standard length at the field site. A subset of males was brought to the lab to

assess reproductive behavior towards a receptive female. We found that the male size distribution varied seasonally; males were largest in October and smallest in June. Standard length and its interaction with season significantly affected the rate of courtship displays exhibited by males, but not sneaking behavior. This result suggests that individual male behavior changes tracks the male size distribution within populations, recapitulating a pattern that has been shown across populations.

5. *Role of Zip8 in Iron Metabolism During Iron Deficiency*

Alexandra C. Barrett, Supak Jenkitkasemwong and Mitchell D. Knutson, University of Florida

The transmembrane metal-ion transporter ZIP8 (SLC39A8) is capable of transporting a number of metals including manganese, iron, zinc and cadmium. Mice with limited ZIP8 expression display severe anemia in utero, suggesting that ZIP8 plays a role in iron metabolism either in maternofetal transfer of iron or in erythropoiesis (Gálvez-Peralta et al., PLOS One, 2012). To investigate the role of ZIP8 in erythropoiesis in vivo, the *Slc39a8* gene was disrupted in adult mice (ZIP8 KO) and they were subjected to dietary iron deficiency. These ZIP8 KO mice, after 8 weeks on an iron-deficient diet, had significantly lower hemoglobin levels and plasma iron concentrations compared with wild-type mice. Analysis of tissue non-heme iron concentrations, an indicator of tissue iron stores, revealed that ZIP8 KO mice had significantly higher splenic non-heme iron concentrations than did wild-type mice, suggesting an impairment in iron recycling/utilization during iron deficiency. These data suggest that ZIP8 plays a role in iron metabolism during stress erythropoiesis in response to iron deficiency. Future studies will be needed to define the exact role(s) of ZIP8 and at which stage it functions in erythropoiesis.

6. *Modernity Meets Mythology: How Capitalism and the Anaconda Intertwined in the Peruvian Amazon*

William Boose and Robinson Herrera, Florida State University

Capitalism and the Chullachaki: Indigenous Amazonian Myths in the Context of Economic Development. This work is based on the honors-in-the-major thesis titled “Modernity Meets Mythology: How Capitalism and the Anaconda Intertwined in the Peruvian Amazon”. In the work it is argued that despite the state-imposed violence of neoliberal development, indigenous peoples in the Peruvian Amazon have consistently resisted physically and culturally. They have also demonstrated a malleability to absorb new systems of thinking into their preexisting cosmologies, even in ways that perpetuate traditional indigenous thought through market phenomena. Via forced labor practices, oil pollution, and illegal logging, neoliberal models of economic development have imposed violent cultural disruptions and shifts upon the indigenous peoples of the Peruvian Amazon. To investigate those disruptions and indigenous peoples’ responses, an archival research and fieldwork in Peru was conducted during the summer of 2017. In Lima primary and secondary sources were gathered in El Museo Larco, one of the world's largest collections of pre-Colombian art, and in La Universidad Nacional de San Marcos,

the oldest university in the Americas. In Iquitos and the surrounding communities written sources were collected and eleven people, some in indigenous communities and others in Iquitos were interviewed. While in Iquitos, resources such as El Museo de las Culturas Indígenas, El Museo del Barco Ayapua, La Biblioteca Amazónica, and El Instituto de Investigaciones de la Amazonia Peruana were consulted. Since then the research has been compiled and the findings are being incorporated into the Honors in the Major thesis project under the guidance of Dr. Robinson Herrera.

7. *Perinatal Hospice: A New Model for Newborn End-Of-Life Care*

Elena Abascal and Sally Karioth, Ph.D., R.N., Florida State University

Advance care planning is a process through which individuals and families, typically with the support of their healthcare team, outline their priorities for end-of-life care. Although this model is typically used with geriatric populations, new models for use in pediatric settings have become more widely available. However, most pediatric advance directives are designed for use with older children who can participate in the decision-making process, making these models unsuitable for use in perinatal populations. The goal of this project is to present one possible format for a perinatal advance directive, broken down into five distinct phases of family-centered decision-making. Each phase (Understanding, Planning, Memory-Making, Saying Goodbye and Transition/Adaptation) will include a questionnaire for families to fill out, along with information about what can be expected during each phase. While no amount of planning can alleviate the emotional toll of losing a baby, we are hopeful that this tool can be a source of comfort and encouragement for grieving families and those who work with them.

8. *Building Cultural Awareness: The Impact of an Online Educational Resource on U.S. College Students' Stigmas and Predetermined Stereotypes of International Students*

Nayah Boucaud, Carole Beal and Sophia Acord, University of Florida

My first study, *International Student Transitioning: Creating Technological Solutions to Aid International Undergraduate Students in the United States* (Boucaud 2016), focused on assisting international students with their transition to American college life and culture using a technology-based intervention. In contrast, my current research addresses American students' perspectives of international students and the cultures they represent. This research will identify the ideas American college students have of their international peers. After this identification, these 'stereotypes' will be used to build an online tool (i.e. course) to build cultural awareness among American college students.' This topic is highly relevant in our current political climate. On July 31st of this year, *Diverse Issues in Higher Education*, a news organization focused on recording the national news and academic happenings of diversity in higher education, published an article titled 'Colleges Urged to Be Inclusive of International Students'. This article, written by Jamaal Abdul-Alim, discussed the urge from education organizations such as Education USA and the United States State Department to 'begin to think of international students more as part of the overall student population and not as a separate group' (Abdul-Alim, 2017). This study not

only delves into the predetermined ideas college American students have of their international student peers but actually creates an online technological product to address this issue by building cultural awareness in college environments. Naturally, there should be no reason for us not to explore technological solutions to a problem that involves a population that is so technology driven and orientated.

9. *Chromatin Control of an Oncogenic Herpesvirus in B Cell Lymphoma*
Thomas Nguyen and Zolt Toth, University of Florida

Chromatin control of an oncogenic herpesvirus in B cell lymphoma Kaposi's sarcoma-associated herpesvirus (KSHV) is a human oncogenic herpesvirus with a 165-kilo-base double-stranded DNA genome encoding at least 100 different viral genes. Importantly, the KSHV life cycle has two phases: latency when only latent genes are expressed while the lytic genes are repressed, and a lytic phase when lytic genes are expressed and viral DNA replication can occur. Similarly to the human genome the KSHV DNA has also a chromatin structure, which can undergo post-translational modifications by cellular histone-modifying enzymes that can effect the expression of viral genes. Recently, our group found that the histone post-translational modification H3K79me2 is enriched on latent genes during latency and is increased on lytic genes during the lytic phase. Thus, we hypothesize that H3K79me2 is associated with viral gene expression and if so, H3K79me2 inhibition could block KSHV gene expression and replication. To test this idea, I inhibited the enzymatic activity of the H3K79 histone methyltransferase DOT1L during latency and the lytic phase of KSHV in a B cell lymphoma cell line and investigated how it affects viral protein production using immunoblot analysis. I found that despite that DOT1L inhibition could reduce H3K79me2 in infected cells, it minimally affected the expression of viral genes. This indicates that inhibiting only H3K79me2 on the KSHV genome may not be sufficient to block KSHV gene expression but we have to inhibit multiple histone modifying enzymes regulating the KSHV genome to repress viral genes and thereby viral replication.

10. *Queering the Canon: New Readings through New Technologies*
Noah Oakley and Juliet Lauro, University of Tampa

In a technological age with growing access to information about literary giants, Barthes' theory of la mort de l'auteur becomes harder to utilize when reading texts. The authorial voice is continuously transformed as more is learned about the authors, or as more theory is developed. The access to the internet expedites this process, allowing scholars to share information faster, especially with the growth of digital archives. This is seen in the work of Ernest Hemingway. As more resources surface, the identity and life of Hemingway can be seen strewn through his work. But is it still possible to historicize without reading the author too much into the work? Or are they too conjoined? This paper aims to explore shifting identities that create cracks in the hypermasculine myth of a man that the canon has created. By using letters from his past and interviews made easily accessible through online resources to frame *The Sun Also Rises* and *The Garden of Eden*, I argue that Hemingway's work actually tells a more interesting story about someone struggling with sexual and gender identity. The author and the man now become multiple uncanny doubles of each other through differently informed readers enforced by the technological

advancements, specifically digital archives, in literary studies. Because of this intersection of technology and literature, this paper argues that these advancements make it easier for a cornucopia of readings to be created, muddying the authorial voice and shifting exactly how we kill the author.

11. *Fake News: Right-Wing Media Watchdogs in the 1980s*

Zachary Brown and Louise Newman, University of Florida

This project explores the growth of right-wing media watchdogs in American popular culture during the 1980s. While scholars have written extensively on popular right-wing media like Fox News, none have explored the right-wing media groups that precipitated politically-right networks. The growing popularity of these right-wing watchdogs in the eighties, and the favor they curried with the Reagan Administration, provides new insight into how these groups have influenced the U.S. during the Eighties and Nineties, as well as their lasting impacts today. This project focuses on the growth of three popular right-wing media watchdogs in the 1980s: Accuracy in Media, MediaWatch, and Media Bypass. Operating in tandem, under the guise of being non-partisan, these groups launched extensive grass-roots campaigns to engage Republican citizens in actively challenging mainstream media (NBC, CBS, and ABC). Republicans across the nation were encouraged to write letters to mainstream media outlets and boycott broadcasts for accused liberal bias. Once these groups gained significant power, marked by AIM producing and airing their own documentary about the Vietnam War on PBS, they began to gain political influence. By 1992, Patrick Buchanan launched his own media watchdog newsletter, *From The Right*, and subsequently announced his candidacy for President. Buchanan's coopting of the watchdog media model represents the mixture of politician and media outlet, which I claim has caused lasting effects on the American political landscape. Now, politicians are able to dismiss any media and facts as biased, largely because of the right-wing media watchdogs of the 1980s.

12. *Creative Entrepreneurship Pedagogy*

Talise Burton and Meredith Hand, Florida State University

Society has developed a preconceived notion that students graduating with a degree in the humanities are largely going to be unemployed or underemployed upon graduation. This project works to correct the notion that students are unprepared for the job market, and works to aid these students in creating new career opportunities through the development of a creative entrepreneurship course. Entrepreneurship is a widening field within universities across the globe, and has been introduced to a variety of differing majors and curricula. This project describes the four main teaching methods that can be used to tailor an entrepreneurship education to undergraduate humanities majors. The potential courses will allow humanities undergraduates to gain knowledge in areas often ignored and contradicted within general humanities curricula. Knowledge and skills gained through these potential courses could lead to a decline in anxiety amongst humanities majors entering the job market, an increase in the amount of students entering in humanities-based curricula, and lead to growth in the amount of humanities undergraduates seizing entrepreneurial ventures and creating successful businesses during or upon graduation.

13. *Improved Abrasives for Manufacturing Photovoltaic Silicon Wafers*

Rebecca Ashley, University of Central Florida, Arkadeep Kumar and Shreyes Melkote, Georgia Institute of Technology

This research focuses on improved abrasives for manufacturing photovoltaic silicon wafers. These wafers are the base material for photovoltaic solar cells, and they are sliced using the industrial diamond wire sawing process: micrometer sized diamond abrasives fixed on steel wires remove material, while the silicon block is fed through a web of parallel wires running on rollers at a slow rate. The purpose of this research is to reduce the cost of solar cells by manufacturing thinner wafers. However, when you make brittle silicon wafers thinner, they tend to break more easily. The strength of the wafers depends on the size and frequency of surface and subsurface cracks that form when you slice the silicon with abrasives. These cracks depend on the shape and size of abrasives used to cut the material, and to produce wafers with superior surface quality and strength, we want to promote ductile material removal during slicing of silicon wafers. Therefore we performed increasing depth-of-cut scribes to analyze the material removal transitions from ductile to brittle, and we experimented with diamond, crushed and spherical abrasives, providing a variety of shapes and sizes. Our results showed the spherical and smaller sized abrasives provide a smoother and deeper cut with very few surface cracks appearing. This implies that, when using these types of abrasives, we can cut stronger silicon wafers for solar cells, potentially reducing costs and increasing the use of renewable solar energy.

14. *DNA Barcoding as a Pathway to Explore Plant Biodiversity*

Balaji Chandrasekar, Justin Santiago and Nalini Odapalli, Valencia College

DNA barcoding as a pathway to explore plant Biodiversity Novel technologies in taxonomy, such as DNA barcoding identifies plant species based on their minimal molecular genetic variations. Incorporating both classical taxonomy and DNA barcoding into the identification of plant species will lead to an efficient and accurate taxonomic process. The aim of this research project is to demonstrate the accessibility and efficiency that DNA barcoding brings into the taxonomic process. At Valencia college, we decided to collect non-native plant samples from a backyard garden in Casselberry, Florida with the hopes of adding new species to the existing database. The collected plant specimens were analyzed and classified based on the differences between their *rbcl* gene and their morphological characteristics. The collected specimen went through cell lysis, precipitation, and purification to extract and isolate the DNA strands. PCR and gel electrophoresis were utilized to amplify the *rbcl* gene and the resulting product was sequenced by Genewiz. The resulting nucleotide sequences were compared to the existing sequences in BLAST and a phylogenetic tree was created based on the analysis. The BLAST results will be used in conjunction with morphological analysis to successfully identify the collected plant specimens.

15. *Achieving Precise Stoichiometry in Complex Oxide Thin Films*

Samuel A. Coker, Caitlin S. Kengle, Robert J. Dawson and Maitri Warusawithana,
University of North Florida

Using Molecular Beam Epitaxy (MBE), we grow crystalline complex oxide thin films, a single atomic layer by atomic layer. The growth is accomplished using a beam of distilled ozone that provides oxygen and collimated molecular beams of high purity elemental metals evaporated using Knudsen cells, within an ultra-high vacuum (UHV) chamber. Once the metal atoms are calibrated using a quartz crystal thickness monitor (QCM), computer controlled pneumatic shutters are used to deposit the right number of atoms of the constituent elements needed for one monolayer. With a growth rate that corresponds to about 60 seconds per monolayer, the activation speed of the shutters and the drift in the atomic fluxes lead to an unavoidable $\pm 2\%$ error in stoichiometry. We exploit the flux gradients that arise from the placement geometry of the effusion cells in our MBE system and by not rotating the sample, achieve exact stoichiometry in colossal magnetoresistive $\text{La}_{1-x}\text{Sr}_x\text{MnO}_3$ thin films. Towards this, Reflection High Energy Electron Diffraction (RHEED) provides key in situ feedback that enables us to adjust the elemental fluxes deposited during each monolayer. Electronic transport measurements provide clear evidence for the lack of defects that act as scattering centers. In this study, we present a mathematical simulation of the elemental flux gradients.

16. *The Seasonal Abundance of Endo- and Ecto- Commensal Associates of Styela plicata in Tampa Bay*

Christa Edwards, Samantha Courtney and Kristine White, University of Tampa

The ascidian, *Styela plicata*, is an important biological host to a variety of marine invertebrates. The ephemeral nature of ascidians creates an unstable environment for its commensal organisms, leading to seasonal patterns in the invertebrates. Ascidians were collected seasonally and endo- and ecto-commensal associates were identified to the lowest possible taxonomic level. Amphipods, copepods, annelid worms, crabs, and marine spiders were the most prevalent commensal associates. An ecological pattern was documented with the most abundant ecto-commensal organisms being amphipods, copepods, and annelid worms. The richness and abundance of amphipods, copepods, and annelid worms varied throughout the seasons, yet amphipods remained the most abundant taxon throughout each season. Thus, the primary focus of this study was to identify amphipods down to species level in order to analyze specific seasonal patterns. The most abundant amphipod species were *Grandidierella bonneroides* Stephenson, 1948, *Cymadusa filosa* Savigny, 1816, and *Cerapus sp.* C Lecroy, 2007, with the abundance of each species varying seasonally. Further analyses will include identifying all the endo- and ecto- commensal organisms down to species level and to understand seasonal trends among all commensal species.

17. *Bioactive Phytochemicals in Native Florida Plants*

Charles Crawford and Scott A. Herber, Eastern Florida State College

Bioactive Phytochemicals (BAPCs) are a unique group of secondary metabolites found in particularly high concentrations in tropical and subtropical plants. Over recent years an increasing number of these compounds have been identified and accompanied by a growing body of research regarding their wide range of potentially beneficial physiochemical capabilities such as; anti-inflammatory, anti-diabetic, cytotoxic, and antioxidant effects. The conclusions reached from analyzing the large body of data relative to these compounds indicate viable pharmaceutical, commercial, and agricultural applications for these plant-derived compounds. A continuation of investigative techniques performed in this body of research, conducted at the local level with native Florida species, could create positive impacts on a number of health, economic, and environmental concerns that currently face the state. By analyzing native plant selections for their BAPC content and capabilities it is possible to create an updated plant list of therapeutically and commercially viable native plant species that can be easily cultivated in the environment in which they naturally thrive. This means that by cultivating BAPC-rich native species, it is possible to produce locally sourced, natural, and affordable disease-treatment alternatives while simultaneously improving Florida's environmental landscape.

18. *Prevalence and Risk Factors of Helicobacter pylori Infection among Students, Faculty, and Staff at the University of Central Florida*

Evan Holsonback and Suha Saleh, University of Central Florida

Helicobacter pylori (*H. pylori*) is a Gram-negative bacterium that infects and resides in the gastric mucosa of humans. Without treatment, *H. pylori* infection may cause chronic inflammation of the gastric mucosa. This inflammation creates progressive damage to the lining of the stomach and can lead to multiple diseases located in the upper gastrointestinal region. Worldwide prevalence of *H. pylori* infection is estimated to be close to 50%. Methods: The purpose of this study is to identify the prevalence and risk factors associated with *H. pylori* infection among students, faculty, and staff at the University of Central Florida. A cross-sectional design with a convenience sample will be implemented to acquire a study population no more than 150 participants. Data will be gathered from the study population through the use of an eighteen question survey, followed by an antibody blood test. Results and Conclusions: This project is part of a two-semester Honors in the Major thesis at UCF. Recruitment of participants and data collection will begin later this month.

19. *Lanthanide Doped Phosphors for Solid State Lighting*

Ethan Curling, David Hardy and Geoffrey Strouse, Florida State University

Current solid-state lighting technology utilizes down-shifting phosphors, which convert a high-energy photon to lower energy photon. However, industry relevant systems have wide FWHM emission features which decrease color quality of the systems. To improve the color quality and tunability of the down-shifting phosphors, lanthanides (FWHM <1 nm) can be introduced into a lattice. Population of the lanthanides excited states is achieved by a sensitizing ligand coordinated to a nanoparticle. Spinel nanoparticles will be doped co-doped with terbium(III) and europium(III) to provide color tunability and passivated by a sensitizing ligand. Photoluminescence, quantum efficiencies, lifetimes, and CIE coordinates will be discussed in this presentation.

20. *The Effects of Political Trust and Foreign Investment on Immigration Attitudes*

Jonathan Guarine and Joshua Scriven, Florida State University

In recent years, immigration attitudes have seen a resurgence in popular political discourse and political science literature. Throughout this project, we build upon the literature's political economy and political psychology theoretical foundations by incorporating some currently neglected considerations. We seek to understand how expectations toward foreign direct investment and confidence in government affect the demand for immigration restrictions. We hypothesize that natives will demand less immigration restrictions against migrants from countries with large public or private investment. Additionally, we hypothesize that as an individual's confidence in government's ability to implement policies decreases, demand for immigration restrictions will decrease. We will administer several survey experiments to Florida State University students to test whether students' decreased trust in government corresponds to lower support for immigration restrictions and whether students perceive increased foreign direct investment from other states as a form of compensation for the losses incurred through immigration. Experiment results will then be transferred to Excel and re-coded with new variables from the data. This research is significant because the project reconciles the different focuses in the political psychology and political economy literature to understand how threat perceptions interact with immigration attitudes. Furthermore, extant literature assumes that citizens threatened by immigration turn toward the government for protection, yet in implicitly assuming this, little is known about how different levels of trust increase or diminish anti-immigrant sentiment.

21. *Media Representation of Today's Students in Film: Exploring Race and Gender*
Lauren Davids and Jelena Petrovic, Stetson University

This rhetorical study explores representation of students, based on gender and race, in the popular 2006 film "The Ron Clark Story" which was based on a true story and nominated for over 20 awards. Although student success is an issue of today which has been looked at extensively, including in the film, studies on the representation of students in media seems to be a section of research that is missing, or at the least very minimal. Through narrative criticism, the researcher will be considering this gap of research and investigating the archetypes and the full narrative of the film. The researcher will also be considering the causal relations, limitations and other aspects of the narrative which affect the representation of students throughout the film. Through this narrative critique, the researcher hopes to have a clearer image of the archetypes that are painted, along with character markers that could be enabling certain racial and gendered stereotypes in society today. The researcher also hopes that a later qualitative study could be conducted to examine how these racial and gender stereotypes present themselves in today's American classrooms.

22. *Creating a Smaller Synthetic Muscleblind-like 1 Protein*
Ryan Day and Andrew Berglund, University of Florida

Muscleblind-like (MBNL) proteins are alternative splicing factors that regulate alternative exon use during development. MBNL proteins are sequestered by toxic repeat RNA transcripts produced in myotonic dystrophy (DM) patients. This sequestration of proteins leads to mis-splicing events responsible for disease phenotypes. MBNL1 consists of four different zinc finger (ZF) RNA binding motifs that fold into two distinct domains (ZF1-2 and ZF3-4). These two domains are connected by an unstructured linker region (LR) made up of approximately 76 amino acids. Although the ZF binding domains of MBNL1 are critical for this protein's functions, little is known about the importance of the flexibility between these two RNA binding domains offered by the LR. To determine how the LR impacts MBNL1 activity, we created MBNL1 proteins with shortened LRs of 57, 38, and 19 amino acids (L57, L38, and L19, respectively). Preliminary data from minigene splicing assays indicates that the three MBNL1 proteins with modified LRs have similar splicing activities, with a small activity decrease as the size of the LR decreases. These modified LRs were also introduced into synthetic MBNL1 constructs that contain either two ZF (1-2) domains or two ZF (3-4) domains. Additional splicing assays with all MBNL1 proteins containing modified LRs will be performed to further determine the functionality of these proteins. A reduced LR that orders MBNL1 into a more rigid compact structure may be advantageous over the full size MBNL1 protein in potential protein therapeutics for DM patients.

23. *An Investigation of the Antioxidant Property, Scavenging Activity and Total Flavonoid Content of Methanolic Plant Extracts of Brassica oleracea var. sabauda, Helianthus agrestis, and Murraya koenigi*

Monica De Varona Torras, Herby Sainthilaire and Yaelis Rivas, Florida International University

Free radical species produced during metabolism result in oxidative stress, which can cause damage of DNA, proteins, and lipids; and their occurrence has been associated with some diseases including cancer, diabetes, and several cardiovascular and neurodegenerative diseases. At a state of high free radical formation, internal antioxidants become insufficient for the counteraction of free radicals; therefore, external antioxidants are a necessity in the prevention of the oxidative damages. In the present study, the main objective is to evaluate the total content of flavonoids, the antioxidant capacity and the scavenging activity of methanolic plant extracts of *Brassica oleracea var. sabauda*, *Helianthus agrestis*, and *Murraya koenigi* species. It is hypothesized that the species with the highest content of flavonoids will also show the highest scavenging and antioxidant activity. The total content of flavonoids for each plant species will be estimated by using the aluminum chloride colorimetric method. The free radical scavenging capacity of the extracts will be determined by the 1,1-diphenyl-2-picryl hydrazyl (DPPH) method. Finally, the phosphomolybdenum method will be used to evaluate the total antioxidant capacity of each plant species. The present study will lead to the future isolation and characterization of the active compounds responsible for the pharmacological activity related to these plants. This further investigation will allow for a greater understanding of the mechanism of action of the bioactive compounds from the extracts against oxidative-stress-related diseases in order to develop it as a promising drug for pharmaceutical and therapeutic distribution.

24. *Old MacDonald's Lies: The Truth Behind an Omni Diet*

Mia Ingrid Cabotaje and Adrienne Mathews, Valencia College

This research discusses the benefits of a vegan diet in relation to its impact on one's health, the environment, and the animals, especially when compared to the Standard American diet. A vegan diet greatly reduces the negative health effects of the overconsumption of meat including, but not limited to obesity, cancer, hypertension, gallstones, strokes, and heart disease. It is less environmentally-damaging than a standard American diet as the livestock sector is one of the greatest source of freshwater use and pollution; it is the leading cause of deforestation and is among the largest sectoral sources of greenhouse emissions. It provides an ethical alternative to the standard American diet as 56 billion animals are killed every year. The purpose of this research is to persuade the audience that a vegan diet is the most healthy diet, the most sustainable diet and the most ethical diet.

25. *What is the Role of Cultural Competency on Implicit Bias and Health*

Tomaiah Bradley and Latarsha Chisholm, University of Central Florida

Previous research has established that healthcare providers exhibit implicit bias, which can influence the health outcomes of minorities. Nevertheless, less is known about strategies that may mitigate/eliminate implicit bias among healthcare providers. The purpose of this systematic review is to examine the implicit bias literature to identify effective strategies to combat implicit bias in healthcare settings. The database search resulted in 329 articles. Ninety-eight articles were removed because they were duplicates. Two-hundred and thirty-one articles were independently reviewed by two investigators. The final sample included 10 articles. We synthesized this review by using the PRISMA. A protocol was created by establishing an inclusion criteria, exclusion criteria, and list of relevant databases before beginning this systematic review. To ensure we encountered all relevant articles we searched five databases including EBSCO, Pubmed, CINAHL, ProQuest, and PsychInfo. There was also a keyword search on Google Scholar to find any relevant articles that may not have been published. Five studies identified cultural competency training as a key strategy to reduce implicit bias. Additionally, one study documented the use of the implicit bias test to help healthcare providers identify biases. Implications: Cultural competency training has a positive effect on healthcare. When clinicians receive training in cultural competency they are less likely to exhibit racial bias. Those who do not receive training on cultural competency are likely to attribute health disparities to factors other than racial bias.

26. *Steady-State Droplet Evaporation: Laplace Pressure Contributions to the Evaporation Rate of Microdroplets on Heated Surfaces*

Chance Brewer and Shawn Putnam, University of Central Florida

One of the benefits of understanding interfacial heat transfer is that it helps improve the thermal management of systems and devices that need to operate under specific temperature conditions. Actively controlling these conditions using droplet evaporation techniques requires an understanding of the mechanisms that drive the evaporation and heat transfer process. Recent studies on droplet evaporation in this lab have described the relationship between droplet contact angle and evaporation rate. The proposed project looks to determine, using visible and infrared imaging, what effects an increase in Laplace pressure has on the evaporation rate of 50 μm radius pinned water droplets on heated surfaces. New surface modifying techniques formulated by the PI were created to simplify the construction of sample surface features that fix the droplet's contact radius and allow for steady-state operations. Along with these new techniques, the use of smaller sized droplets is expected to produce experimentally found evaporation rates that are closer to what current numerical models predict because the increase in Laplace pressure will make the evaporation coefficient prediction less susceptible to error. The results from this project will lead to a better understanding of the mechanisms that drive droplet evaporation and more specifically will characterize a relationship between Laplace pressure and evaporation rate. Utilized in industry, this can lead to more efficient temperature controlling regimes such as spray cooling found in electronic chips.

27. *Fighting Fire with Fire in the Uprising of Antibiotic Resistance: Extracting Secondary Metabolites from Marine Bacterium, Zooshikella sp., for Antibiotic Isolation and Purification*

Jessica Dobbs, Seth Hale and Eric Warrick, State College of Florida Manatee-Sarasota

Antibiotic resistance has been a growing problem over the last few decades, which many scientists attribute to the misuse and overuse of antibiotics. Combined with the lack of new antibiotic discovery, the world is facing a global crisis in combating bacterial infections. In response to this need for a new weapon in the fight against antibiotic resistance, this research looks to discover novel antibiotic-producing bacteria as part of a collaboration with Yale University's Small World Initiative (SWI). Initial work [deleted research] included isolating bacteria from local marine soil samples and determining which produced antibiotics against selected strains of ESKAPE safe bacteria. Those organisms were then identified via *16S rRNA* sequencing, through [deleted "of"] which previously-discovered organisms were eliminated. The results left a single organism, *Zooshikella sp.*, which had shown antibiotic production against gram-positive organisms, *Bacillus subtilis* and *Staphylococcus epidermidis*. [deleted "The"] Continued research has focused on extracting secondary metabolites from *Zooshikella sp.*, which will then be used to further isolate antibiotic compounds. Various techniques, including rotary distillation, thin layer chromatography (TLC), and multiple methods of column chromatography have been performed during extraction. Solvents used for extraction include: hexane (least polar), acetone, ethyl acetate, and ethanol (most polar). Initial TLC results suggested multiple compounds ranging from polar to highly polar. Using these results, research is currently being done to optimize column chromatography conditions for successful compound fractionation, with compound purification to follow.

28. *Variation of Extraction Conditions for Selective Lanthanide Chelation Utilizing Tripodal CMPO Ligands*

Emily Connor, Andrew Mulville, Alyssa Henry, Shannon Biro and Eric Werner, University of Tampa

Lanthanide (Ln) metals are useful in many important products in today's world such as rare earth magnets, batteries, as well as fiber optics. The favorable functionalities of Lns make them valuable and very desirable. Extraction of these metals in an efficient and economical manner is critical for future alternative energy applications and obtaining Lns from raw sources. The many applications Lns provide in technology today coupled with the need for selective extraction promote the interest in furthering our basic knowledge in the area of rare earth metal extraction. Our group has used TREN-capped carbamoylmethylphosphine oxide (CMPO) ligands for Ln sequestration via standard liquid-liquid extraction methods. We have attempted to understand how variations in both the ligand structure and in the extraction assay itself affect the selectivity seen for Ln extraction. Previously, our group has found that in moderate ligand to metal ratios utilized during the assay, a phenyl substituted derivative of the original TREN-capped chelator showed an extraction preference towards Lns in the middle of series, specifically with

gadolinium(III) selectivity. In higher ligand to metal ratios, this phenyl derivative preferentially extracted larger versus smaller Lns. This presentation will focus on further attempts toward understanding the tendencies of this ligand system through changing variables within the extraction protocol (e.g., concentration, temperature), and to use the resultant trends to optimize selective Ln extraction.

29. *An Investigation of Dual Inclusion of Nanoparticles in the Construction of Flexible Armor*
Reinaldo Dos Santos and Hassan Mahfuz, Florida Atlantic University

Traditionally, body armor has been limited to protection of the head and torso from ballistic projectiles using ceramic plates and other back-up layers. The goal of this research is to develop flexible body armor that could provide protection for extremities like hands, arms, neck, etc. Protection of extremities can reduce the number of casualties due to deep laceration injuries and infection. The development of this flexible armor has countless applications throughout the military, law enforcement, first responders, and even healthcare. The first step is impregnating Kevlar fabric with a matrix of silica nanoparticles and carbon nanotubes. A cross-linking fixative polymer, glutaraldehyde, will then be added to develop amide linkages between the nanoparticles and the Kevlar. Our goal is to test the strategy of dual inclusion of nanoparticles to improve performance. We believe that through this dual inclusion strategy, impact energy required to penetrate the armor will be raised.

30. *Political Ecology of Medicinal Plant Use in Rural Nepal: Globalization, Environmental Degradation, and Cultural Transformation*
Emily Dovydaitis and Rani Vajravelu, University of Central Florida

Prior to the advent of biomedicine, rural communities in Nepal relied on phytochemically active compounds in medicinal plants as their primary source of medicine; however, ethnobotanical practices have shifted over time due to economic, environmental, and sociocultural stimuli. Findings from 2016 fieldwork conducted in Dumrikharka, Nepal and Tutung, Nepal are compared to existing literature to describe the political ecology of medicinal plants in rural Nepal. Anthropogenic climate change threatens individual plant species and ecosystem biodiversity. Globalized markets unabated by weak conservation programs place increasing demands on medicinal plants. As indigenous plants become overharvested and more difficult to access, Nepalis incorporate non-indigenous plants into the local pharmacopeia. Novel use of non-indigenous plants illustrates both the dynamic, resilient nature of traditional medicine systems and a loss of biodiversity. Social changes, including outmigration to other countries, notions of modernity, and preference for pharmaceutical drugs, reduce potential candidates to learn and preserve ethnobotanical knowledge. Waterborne pathogens caused by inadequate sanitation infrastructure continue to endanger Nepali populations. The dearth of clinical facilities throughout rural areas, when coupled with the decline ethnobotanical knowledge and traditional healers, poses a gap in healthcare jeopardizing vulnerable, marginalized populations. These factors reinforce the unequal distribution of resources in one of the world's poorest countries, buttressing power inequalities and economic inequities.

31. *Foraging Depth of Whale Shark Opsins*

Regan Ewald and Jeffry Fasick, University of Tampa

Data is currently lacking on the foraging habits of *Rhincodon typus*, whale shark, due to their migration patterns and their rarity. Predicting foraging grounds in the attempt to find more whale sharks is limited and can be a long waiting game. Determining a preferred foraging level would improve the accuracy of location predictions, saving both time and money. Retinal visual pigments, rhodopsin and melanopsin, match foraging depths of marine animals. NCBI Blast and CLC Viewer were used to locate and examine rhodopsin and melanopsin sequences of *Rhincodon typus* within the genome. The genes were cloned and expressed to test absorbance maxima of rhodopsin and both absorbance maxima and deactivation kinetics of melanopsin. The resulting sequences were analyzed at positions 83, 292, and 299. Both absorbance maximas of *Rhincodon typus* matched terrestrial animals with rhodopsin at 500 nm and melanopsin at 480 nm. Melanopsin was predicted to deactivate similarly to vertebrates with color vision. Although, *Rhincodon typus* is a rod monochromat which lacks cones, the deactivation kinetics are predicted to be different from other rod monochromats e.g. whales.

32. *Gait Disturbances as Predictors of Dementia of the Alzheimer's Type (DAT)*

Paula Paseiro-Nunez, Genevieve Ferguson, Sabrina Cajuste, and Chorong Oh, Florida State University

Dementia are a group of symptoms that lead to a gradual decline in intelligence, memory, and communication. Dementia of the Alzheimer's Type (DAT) disrupts everyday life tasks, such as walking. Individuals with DAT have greater gait impairments than individuals going through a normal aging process. Hence, studying abnormal gait behavior in DAT patients may assist in early diagnosis of dementia. The purpose of the study is to measure changes in gait under different levels of cognitive load in DAT over a year and to find possible predictors of DAT based on the gait changes. In the experimental single subject design, all participants will walk across the GAITRite Portable Walkway System, a 16-foot mat with 18,432 sensors embedded to the GAITRite software to calculate and record gait characteristics. The dual-task walking trials will be under three cognitive loads: no cognitive load (walking without talking), low cognitive load (counting numbers in regular sequence while walking from a random starting point), and high cognitive load (generating as many words in a specific category as they can). The participants' cognitive functions will be assessed using the Dementia Rating Scale-2 (DRS-2). The information will serve as a baseline to examine the effects of the dual tasks more precisely. Detecting gait disturbances in DAT patients may be useful in early identification of the disease and can result in more effective treatments that help reduce DAT symptoms.

33. *Deconstruction of the Romantic Comedy in Crazy Ex-Girlfriend*
Mary Crivelli and Barry Mauer, University of Central Florida

This research seeks to unpack the narrative of *Crazy Ex-Girlfriend* using semiotics, particularly through Roland Barthes' work in *Mythologies* and *A Lover's Discourse*. The goal of this research is to demonstrate long-form storytelling's ability to interrogate and revisit criticism through consideration of *Crazy Ex-Girlfriend*'s role as an ongoing satire of romantic comedies. This research culminated in a thesis discussing the semiotic myths that *Crazy Ex-Girlfriend* interrogates, and the process of deconstruction that occurs within the text. The thesis applied the "fragments" identified in Barthes' *A Lover's Discourse* to corresponding scenes in *Crazy Ex-Girlfriend*, with a focus on the musical nature of the show. This research also analyzed *Crazy Ex-Girlfriend*'s role as a deconstruction of the romantic comedy genre, and its position as either upholding or subverting the myth of the "crazy ex-girlfriend." Through applying *A Lover's Discourse* to an hour-long television drama (in this case *Crazy Ex-Girlfriend*), this research contributes to the field of cultural studies by considering network entertainment media from a critical perspective, and utilizing *A Lover's Discourse* in an innovative manner.

34. *An Assessment of Forest Structure Within Belize's Vaca Reserve*
Jesse Frazier, Donald Hodges, and Michael Andreu, University of Florida

Belize is a country well known for its active conservation efforts. However, funds for protection and research are still limited. Efforts are underway in the Vaca Forest Reserve, located north of the Chiquibal National Park in western Belize, to implement a community style management approach to ease management responsibilities for the Forest Department. Enacting and creating management plans for the region is a difficult endeavor. The Vaca Reserve, as with much of Belize, has been logged and its forest exploited for centuries. Little to no scientific data exist to aid in decision making. To implement a sustainable forest management plan, the forest structure and composition must be assessed. The objective of the research conducted in the summer of 2017 was to study forest structure to aid in the creation of the sustainable forest management plan. Over 6 weeks, 122 1/10-ha plots were measured. Plots were assigned structure categories such as recently logged, wind throw events, relatively undisturbed, and heavily disturbed based on a qualitative assessment. Other structural components were measured such as canopy cover, basal area, and trees per hectare. Presence of species of commercial significance such as Spanish cedar (*Cedrela odorata*) and fish-tail Xate (*Chamaedorea ernesti-augustii*) were also recorded. This research fills gaps regarding the Vaca Reserve, but in a broader sense will contribute to the overall scientific knowledge related to forest dynamics and composition of Central American tropical forests.

35. *Title and abstract removed per request of the author*

36. *Phosphorylation of Anabaena Sensory Rhodopsin Transducer towards Putative Signaling State Mediated Protein-Protein Cross Talk*

Aakriti Gautam and Vishwa Trivedi, Bethune Cookman University

Novel tetrameric anabaena sensory rhodopsin transducer, ASRT [125 aa monomer] is linked to photo-mediated signaling from sensory rhodopsin, ASR in *Anabaena* PCC 7120. Blast search matches ASRT to others of unknown function. Often these homologues are termed as “DUF”, Domain of Unknown Function. This DUF1362 family is widespread over microbial populations. Our bioinformatics analysis has revealed a phosphor transfer motif, although the signaling state/mechanism of ASRT is obscure. Preliminary data with efficient donor, acetyl phosphate, acP using fluorescence quenching of lone Trp-9 suggests that ASRT is involved in phosphorylation. We noticed two notable consensus phosphor transfer residue motifs in ASRT, SDKE [53-56] and TRLD [105-108]. Acetyl phosphate has been used as phosphoryl donor in vitro to numerous response regulators [CheY/PhoB/OmpR]. The extent of quenching in the presence of Mg²⁺ by increasing concentration of acP yielded lower KM [~21mM] compared to others. It is likely that proximity of phosphor accepting residue(s) to Trp-9 is not comparable to others. Interestingly the ASRT mutant E56Q and D108N indicates the loss of phosphor transfer. We hypothesize that putative position in ASRT phosphorylation will destabilize the tetrameric assembly. This motif is in close proximity to receptor binding deduced by CABS docking. Phosphor transfer data with plausible impact on tetrameric stability will be discussed along with ongoing progress to clone and characterize a Serine Threonine Kinase, STK 3169 gene in signaling pathway. [Supported by NIH-NIGMS SCORE-SC3GM113803 award to VT]

37. *The Prevalence of Sex Trafficking in the United States*

Kiersten Klein and Shinwoo Choi, University of North Florida

The objective of this research is to bring attention to the largest component of modern day slavery known as sex trafficking. The research on sex trafficking for this paper focuses on the prevalence of the commercial sexual exploitation of children. This research paper evaluates what sex trafficking is, the statistics on who the population affects, how it starts, the oppression and discrimination that follow victims and survivors, the laws and services provided to victims, and the social work implications necessary for combatting this issue in the United States. The study of sex trafficking is new and under researched, however sex trafficking is dated back to colonial times in United States history, affecting many women and children (Johnson, 2012). It is determined that further research and services are necessary in defending and assisting the children victim to sex

trafficking, as well as those who have survived sex trafficking and are readjusting to life after. Better communication and evaluations of warning signs are crucial within the healthcare system, and among the general public to prevent and protect children victim to sex trafficking. Further steps toward providing necessary care for victims and survivors is a legal, social, and medical priority for social workers when working with this population.

38. *DNA Barcoding for Plant Taxonomy*

Alejandra Gomez, Justin Santiago and Nalini Odapalli, Valencia College

DNA barcoding is a method with which a species can be identified based on a target gene segment of the organism. *rbcl* has an average of 500-800 base pairs and was the target gene segment that was studied. Leaf samples of various plant organisms were collected and processed using DNA isolation, PCR and gel electrophoresis. The amplified gene was then sent to GENEWIZ for the sequencing process required in the final barcoding step. Once the DNA sequence was determined, a BLAST program was used to create a phylogenetic tree for the organism in question and its closest living relatives.

39. *Inheritance of Laterality in the Fruit Fly Drosophila melanogaster*

Samantha Deleon, Rachel Angulo, Kailyn Belle Isle, Amanda Escalera, Fabian Ramos, Jovelyne Charles, Danielle Siddons, Sparkel James, Gabriela Garcia, Lillian Jiron, Emily Londono, Kyra Carter, Ashley Franklyn and Michael Robinson, Barry University

Handedness is one expression of laterality, that is the preference of an organism to use one side of its body. Laterality exists in many animal taxa and is probably strongly related to neurology which makes laterality an interesting model to study. We investigated laterality in wingless fruit flies (*Drosophila melanogaster*) using Y-mazes and allowing individual flies to turn left or right multiple times. As seen previously, there was a small preference for left-turns during the first trial (91 left vs. 74 right; binomial test: $p = 0.026$). We then scored flies with more than one trial with an index of the proportion of left-turns (i.e., always turned right = 0, always turned left = 1). The mean index across flies indicated a significant tendency to turn left (mean \pm SD = 0.538 \pm 0.223; one-sample t-test: $n = 140$; $p = 0.046$). We allowed flies with known turning indices to mate and determined the turning indices of their offspring. We found that laterality had a narrow sense heritability of 0.216. This is similar to the lowest heritabilities observed for some physical traits in *D. melanogaster*. We conclude that individual flies have a preferred laterality, although it varies across the population. A significant portion of this is controlled by genetics, but environment or random developmental processes influence laterality, as well. (Funding was provided by the NIH-NIGMS MBRS RISE: R25 GM059244-17 awarded to Barry University.)

40. *Public Relations and the Color Line: Discovering the Forgotten Names and Faces in the Profession*

Gino Cyrus and William Berry, Bethune-Cookman University

People who work in Public Relations have influence in all areas of society -- from the White House and the Pentagon, to the boardrooms of corporations, and to everything from healthcare, to entertainment, to educational and social services. They help to build and maintain the image and reputation of both individuals and organizations. The purpose of this study was to determine the extent to which African Americans have helped to lead the growth and development of Public Relations as a profession. Although this sector of the population has contributed significantly over the years, aside from Moss Kendrix, most of the African American leaders in Public Relations are unknown and typically go unacknowledged. Using mixed methods (historiography, interviews, and surveys), this study found that not only do books, academic studies, and other publications about the field overlook African Americans, but also practicing professionals are unaware of their existence. The study interrogated this research question through the lens of cultural studies theory, symbolic interaction theory, and glass-ceiling work place theory. A review of the literature showed that while founding figures such as Ivy Lee, Arthur W. Page, and Edward Bernays have been recognized prominently for their work, African Americans such as Ofield Dukes, Inez Kaiser, Kendrix, and others have remained hidden figures. This study contributes to academic discourse by helping to restore the missing pages of Public Relations history.

41. *Disease Avoidance Mechanisms Affect Women's Preferences for Symmetrical Male Faces*
Alexandria Gonzalez and Sarah Ainsworth, University of North Florida

Two experiments tested the hypothesis that situational pathogen cues would increase mate preferences for facial symmetry—a characteristic thought to signal immunocompetence. Participants were primed with disease cues and asked to select the more desirable of two virtually identical faces or non-social stimuli. In each case, one image of the pair was highly symmetrical. Exposure to disease cues increased preferences for symmetrical opposite-sex targets, an effect that was stronger among women than men (Experiment 2). No effects were observed for same-sex targets (Experiments 1 and 2) or non-social stimuli (Experiment 1). These experiments conceptually replicated research reported in Little et al. (2011) and contribute to the literature on disease avoidance and mate preferences by (1) offering evidence that disease avoidance may be associated with stronger preferences for facial symmetry in female perceivers than male perceivers; (2) suggesting that effects are domain-specific, and apply to social stimuli but not non-social objects.

42. *Examining Characteristics of Worry in Relation to Depression, Anxiety, and Suicidal Ideation*

Julia Gorday, Megan Rogers and Thomas Joiner, Florida State University

Pathological worry is defined as a worry that is excessive, pervasive, and uncontrollable. This form of worry has been related to varying psychopathologies such as: anxiety, depression, and suicidal ideation. What less is understood are the specific features of worry that confer risk for these mental health conditions. The current study examined associations between four characteristics of worry—frequency, duration, controllability, and content—and self-reported symptoms of depression, anxiety, and suicidal ideation. Each of these features of worry have been examined within the context of generalized

anxiety disorder (GAD), of which pathological worry is a main component, but has not been replicated and extended in a community sample. The sample consisted of 548 community participants (53.6% female, 45.4% male, 0.5% transgender male, 0.2% transgender female, and 0.2% gender non-binary), aged 19 to 98 years ($M = 36.54$, $SD = 12.33$), who were recruited via Amazon's MTurk and completed self-report questionnaires online. Each of the participants was compensated with \$2.00 following the survey. Results indicated that controllability of worry was uniquely associated with depression, anxiety, and suicidal ideation, above and beyond other characteristics of worry, demographic variables, negative affect, and future-oriented repetitive thinking. Frequency of worry was also positively related to depression. Overall, these findings indicate that controllability of one's thoughts may serve as a key transdiagnostic factor that confers risk for a variety of psychopathology-related concerns. Future research should examine the relationships between worry controllability and anxiety, depression, and suicidal ideation, within clinical samples and utilizing a variety of methodologies.

43. *Xylan Binding of Anabaena Sensory Rhodopsin Transducer: Link to Novel Small-Molecule Binding Domain Family Anabaena Sensory Rhodopsin Transducer [ASRT]*
Tashmay Jones and Vishwa Trivedi and Renee Walker, Bethune Cookman University

ASRT small unique protein functions as signaling molecule downstream of cyanobacterial sensory rhodopsin. Orthologs of ASRT have been detected in several bacteria are termed member of "DUF", Domain of Unknown Function family. Blast search matches the ASRT to other DUFs, with 84% similarity protein in the myxobacterium *Polyangium cellulosum* and 72% similarity protein in the legume symbiont *Sinorhizobium meliloti*. Sequence profile searches tagged ASRT as novel superfamily of β -sandwich fold domains. Additionally, this superfamily also provided insight to evolution of carbohydrate binding modes in β -sandwich domains with very different topologies. However, the signaling state/mechanism of ASRT is obscure. We have performed ASRT binding assay to insoluble fraction of xylan based on the myxobacterium *Polyangium cellulosum* origin and observed a specific interaction. Interestingly this binding is highly influenced by presence of divalent cation, preferably Ca^{2+} . Binding kinetics revealed the completion of approx 80% binding within 5 minutes at ambient binding conditions. Xylan binding was further supported using Glutathione-S-Transferase, GST-fused ASRT and measuring lost GST activity in soluble (unbound) fraction after binding to insoluble xylan fraction. Electrostatic interaction plays a critical role in xylan-ASRT interaction as probed by increasing salt concentration during binding studies. As a consequence we propose that this DUF 1362 family defines a novel family of prokaryotic small-molecule-binding domains that function in a wide range of contexts, predominantly as a carbohydrate sensor. [Supported by NIH-NIGMS SCORE-SC3GM113803 award to VT]

44. *How Online Searches Affect Attitudes Toward Mental Health Treatment: Preliminary Results*
Forrest Harrison, Andrea Brunetti, Hannah Cox, Gabrielle Espert, Branden Rivera, Cynthia Gangi and Erica Yuen, University of Tampa

This study investigated how individuals utilize the Internet to search for mental health information. Participants (n = 139) were randomly assigned to one of four 20-minute online activities. Experimental Group A conducted an online search to find suggestions for coping with anxiety for oneself. Experimental Group B conducted an online search to find suggestions for coping with anxiety for a friend. Control Group A used Google Maps to answer questions about the local area, and then later were asked how they would cope with experiencing anxiety (without an Internet search). Control Group B also used Google Maps to answer questions about the local area, and then later were asked what suggestions they would give to a friend experiencing anxiety (without an Internet search). Upon completion of their assigned activity, participants completed a questionnaire assessing their experience, coping mechanisms they may endorse, and their perception about mental illness. Analyses found that conducting an online search for oneself led to greater optimism that therapy can be helpful for the self. However, doing an online search for oneself does not lead to greater likelihood that one will seek treatment. Participants are optimistic about the general treatability of an anxiety disorder, possibly because of the recent push for mental health awareness in the media. However, the public might not be properly educated on the types of treatment and their efficacy, which may hinder one's motivation to seek treatment.

45. *Barcoding Plants Using DNA*

Jasleen Hernandez and Nalini Odapalli, Valencia College, West Campus

DNA barcoding is an efficient method for identifying, classifying, or even discovering an organism's species. The motive of this experiment is to identify and classify plants in Orlando, Florida. The DNA of every plant species has a unique chloroplast *rbcl* gene that is amplified in order to analyze its sequence. This amplification is done by employing polymerase chain reactions on extracted genetic material, followed by sorting DNA according to its size and charge through gel electrophoresis. A gel resulting in 500-600 base pairs confirms the *rbcl* gene has successfully been separated, and the amplicon is ready to be sequenced. The sequence is then entered into databases for further analysis. DNA Subway, the database of choice, will help identify a sequence, and confirm the species of the plant by creating a phylogenetic tree. The Basic Local Alignment Search Tool is essential, for it compares the unknown sequence to similar sequences and reveals the relationships between many samples in the database. While DNA barcoding allows us to classify plants using the sequence, morphological characteristics will assure that results are precise. Upon interpreting the results of the experiment, the plant species identified will be properly documented in databases.

46. *Survey of Stilbene Analogues in Mesenchymal to Epithelial Transition on TNBC*

Megan Keller, Domingo Alvarez and Lyndsay Rhodes, Florida Gulf Coast University

Breast cancer makes up 6.8% of all U.S. cancer cases. According to the American Cancer Society, 1 in 8 women will develop invasive breast cancer in their lifetime. Breast cancer is divided into subtypes based on cell proliferation status and hormone receptor expression including estrogen receptor and progesterone receptor. Triple-negative breast cancer (TNBC) is a subtype that lacks these receptors which targeted therapeutics inhibit. These tumors are typically more invasive and often have a worse prognosis and overall survival.

Recent studies have shown that stilbenes, naturally occurring chemicals derived from plants, have had anti-carcinogenic effects. Previous research has shown some of these chemicals change the morphology of the cancer cells from a mesenchymal to an epithelial state. Eleven derivatives of this compound were tested for effects on cell migration and morphology. The wound healing assay is used to study directional cell migration in vitro. Images were taken at 0 and 24 hours to determine the effects the compounds have on cell-to-cell interactions. TNBC is known to metastasize at a higher rate than other subtypes, thus a decrease in migration would indicate a potential decrease in the cells' ability to metastasize. Results indicated stilbenes 8 and 9 ultimately killed the cells within 24 hours, however evidence of the reversal of the mesenchymal TNBC cells back to their epithelial form was evident in surviving cells. Stilbene 10 appeared to induce migration. To deduce the mechanisms behind this process, we plan to perform PCR, western blot assays, and morphology imaging using phalloidin.

47. *Not on My Lawn: The Effects of Minnesota's Phosphorus-Free Fertilizer Law on Surface Water Quality*

Andrew Hutchens and Zach Raff, University of Central Florida

This paper examines the effects of Minnesota's phosphorus-free fertilizer law on surface water quality, which was enacted state-wide in 2004. The Minnesota law was the first suburban phosphorus-free fertilizer law passed in the country, and is unparalleled in its stringency. The law completely bans the use of phosphorus fertilizers for yard maintenance; in fact, even sales are prohibited, unlike many state laws that mimic the original. The analysis examines the effects of the law using publicly available surface water quality data from 2000-2008. Specifically, the analysis examines the concentrations of total phosphorus (mg/L) in surface water quality for a pre- and post-period following the law's passing, aggregated at the county-level. We are able to identify a causal estimate of the law's effectiveness using a natural experiment, where Wisconsin surface water quality serves as a reasonable control sample. Empirical results show that as a result of the Minnesota law's enactment, phosphorus concentrations in Minnesota surface waters decreased by 0.096 mg/L, on average. These results show that enacting a similar, equally stringent law in Wisconsin would yield significant economic benefits.

48. *Loss of Neurofibromin During Development Increases Grooming in Drosophila*

Chevara Joseph, Lanikae King and Seth Tomchik, Florida Atlantic University Honors College

NF1 is a genetic disease that causes benign tumors, cognitive impairment and hyperactivity. Fruit flies, *Drosophila melanogaster*, share a homologous *nf1* gene; moreover, *nf1* mutants exhibit hyperactive behavioral phenotypes including sleep-loss at night and excessive grooming. This study proposes experiments that will help recognize the developmental stages that are most affected by the loss of NF1. Further, this study proposes experiments that will help identify cell types in the Ventral Nervous Cord (VNC) that are associated with excessive grooming. We found that the effects of the loss of NF1

corresponded to late developmental stages as the nf1 mutants groomed significantly more than controls. Further, we found that in order to identify cell types the VNC was most critical rather than the brain. In future studies, we will use calcium imaging to observe neuronal activity in the cell types we identify in the present study. Established by these results, the grooming phenotypes will provide a model that will aid in the comprehension of the effects of the loss of NF1 and how the loss of NF1 interferes with the development of neural circuits pertaining to behavior. Our results will further our understandings involving which stage of development is the most affected by the loss of NF1 and provide insight into which neural circuits may be most sensitive to the loss of NF1. Moreover, this study will bring forth awareness of how the development of cognitive symptoms in neurofibromatosis type 1 patients arise.

49. *Self-Monitoring and Synchrony: Individual Differences in Communicating with New Acquaintances*

Arielle Kantor, Jordan Kessler and Christopher Leone, University of North Florida

Synchrony is the extent to which non-verbal behavior between individuals matches. Synchrony is positively related to factors such as rapport (Tickle-Degnen & Rosenthal, 1990) and psychotherapeutic outcomes (Ramseyer & Tschacher, 2014). We are focusing on self-monitoring differences in synchrony. High self-monitors are motivated to be socially appropriate and can skillfully adapt their behavior in social settings (Fuglestead & Snyder, 2010). Low self-monitors are less adaptable than high self-monitors because they are motivated to be personally consistent (Fuglestead & Snyder, 2010). We expect the greatest synchrony between pairs of high self-monitors and the least synchrony between pairs of low self-monitors. Data collection is ongoing. Participants will be instructed to have a conversation regarding their major choice and after college plans. We chose a non-controversial topic to control for the moderating effects of affectivity on synchrony (Tschacher et al., 2014). Video recordings of interactions are being uploaded to the Motion Energy Analysis (MEA) software to calculate levels of synchrony within pairs (Ramseyer, 2008). Following their interaction, participants will complete the 25-item Self-Monitoring scale (Snyder, 1974) and the 23-item Self-Consciousness scale (Scheier & Carver, 1985) as a possible third variable. In the future, we plan to assess self-monitoring differences in synchrony as a function of relationship types (e.g., friendship, romantic relationships) or interactional topics (e.g., controversial versus non-controversial) because affectivity moderates synchrony.

50. *Personality and Team Roles*

Tia Larsen-Calcano and Albert Boque, Embry-Riddle Aeronautical University

An effective leader possesses the traits and knowledge to improve team performance thus proving themselves essential and promoting research on how to create or choose an effective leader. In some situations, like management, a leader is a chosen position, but not always is this the case. Leaders emerge based off need and complete tasks like assigning roles, communication visions and objectives, and setting goals (McGrath, 1984; Conger & Kanungo, 1988; Hackman, 1990). Research has found that Big 5 personality traits are correlated with team performance and likeability by other team members (Neal, Yeo, Koy, Xiao, 2012; Walumbwa, & Schaubroeck, 2009). The Big Five personality traits

have demonstrated a relationship to cognitive ability (IQ performance, fluid intelligence, and crystallized intelligence) with a model created in 2004 (Chamorro-Premuzic & Furnham, 2004). The goal of this study is to identify if individuals that are identified as an emerging leader rate highly in any of the Big 5 personality traits or emotional intelligence traits. Thus, 10 groups of 3 students enrolled in summer classes at a private university were brought into a quiet lab and given the 50-question IPIP Big 5 personality scale and the Trait Emotional Intelligence questionnaire (TEIQue) and instructed to build a Lego set for 30 minutes. At the end of the 30-minute period, participants rated who they believed to be the leader.

51. *Too Much?: A Narrative Criticism of Suicide and Depression in "13 Reasons Why"*

Danielle Lucas and Jelena Petrovic, Stetson University

This study examines the hit Netflix series "13 Reasons Why" and the messages presented about teen suicide and depression. The show is set in a suburban high school and deals with the trials and tribulations teenagers face in their daily lives such as cyberbullying, friendships, and relationships. The show became the most tweeted about show of 2017, showing its popularity among the Millennial and Generation Z population. Data was collected from specific scenes involving main character, Hannah Baker, in the thirteen episodes released in season 1 of the series. Scenes that were not important to the narrative of mental health, were excluded from this study. It was analyzed through a rhetorical narrative criticism perspective. The narrative criticism will look at the themes, metaphors, and use of character development in order to make a judgement on what is being presented to the audience. Many themes emerged from the data suggesting the use of narratives to romanticize suicide and depression. The romanticism of these things causes people to look at depression and suicide as a trend, rather than a mental illness.

52. *Nicotinoid Cross Resistance in Drosophila: Preliminary Results*

Raymond MacKoul and Kimberly Rowland, Lynn University

Modern industrial agriculture has boosted crop yields resulting in staple foods becoming cheaper. This, however, is not without its downsides. The industry continually struggles with maintaining the balance between environmental safety and keeping ahead of natural selection as pests adapt and become resistant to the chemicals which make industrial agriculture possible. Knowledge of how pests adapt and how these adaptations to one pesticide can affect resistance to others is increasingly valuable in keeping crop yields high. To probe this, a model organism, *Drosophila melanogaster*, was exposed to two pesticides, nicotine and imidacloprid. Nicotine is a legacy pesticide no longer in common use (Bradbury, 2008). Imidacloprid is a modern derivative known as a neonicotinoid and is in widespread use, and resistance problems have already been documented (Allison, 2013). Both chemicals are known to lethally disrupt acetylcholine receptors at relevant

concentrations (Ihara, et. Al., 2017). Attempts were made to raise resistance to both chemicals via exposure through the food and test cross resistance. After about six generations of exposure to nicotine, lifespan assays indicated that resistance had increased. Unfortunately, resistance to imidacloprid was not achieved. The flies were unable to reproduce even when exposed only to very low trace amounts of the chemical. When the nicotine resistant flies were exposed to imidacloprid, no cross resistance was observed, the average lifespan was actually shorter than that of the control group exposed to the same dose. Further trials are needed for confirmation, but preliminary results indicate a lack of cross resistance among nicotinoids.

53. *The Efficacy of Bioven upon the Transition to Sublingual Delivery as an Alternative Route of Administration: Dissolution, Protein Analysis, and Contamination*

Chelsea Mathews and Mark Jaffe, Nova Southeastern University, Henry Schur, Acme Technical, Inc.

Bioven is a sublingual pain relief treatment of Rheumatoid Arthritis and Herpes Simplex I and II due to its anti-inflammatory and anti-arthritic properties. Bioven is also more specifically considered as a FDA tested homeopathic immune-modulator product, which helps naturally boost the body's immune system. This experiment is a thorough study on various components of Bioven, particularly the efficacy of dissolution for an average tab, the protein amount in a Bioven strip, and microbiological contamination. Essentially, the homeopathic product has a relative dissolution rate of 18.3 seconds in artificial saliva composed of 0.5 M concentration of carboxymethyl cellulose while it has a relative dissolution rate of 25 seconds in artificial saliva composed of 0.8 M concentration of carboxymethyl cellulose. Likewise, it was concluded that a film form of Bioven contained 13 $\mu\text{g}/\text{ml}$ of BSA and 0.4% absorbance of albumin at 560 NM reading per tab while the liquid form of Bioven contained 15 $\mu\text{g}/\text{ml}$ of BSA and 0.5% absorbance of albumin at 560 NM reading per tab. Using a Pierce BCA Protein Assay Kit, we observed that sublingual delivery in tab form is less effective because it does not adequately disperse albumin compared to the pure liquid representative of the intravenous delivery method of Bioven. In regards to contamination, no contaminations were found in the various tabs from different Bioven packages. These comprehensive results will contribute to further research on the optimization of the sublingual treatment in clinical studies concerning patients with Rheumatoid Arthritis and Herpes Simplex I and II.

54. *The Phenomenon of Oversharing and the Millennial Generation's Perception of its Existence*

Aubrianna Hall and Jelena Petrovic, Stetson University

This qualitative study analyzes how millennials view a change, if any, in their daily routine. It will also determine whether or not they consider what they post on social media as oversharing, as a result of an increase in the use of social media. This is important to bring to light the change in communication within our society. The data was collected using one on one in-depth, semi-structured respondent interviews. The participants of this study were twelve millennials between the ages of twenty and thirty years old who reside in a small southern state. Using phenomenology as the framework, the data was analyzed

with open line-by-line coding, and common themes emerged amongst the participants. This study aims to demonstrate how communication has transformed to primarily online, as the millennial generation has become more dependent on online communications.

55. *Gender Differences in Spanish Language Learning: Speaking Exams*
Mackenzie Harrington and Andrew DelMil, University of Tampa

Gender differences in second language acquisition may be due to biological differences, socially constructed beliefs. Some research offers evidence that there is little if any difference between males and females while others depict a clear gender gap (Kissau, 2006, Saville-Troike, 2005). Furthermore, research demonstrates that males are consistently underrepresented in world language classes across the globe (G. Andreou, F. Vlachos, and E. Andreou, 2005). This study investigates gender in proficiency on speaking exams among university students of Spanish at intermediate and advanced levels. The results may shed light onto the common belief that females are better than males at language learning.

56. *World Class Suspension Dynamics Simulator*
Kyle Morris, Max Kline and Dave Spitzer, Embry-Riddle Aeronautical University

The ERAU Motorsports team in Daytona Beach designs and builds a high caliber FSAE car for the Michigan competition each year. As part of the engineering curriculum at ERAU the team is mainly comprised of juniors and seniors who are mechanical engineering students studying high performance vehicles. In a way to strengthen the teams understanding of the dynamics of the vehicle, a group of students traveled to the OHLINS facility to utilize their advance 4-post shaker rig. A test plan was developed in order to achieve a wide range of usable data in the limited time allotted for testing. With assistance from the engineers at OHLINS the team was able to run 27 test with a range of input variables of the shaker rig while the team made adjustments to the dampers and spring settings on the car. Throughout the day the team found success in terms of mechanical tire grip with a 2% increase on the front and an impressive improvement of more than 20% on the rear. Perhaps the greatest take away from the day was the discover of the effect of friction in the moving components of the suspension. This understanding helped the team redesign the main pivot point of the suspension on the front and rear. The team is making plans to return to OHLINS with the new car with hopes of obtaining valuable data for design judging at competition.

57. *Do Whales Exhibit Distinct Daytime or Nighttime Behavioral Bouts?*
Danielle Beyes and Jeffrey Fasick, University of Tampa

Numerous studies suggest diel migration patterns amongst whales but fail to address behavioral patterns over a 24 hour period. Various species such as North Atlantic right whales, humpback, sperm, blue, sei, fin, and minke whales were analyzed and compared against published literature. Daytime and nighttime behaviors were observed for foraging and non-foraging behaviors, as well as resting periods. Vocalization rates for sei whales and sperm whales were identified and analyzed utilizing a student's t-test. Vocalizations were identified during daytime (sunrise to sunset) and nighttime (sunset to sunrise) and

call rates were recorded. Sei whale vocalizations off the Gulf of Maine occurred more frequently during daytime hours ($p < 0.03$). Off the coast of Japan (Kumano Coast and Ogasawara Island), sperm whale vocalizations suggested no significant differences between daytime and nighttime ($p > 0.74$).

58. *Comparative Study of Judicial Waivers in Florida, USA and Nigeria*

Julia Myron and David Forde, University of North Florida

In the USA, juvenile delinquency is defined as children participating in acts that would be considered crimes if they were over age 18. Since the 1980's many states have implemented mechanisms for juvenile delinquents to be prosecuted by a juvenile court in a less formal environment with fewer repercussions. However, prosecutors have the discretion to use what is called a "judicial waiver" to transfer juvenile delinquents to an adult court where they will face more serious repercussions for serious offenses. Purpose: The purpose of my research is to compare "judicial waivers" in Florida to that of an African country, specifically Nigeria. This research aims to provide information on the decision to waive a juvenile into an adult criminal court and to explain factors contributing to these decisions. Methods: This study uses comparative research methods in which official statistics from USA were compared to those from an African country. Results: After reading published documents such as government official statistics on crime and delinquency, we found that the state of Florida is one of the leading states in the prosecution of young people as a result of its "direct file system." Analyses revealed that factors such as race, sex and class were significantly associated with waiver decisions. In African countries, there were even more pressing issues due to the lack of adequate resources to maintain and provide a juvenile system to meet the needs of the youths. Conclusion: There is a need for juvenile justice reforms in USA and African countries.

59. *Advertisers Are Talking, But Are They Listening? Reaching Millennials in a Cluttered Market Place*

Augustinas Navickas and Salvador Victor, Bethune-Cookman University

Digital advertising is the fastest growing and leading advertising platform globally, leaving traditional media such as television, radio and print behind. Facebook, with more than one billion users, leads the digital advertising industry with more than \$83 billion revenue in the U.S. in 2017, compared to long-time leader television that registered \$72 billion the same year. The gap is expected to widen in 2020 when digital is projected to increase to \$114 billion compared to only \$73 billion revenue for TV. Alongside Facebook, social media sites such as Instagram, Snapchat, and Twitter have become second home for Millennials. Digital media outlets supported by user-generated content are attracting advertisers' investments to meet and interact with consumers in digital space. This study asked two research questions: do advertising dollars spent in the digital space lead to return on investment and do Millennials in other nations respond similarly or differently to digital advertising than those in the United States? Research methods

included a survey and a focus group. A survey completed by citizens of the United States, Lithuania, Spain, France, Nigeria, Mali, U.S. Virgin Islands, Bahamas, Zambia, Canada, Gambia and Sweden showed that Millennials across the world have different media habits than those born and raised in the U.S. The research suggests that the personalization method in advertising has to improve in order to consistently realize a return on investment when targeting Millennials.

60. *Dominance and Prestige Differentially Predict Feelings of Contempt*
Jennan Abduljaber and Sarah Ainsworth, University of North Florida

The current research examined how strategies for achieving social status relate to contempt, an emotion expressed toward individuals who are viewed as inferior to the self. Theory suggests two routes to attaining social status: prestige and dominance. Prestige motivation leads people to seek social status by developing skills that lead others to respect them. Dominance motivation leads people to seek social status through fear and intimidation. It was predicted that a dominance strategy would be positively associated with contempt because expressions of contempt toward others can serve to signal one's superior status. Prestige was not expected to be associated with contempt because expressions of contempt do not provide information about the extent to which the expresser possesses valuable skills or knowledge. Results across both studies indicated that dominance was positively associated with contempt, and prestige was negatively associated with contempt. These results provide evidence that differences in dominance and prestige are functionally linked to the expression of contempt.

61. *Examining the Role of Dyrk1a in the Development and Function of Inhibitory Neurons*
Rachel Levy and Zhong-Wei Zhang, University of Florida

Dual-specificity tyrosine phosphorylation-regulated kinase 1A (Dyrk1a) has a crucial role in brain development, and studies have revealed links to Down Syndrome (DS) and autism spectrum disorders (ASDs). The purpose of this study was to determine whether deletion of Dyrk1a alters the number and distribution of parvalbumin (PV) neurons in the cortex and innervation of neurons by PV neurons. The overall goal was to reveal how this genetic mutation plays a role in the development of ASD. Cre-lox technology was used to produce the genetically mutated mice carrying heterozygous deletion of Dyrk1a in inhibitory neurons. Perfusion was performed on both mutant and control mice at 8 weeks old. After perfusion, the mice were dissected, and their brains were sectioned and treated with immunofluorescent staining for PV and GAD67. They were then analyzed through fluorescent and confocal microscopy, with a focus on the cerebral cortex. Data analysis showed that Dyrk1a mutation disrupts the development of PV neurons. These trends were present in the density and size of PV neurons, as well as in the distribution of synaptic

terminals. This study could serve as a base for future research into ASD in humans, including potential for treatment and preventative measures.

62. *Waging Peace: The Cultural Politics of a Collaborative, Interdisciplinary Art Initiative*
Jessica Bissey, Allison Marino, and Jennifer Hamrock, Florida State University

The overall purpose of the Waging Peace Research Project is to examine the role politically charged art plays in the local Tallahassee community in regards to education and participation. Specifically, the project seeks to gauge the effectiveness of exposing K-12 students to artistic interpretations of current events in terms of their comprehension about the issues. Additionally, the project examines what inspires local artists, K-12 teachers, and participants to become involved, or shy away from, such group projects. The project will culminate into an interactive gallery walk of approximately 60 pieces created by local artists that reference the topic of Waging Peace. The majority of our research is conducted via two sets of in-person interviews, one set conducted per semester, with artistic participants about their previous involvement, interpretation of the project's purpose, and reservations about working with such varied members of the community. The interviews are then transcribed, coded, and analyzed for recurring themes to put towards our research. As of now, we have completed our first set of interviews and are working on identifying connections between the participant answers. At this point, our research has not yielded solidified trends or findings. However, we have begun to sense both a widespread reluctance for artist collaboration and an overwhelming enthusiasm for art with a political charge, for example. In sum, the Waging Peace Project is a systematic, yet creative, research experience that we feel withholds a multitude of potential and innovative investigative approaches.

63. *Wetland Community Alterations: The Replacement of Intertidal Marshes by Mangroves*
Hope Thelen, Nicole Bales and Michael Slattery, University of Tampa

With climate change, Florida has been experiencing a decrease in the amount of winter freezes allowing plant species to survive past their juvenile stage and migrate into more northern regions where they have not previously survived. *Avicennia Germinans*, the black mangrove common to the Florida Peninsula and the Keys, are increasing in numbers as they expand into a northern region of Florida that has previously been uninhabitable for this species due to winter frosts. Aerial images (2006 and 2016) of Cedar Key, FL were obtained from the Florida Department of Transportation and were imported to ArcGIS 10.4 . Wetland vegetative communities have been digitized to visually observe a comparison of high marsh, intertidal/low marsh, uplands, tidal creeks, sand bars/mudflats, and mangrove forests within the wetland sub-communities. An analyses of the digitized communities indicates an increase in the amount of mangrove trees that are present. The expansion of *Avicennia Germinans* appears most commonly on small marsh islands but can also be found along the fringe of the mainland, Cedar Key, FL. The initial portion of

this research is focused on the quantifying expansion of these mangroves, which appears to be occurring at the expense of intertidal/low marsh.

64. *Identification of a Homozygous Recessive Mutation Altering Pigmentation Patterns in Drosophila*

Michelle Afonso, Krishna Rentachintala, Jonathan Nguyen, Sara Moss and Elizabeth Jones-Mason, University of South Florida

Body pigmentation patterns in *D. melanogaster* are determined primarily by localized production of black, brown, and yellow-tan pigments. While the precise biochemical function remains unknown, the Yellow protein, encoded for by the yellow (*y*) gene, is known to be required for the production of black melanin. Therefore, flies lacking functional Yellow protein display a mutant yellow body color phenotype due to the absence of black melanin. Here *y* alleles were sequenced from wildtype and yellow mutant fly populations to identify the mutations responsible for the phenotype observed. Given the function of the *y* gene, loss-of-function alleles were expected to be found in the yellow mutant fly population. While mutations could also occur in regulatory regions or trans-acting factors, the coding region of the *y* gene was first sequenced. All *y* mutant alleles analyzed were found to contain an A to C mutation in the ATG start codon, whereas all control wildtype samples contained the functional ATG start codon sequence. This single nucleotide change is consistent with the previously described *y*1 allele and prevents translation of the full-length functional protein. Because all mutant alleles analyzed carried this loss-of-function mutation, our yellow mutant fly population is believed to be homozygous recessive for this allele. In addition to investigating *y* gene function, this study is being developed for integration into undergraduate Genetics laboratory curriculum.

65. *Effects of Fermented Cabbage on Markers of Inflammation and Composition of the Intestinal Microflora in Overweight and Obese Women*

Amber Baskin and Andrea Arikawa, University of North Florida

Despite constant efforts to reduce the prevalence of obesity in the United States, the overall rate of obesity among adult men and women in the U.S. is just above 36% as of 2014, with higher rates among women (38.3%). Overweight and obese individuals tend to have an altered gut microflora, more notably a decrease in species that confer health benefits. This study attempts to determine the relationship between the composition of probiotic species, including *Bifidobacterium* and *Lactobacilli*, while examining the implications this may have on biomarkers associated with obesity. This will be a parallel arm study where 39 women will be randomized into one of three treatment groups: a fermented vegetable group (n=13), a non-fermented vegetable group (n=13), and a control group (n=13), all otherwise following their normal diet. During this six week study, women in the vegetable groups will be asked to consume 1 cup of vegetables (140 g) per day for the entire duration of the study. Biological samples including feces and blood samples will be collected at baseline, before randomization and at the end of the 6-week

intervention. We expect to find that the fermented vegetables group will see improved markers of metabolic syndrome (blood pressure, insulin, adiposity) and inflammation, such as C-reactive protein (CRP), and lipopolysaccharide (LPS) in overweight and obese women. The anticipated findings are that the consumption of fermented vegetables will lead to an increase in communities regarded as probiotics. Limitations and implications will be discussed.

66. *Nanoparticle-driven Forward Osmosis Modification for Mitigating Membrane Biofouling in Algae Separation*

Rebecca McLean and Woo Hyoung Lee, University of Central Florida

There is clear motivation to use algae as a biofuel feedstock due to their rapid growth rate and high lipid to biomass ratio. The objective of the research is to evaluate the anti-biofouling effect of nanoparticle-driven forward osmosis modification using titanium dioxide (TiO₂) on an effective algal-biomass separation. The main hypothesis was that the elevated pH above 7.0 from algae photobioreactor will enhance biofouling resistance of nanoparticle modified membrane due to increased and negatively charged repulsion between algal cells and the FO membrane. Experiments were conducted using Aquaporin membranes (Sterlitech) which were coated with a solution of TiO₂ (0.42 g/L) and variable amounts of solvent. Through the duration of the experiments of roughly 48 hours, a cell device was used to subject the membrane to a 500 g/L solution of algae at cross flow velocity of 5 cm/s which was fed on top of the membrane. The draw solution (60.2 mS NaCl) flowed on the underside of the membrane causing a salt gradient to increase osmotic pressure, thereby increasing the dewatering of the algae solution. The weight of the algae solution was automatically monitored every 4 minutes, and indicated a decreasing weight over time. Additional parameter, including pH, conductivity, and contact angle were measured. A key finding indicated that there was a higher flux over time between experiments (6-9 L/m²/ h) than their respective controls (5 L/m²/ h). It will be necessary to further refine the coating process in order to ensure that the integrity of the membranes were not compromised which may have led to the increased flux.

67. *Binary Spin Lattice Thermodynamic Agent-Based Model*

Jennifer Campos, Kaitlyn Moor and Fred Browning, Palm Beach Atlantic University

The purpose of this study was to examine the relationships between two-spin state systems and how they interact with each other under different circumstances. By building an agent-based model of this system, the effects of negative absolute temperatures can also be observed. NetLogo was used as the platform to program, measure, and analyze thermodynamic variables such as temperature, entropy, total energy, and free energy within the binary spin system. The basic design of the model was developed to include two spin groups each containing two-spin state systems. In the model, the spin groups can be manipulated in several ways in order to observe different outcomes of the thermodynamic variables. Alterations such as size and/or localization of the spin groups' excited nuclei can be varied. On the Kelvin scale, negative infinity and positive infinity are close; however, in the model when one temperature is approaching the other, it begins to fluctuate until it changes to a positive or negative temperature. This is represented by the plots showing discontinuous temperature measurements between positive and negative

infinity. Along with temperature, other thermodynamic quantities were plotted by the model and matched the theoretical predications of a two-state system.

68. *Overcoming the Blood-Brain Barrier by Lactoferrin-modified Silica Nanoparticles*
Refat Chowdhury and Anthony McGoron, Florida International University

This project investigates the lactoferrin-modified of silica nanoparticles for size, polydispersity index, zeta potential, infrared absorption, and peptide conjugation that can optimize the Blood-Brain barrier (BBB) passage in healthy mice. It is hypothesized that PEGylated NPs conjugated with lactoferrin can mediate transcytosis better than PEGylated Si NPs alone. This is innovative as porous silica nanoparticles are synthesized that has surface modification to facilitate transport across the BBB. ORMOSIL (Organically Modified Silica) Np's have been used for chemotherapeutic, photodynamic, gene delivery and bioimaging applications and has improved pharmacokinetic properties, controlled release of the drug and lowered toxicity compared to amorphous silica. This project may be a stepping stone to an uncomplicated treatment of brain tumor and decreased risk of postoperative problems. Lf-Si nanoparticles will be synthesized, and a PEG will be added prior to conjugation to prevent RES accumulation. The synthesized nanoparticles will be characterized for size, polydispersity index, surface charge, and infrared absorption. Cytotoxicity and uptake will be checked for both astrocytes and HUVECs (Human umbilical vein endothelial cells) to determine functionality before animal studies. Cytotoxicity and uptake will be measured in the BBB model. Biodistribution in healthy mice will be measured. A sample size of 3, p value of 0.05 and student's t-test will be drawn to analyze between Lf (+) and Lf (-). If the goals and hypothesis are proven, the project can use this relatively cost-effective theranostics in human brain tumor.

69. *Preliminary study: Invertebrate Primary Cells on 3D Collagen Matrices*
Melinda Moffitt and Fatima Rehman, University of North Florida

The North Atlantic lobster, *Homarus americanus*, is a cold water invertebrate that is important fundamentally and commercially. Due to the lobster's anatomical and physiological complexity, the transepithelial transport processes for any nutrient, ion, or heavy metal cannot be studied with ease. Therefore, dissociation of the organs, i.e. hepatopancreas, antennal gland, into cellular suspensions that can form functional confluent monolayers *in vitro* would provide a new method to study the physiological functions of nutrient and ion absorption and transepithelial transport. Cell culture would provide a technical means by which complex invertebrate organs can be studied in relation to the transcellular transport properties of the epithelial cells that comprise the organs. In this preliminary study, 3D culture techniques, cell dissociation techniques, cell viability, and cell density seeding were investigated to develop the best method for a successful crustacean cell culture with a functional confluent monolayer. It was found that enzymatic dissociation, rather than mechanical dissociation, yielded more viable cells that were

likely undergoing mitosis, forming functional junctions with neighboring cells, and pseudopods on 3D collagen substrata. Cell density also plays an important role in the development of a confluent monolayer, in which cells must be seeded densely to form functional junctions. With these investigations, the functional analysis of nutrient absorption in cultured monolayers arranged on a nylon screen placed in an Using chamber that can separate the monolayer's apical and basal membranes can tell us the nature of solute movement across the cell layer and what processes regulate those transport events.

70. *The Relationship Between Cell Phones and Levels of Anxiety and Academic Performance*
Dominique Dubon and Paul Conway, Florida State University

Research on work-life balance suggests that separating work from other daily activities can be beneficial for both productivity and well-being. But modern technological innovations have blurred the line between a work and social life. A recent study by Clayton, Leshner, and Almond (2015) exhibited withdrawal-like negative effects of restricting mobile phone access on anxiety and cognitive performance. The 41 participants were unable to answer their ringing smartphones while completing a word search task, and subsequently, their heart rate, blood pressure, and anxiety increased, and cognitive performance also suffered. This suggests that when participants are deprived of their mobile phones, the negative affect could in turn increase the likelihood of self-interruptions. Thus, almost paradoxically, restricting mobile phone usage might impair students' learning abilities and attainment of study goals. With various research being done on generational differences, work life fusion, and physiological responses of cell phone use, my study approaches this topic from a different angle. I have am looking at how the management, promotion or prevention of technology use in a classroom affects a student's productivity on given tasks. If the results find that restricting cell phone use increases anxiety and reduces current mood on a larger scale, it would suggest that the management of the classroom environment may require change rather than restriction of technology.

71. *Integration of Augmented Reality and Neuromuscular Control Systems for Remote Vehicle Operations*

Adam Berlier, Bradford Brown, Timothy Christovich, Taylor Hester, Cameron Monk, Victor Huayamave and Eduardo Divo, Embry-Riddle Aeronautical University

Traditional remotely operated vehicles (ROV's) require extensive setup and unnatural control systems. By integrating wearable devices as a control system, operators gain mobility and situational awareness to execute additional tasks. Analysis is conducted to understand if wearable devices connected by Internet of Things (IoT) provides a more responsive and natural human-in-the-loop control system for ROV's. A gesture recognition armband is worn around the operator's forearm, reading surface electromyography (sEMG) signals produced by their muscles, turning hand signals into electrical signals. An Augmented Reality (AR) headset overlays supplemental information as augmented images on a heads-up display (HUD). This allows the operator to naturally view information provided by a ROV without losing situational awareness. IoT enables each component of the system to transmit and receive data over a network. The AR headset serves as the central processing unit, processing sEMG signals and transmitting

respective commands to a ROV. The ROV acts on the received commands and transmits data, describing its actions and environment, to be displayed. A library of electrical signals that relate to hand signals defined in US Army Publication TC3-21.60 are developed as a control set of commands. Signal processing and machine learning methods are implemented to reduce cross-talk and interference of weak sEMG signals for accurate gesture recognition. Results provide insight on the effectiveness of neuromuscular control compared to human-to-human instruction, and how wearable control systems can increase operator situational awareness. Integrating emerging technologies in AR, neuromuscular gesture recognition, and IoT provide a more natural human-in-the-loop control system for ROV's.

72. *Abundance of Micro-plastic in Commercial Sea Salts*

Khyla Bodie, Cassandra Korte and Alana Lecher, Lynn University

Plastic pollution in the ocean has increased dramatically throughout the years. With this increase there are suspicions of what effects micro-plastics have on environmental health, specifically relating to ingestion. A previous study found that micro-plastics are present in commercial sea salt purchased in Southeast Asia. This study will examine the abundance of micro-plastic found in commercial sea salt obtained in the US. We hypothesized that much like the previous study, micro-plastics will also be present in sea salt purchased in the US. We bought samples of sea salt with various places of origin such as Italy and Spain from local stores like the Dollar Store, Costco and Trader Joe's. Then, we separated micro-plastics and other contaminants from the salt by dissolution and filtration. Micro-plastics found on each filter were counted using microscopy. If the hypothesis is correct, micro-plastics will be present in sea salts from cheaper brands and sea salts from areas that have previously shown a presence of micro-plastics.

73. *Emergent Properties in Oxide Crystals Stacked at the Atomic Limit*

Caitlin Kengle and Maitir Warusawithana, University of North Florida

Emergent Properties in Oxide Crystals Stacked at the Atomic Limit: There is an ever-increasing push for engineering materials with enhanced properties like ferroelectricity and ferromagnetism to make better, faster and smaller electro-mechanical devices. In this research we stack single atomic layers of different, chemically distinct, oxide phases to construct tailored artificial crystals with modified collective properties. These artificial "superlattice" crystals, where the repeating super cell comprises of a sequence of unit cell thick layers of the constituent perovskite crystal phases, are grown via ozone assisted molecular beam epitaxy (MBE). The two superlattice crystals studied here are three-component titanium-based titanate structures and manganese-based manganite structures. Our work explores how proximity effects and symmetry breaking due to the ordered sequence of atoms within the superlattice crystal gives rise to modified and sometimes new electronic properties not found in nature.

74. *My Research has Jets: Exploring Barthes' Enigmas and Fan Based Exaltation within Star Wars, DC Comics, and Television*

Matthew Hudson and Warren Jones, Eastern Florida State College

Some tertiary characters, such as Boba Fett, being unintentional enigmas, capture and enthrall the imaginations of fans. An enigma, according to Roland Barthes S/Z, refers to any element in a story that is not explained and, therefore, exists as an enigma for the reader, raising questions that demand explication, such as TR-8R from *The Force Awakens*. Disney tried to make Captain Phasm the new Boba Fett, but fans chose TR-8R. These unintentional enigmas are not confined to just movies or the Star Wars Franchise: Harley Quinn in the DCU, Maude from *All in the Family*, and even the Fonz from *Happy Days*. Building on Barthes idea, we can see how these enigmas were unintentional; they were never meant to enthrall the audience. We could argue that fans seek to resolve the enigmas on their own; however, many of these characters (listed above) breached the confines of their stories to find lives in fandom, in another form of text that lies somewhere between Barthes Readerly and Writerly text.

75. *Project Hummingbird: Recovery of a Rocket Using Autorotation*

Karen Maurer, James Le, Andrew Valenti, Sophie Zaccarine, John Dennehy and Eric Perrell, Embry-Riddle Aeronautical university

Project Hummingbird is an undergraduate research project with the goal of launching and recovering a sounding rocket using a rotor-recovery system that will safely guide the rocket to landing. It aims to demonstrate an alternative approach to current methods of booster recovery that would, like the other techniques, reduce the cost per launch, but would also require a less complex system and far less fuel. The system is designed to launch with an internally stored rotor-hub and externally folded rotor-blades. At apogee, the rocket will orient itself nose up and deploy the rotor blades. The rotor-blades will autorotate and slow the rocket's descent. An onboard flight computer will control the guidance and descent of the rocket to the ground. Proving such a system involves a series of wind tunnel tests to gain an understanding of rotor blades' ability to produce lift in unpowered flight. Project members are currently constructing a small-scale model for wind tunnel testing as well as a full-scale rocket for validating all planned and emergency deployment systems.

76. *Identity Meta-Analysis*

Alejandra Gancedo and Liam Maher, Florida State University

The focus behind this research project is driven by the idea of the self-concept, known as identity. Our self-concept encompasses all of the values, norms, or information that we believe represents who we are as a person. Self-evaluations include the standard judgements that an individual makes about him or herself regarding their own abilities and potential. Self-construal, however, calculates the levels as to which people categorize different parts of their identity such as individual, relational, and collective aspects. Although research, data, and articles exist on what an individual's "identity" or "self-construal" is comprised of, there is little evidence or research on the impact that the correlation between constructs and outcomes in various organizations has on one's identity. These outcomes include certain ideas such as in-role performance, team efficacy, citizenship, or political will. This research project is devoted to finding evidence and

concluding whether these constructs play a significant role in an individual's identity. The methodology includes creating a meta-analysis of articles that relate to either transformational leadership, identity, and performance. If a relationship is shown between either of these characteristics, then the data and samples will be collected and coded for each article. The data gathered will be compared to over seven years of extensive research on the topic. The final goal is to have a true number on the magnitude of the association between constructs and identity. The results for this research are still in progress, but it is predicted that there will be a significant correlation between both.

77. *Regulation of Sleep by Dietary Fatty Acids in the Drosophila Melanogaster*

Estelle Laure Sah Pamboro, Elizabeth Brown and Alex Keene, Florida Atlantic University

Animals modulate their sleep and foraging strategies in order to maximize their chance of feeding. Dietary nutrients can regulate sleep (1) indirectly by influencing circulating energy availability and (2) directly through the taste system. While the taste system is typically studied for its role in regulating food consumption, growing evidence suggests that activation of the taste system alone can regulate complex behavioral processes including sleep. As such, starved animals, including the fruit fly, *Drosophila melanogaster*, suppress their sleep in order to forage for food. However, sleep can be restored via the activation of sweet-sensing neurons with non-nutritive sweeteners. These findings suggest that sweet-sensing taste neurons have a sleep promoting role in flies. Furthermore, dietary factors themselves have also been shown to modulate sleep. Sweet-sensing neurons in this model system respond to both sugars and fatty acids, and their consumption is regulated by different parts of gustatory system. Here, we measure sleep-related behaviors in wildtype *Drosophila* upon supplementation of FAs into the diet. To address whether the perception of FAs is sufficient to mediate changes in sleep, we then manipulate neurons that express the gene Ionomotropic Receptor 56d, which is necessary for FA taste perception. Our analyses on how FAs, and the taste neurons they activate, modulate sleep set the stage for a more detailed investigation into the interrelationship between sleep and feeding.

78. *Human Impacts on the Hippocampus zosterae Mating System.*

Megan Hill, Heather Masonjones and Emily Rose, University of Tampa

Anthropogenic disturbances, such as boat propeller scarring and coastal development, can have devastating impacts on seagrass ecosystems. These vital coastal ecosystems serve as nurseries, providing shelter, and food resources for many marine species. As a species with high site fidelity and small home ranges, seahorses are particularly vulnerable to habitat loss or changes in the seagrass distribution. The dwarf seahorse, *H. zosterae*, is a socially monogamous species where males prefer a larger female as a mate for the breeding season. Previous studies also confirmed *H. zosterae* to be genetically monogamous over a single breeding. Conversely, laboratory studies have shown that at high densities, males will abort their pregnancies to receive eggs from a more preferred female. As seagrass habitats become more fragmented due to human impacts, seahorse populations are predicted to initially increase in density. This study utilizes microsatellites and parentage analysis of pregnant males and their offspring to test if *H. zosterae* is genetically monogamous at various densities in both natural populations in Tampa Bay

and in controlled laboratory settings. *H. zosterae* are bioindicators of a seagrass ecosystem's health; therefore, degradation of seagrass is predicted to alter the dwarf seahorse's mating system and ultimately affect the species' reproductive biology, mating dynamics, and population size. By understanding social and genetic dynamics of the *H. zosterae* mating system in high densities, appropriate coastal seagrass management and protection can be implemented.

79. *Advancement of DNA Sequencing Using 2D Materials*

John Dimuna and Jason Haraldsen, University of North Florida

Through the use of 2D materials like MoS₂ and WS₂, we are working towards the device application of 2D materials in the quest for easy and efficient base-by-base DNA sequencing. We will examine various two-dimensional (2D) materials for their viability for DNA sequencing. Using density functional theory, we determine the electronic properties of dichalcogenide materials in bulk, nanoribbon, and nanopore configurations. Future simulations will examine the effects on the electric current across the nano pore with the inclusion of translocating DNA bases, which has the potential for providing new avenues on DNA sequencing.

80. *Effects of Confederate-named Schools on Racial Minorities Compared to Non-minorities*

Kayla McGruder, Kaylee Sisneros, Angela Mann, Curtis Phills and Elizabeth Brown, University of North Florida

Given the long-standing controversy surrounding monuments and streets named after Confederate historical figures, how might schools named after Confederate historical figures impact minority students? We are examining how the naming of schools after Confederate historical figures as opposed to Civil Rights figures impacts student performance and behavior, and whether performance disparities exist between minority and non-minority students. We consider the possibility that minority students experience stereotype threat in that, Confederate names could make feelings of prejudice and racial vulnerability cognitively available in minority students, resulting in impaired academic performance (Steele & Aronson, 1995; Walton & Cohen, 2007). We have identified public schools in select major metropolitan areas across Florida and are collecting publicly available data such as standardized test scores and attendance rates, broken down by race/ethnicity. We will compare the data between schools named after Confederate leaders, Civil Rights leaders, and leaders who are neither Confederates nor Civil Rights leaders. We will also examine the relationship between the publicly available race implicit association test (IAT) by Project Implicit and student test performance and attendance. Schools will benefit from the knowledge of whether stereotype threat cues are impacting students. It is our hope that this research will help to provide additional information to help facilitate students having equal access to public education.

81. *Friend or Foe: Effects of Wrack Accumulation on Mangrove Growth in Mosquito Lagoon*

Julia Carlin, Noah Friedland, Melinda Paduani, Rebecca Sweatman Michelle Shaffer, Suzanne Connor, Dr. Melinda Donnelly and Dr. Linda Walters, University of Central Florida

Mangroves are essential for preventing shoreline erosion and providing habitat in subtropical and tropical estuary ecosystems. Understanding potential nutrient sources for mangroves is imperative. It has been suggested that seagrass wrack contributes to success of mangroves, but little is known about how seagrass wrack accumulation affects mangrove growth and survival. Two studies were conducted on seagrass wrack, *Laguncularia racemosa* (white mangroves), and *Avicennia germinans* (black mangroves) in Mosquito Lagoon, FL. The first study examined seasonal wrack abundance and diversity in the field by collecting samples bi-monthly from June 2017 – present. Less wrack was found on the shorelines in early summer and winter months as compared to the fall months. The second study focused on the impact of wrack on *A. germinans* or *L. racemosa* mangrove propagule survival and growth. In a greenhouse, individual pots contained one propagule floating in water, covered with wrack or covered with mimic wrack. Biweekly measurements included propagule survival, weight and primary and secondary root length. Results showed that there was significantly greater propagule weight and root length for wrack vs mimic wrack for both mangrove species. There was a significant difference between wrack coverage vs floating seeds for propagule weight change. This study offers insight into how practitioners should manage restoration in areas with high seasonal wrack.

82. *Examining Factors Affecting Participant Response in Research Studies*

Victoria Pineda, Wyatt Kinner, and Daniel McConnel, University of Central Florida

Undergraduate students are often asked to volunteer for psychological research. In some instances, however, students may not see the participation experience as voluntary in nature. For example, students who must choose between writing an essay and participating in research may consider the participation one of two mandatory options. Students who lack motivation to participate in studies may, in turn, not answer surveys or measures in good faith. This raises some concerns about the state of survey responses in studies that use university student populations. The purpose of our research is to evaluate factors that may result in inaccurate responses by research participants, assess the likelihood that participants will engage in deception in research studies, evaluate the factors that promote deception among research participants, and examine the viability of research results from a university students participant pool.

83. *Exclusion and Unity: A Rhetorical Analysis of Ronald Reagan's First Inaugural Address*

Kathryn Buday and Jelena Petrovic, Stetson University

This study is concerned with an analysis of the language used by Ronald Reagan in his first inaugural address to examine how the strategic selection of language divides society in a way of identification of both included and excluded groups. Understanding the past rhetoric of an orator such as Reagan will lead to a better understanding of the rhetorical verbiage used by political figures and the impacts they have on society. This is important for not only the communication discipline, but also a wider audience as this monumental historical orator continues to set the benchmark for future orators and therefore has an impact that extends past his reign as president. Burke's identification model will be used to analyze Reagan's rhetoric to provide a structured analysis of language and strategies of persuasion and communication. The goal of this study is to shed new light on how

rhetorical choices in language have an implication on society and ideologies of included and excluded groups. The knowledge gained from this analysis will help to not only understand the rhetoric in inaugural addresses and Reagan's specific language, but also highlight the strategies used by Reagan that are transferable into political speeches today.

84. *On the Way to Casterbridge: Dialectic Constructions in the Geographic Landscapes of Thomas Hardy's Novels*

David Advent and Barry Faulk, Florida State University

In the academy, there exists a lack of interdisciplinary synthesis between literary studies and geographic social theory. Accordingly, this paper, in a heterogeneous yoking together of two seemingly distant disciplines, unfurls the manners in which Thomas Hardy, a profoundly geographic writer, conceptualizes the construction of space in two of his novels, namely, "Jude the Obscure" and "The Mayor of Casterbridge." Through theories of the "chronotope," as postulated by Mikhail Bakhtin, and "heterotopia," as postulated by Michel Foucault, this paper textually analyzes the aforementioned novels to understand the manner in which conceptualizations of space influence character relationships within each respective novel. Preliminary findings suggest that the hierarchical construction of space created by Hardy categorizes characters according to class and gender. Ultimately, this project will utilize the findings from the textual analysis of Hardy's novels as a framework in which to understand how modern constructions of space contribute to the relatively powerless position both women and lower-income individuals are often relegated to due to their geographic location.

85. *Identifying Correlates and Predictors of Help-Seeking and Treatment Engagement among Undergraduates at Elevated Suicide Risk*

Evan Albury, Melanie Hom, Ian Stanley and Thomas Joiner, Florida State University

Suicide is a leading cause of death in the United States, taking over 40,000 lives annually. One possible avenue by which suicide may be prevented is through the connection of individuals at elevated suicide risk with mental health treatment. In this study, we are investigating factors that may influence at-risk individuals' decisions to seek help for mental health concerns. Specifically, these factors in a sample of college students at elevated risk for suicide will be examined. Data are being collected on explicit (i.e., self-report) and implicit (i.e., Implicit Attitude Test) measures of help-seeking stigma, structural barriers to care, suicide literacy, and readiness to change. Data collection is ongoing, but results are expected to increase our understanding of factors that may influence at-risk undergraduates' decisions to seek help for mental health concerns. Findings may reveal how students at elevated risk for suicide view mental health care treatment and could inform the development of new interventions to increase use of mental health services.

86. *Controlled Manipulation of Protein Phosphorylation and Cell Regeneration with Light-Responsive DNA Aptamer Reactions*

Ameer Basta, Chen Wang, Cheng Cui and Weihong Tan, University of Florida

Most cells in the human body respond to growth hormone, which binds to cell surface receptors and induces growth and replication for those cells. This study is focused on receptor tyrosine kinase (RTK), a cell receptor of growth hormone that phosphorylates downstream proteins inside the cells, leading changes in certain protein expression level that allows for cell growth and replication. Utilizing this pathway has become one of the most popular fields in regenerative therapy, however, uncontrollable cell growth would be oncogenic. In this project, the DNA reactions was designed to realize light-responsive switch between the activation/deactivation of the RTK-participated signal pathway. The activation of RTK pathway requires the close proximity of the two receptor subunits when bound with the growth factor, which would be achieved by using the DNA aptamers of the RTK protein and the formation of the double-stranded structure. The introduction of the PC-linker would allow the feasible cleavage in the DNA structure, causing the disassembly of the receptor pair. The reaction was monitored with FRET and gel-electrophoresis in solution, and flow cytometry on the cell membrane. The phosphorylation of the proteins would be analyzed with western-blotting and other cellular experiments. This design would offer a feasible, fast, and simple platform for controllable cell regeneration.

87. *Reconceptualizing Residence Life: Empirical Support for the Residential Curriculum Approach*

Rachel Chaves, Christine Langley, Sara Phillips, Cole Sebastian and Karen Mottarella, University of Central Florida

For today's college students, traditional "Oreos with your RA" programs in the dorms are not appealing. Moving away from this traditional model, which historically used Resident Assistants (RAs) as hosts of casual programming, UCF implemented Residential Curriculum. This curricular approach centers on the Residential Priority that UCF Housing Residents will be active, engaged, and productive global citizens. Rather than hosting dorm-based programming, RAs use four strategies: 1) Intentional one-on-one conversations between RA and resident 2) Community meetings structured by the RA according to a lesson plan 3) Resource referral in which the RA facilitates connecting a resident to specific campus resources that fit for that student 4) Passive methods including newsletters and short videos developed by Residence Life. These strategies are used to facilitate growth in the 4 pillars of the curriculum: Self Awareness, Cultural Competence, Community Engagement, and Global Impact. As part of ongoing curriculum development and evaluation, data was gathered from open-ended questions completed by residents and from focus groups conducted with Resident Assistants. In total, 2098 sets of responses

from residents across 8 events (3 community meetings, 2 passives, 3 campus partnerships) were scored and coded. In addition, analysis of focus groups revealed common themes. Collectively, the results suggest strengths, weaknesses, opportunities and hindrances related to current lesson plans, strategies and learning outcomes. These findings also provided the opportunity for residents and RAs to have a voice in continued development of the residential curriculum.

88. *Thin Film Growth of Superconducting DyBa₂Cu₃O_{7-δ} by Molecular Beam Epitaxy*
Robert Dawson and Maitri Waruswithana, University of North Florida

Thin DyBa₂Cu₃O_{7-δ} (DBCO) films were grown on (001) SrTiO₃ substrates using molecular beam epitaxy. The growth was carried out under a background pressure of 5×10⁻⁶ Torr of distilled ozone by remotely opening and closing shutters that encase the elemental source materials. Shutter times were carefully calibrated to achieve monolayer growth. During growth, the crystal structure of the film surfaces was monitored in situ using reflection high-energy electron diffraction (RHEED) patterns. Growths were conducted adjusting the substrate temperatures between 520 °C and 700 °C such that the Cu-O planes of the DBCO unit cell structure were oriented either parallel (c-axis) or perpendicular (a-axis) to the substrate surface, as evidenced by RHEED patterns. Superconductivity was observed using electronic transport measurements with onset of superconductivity around 90 K and transition temperatures (TC0) as high as 87 K in relatively thick (40-120 nm) samples. A superconducting transition was observed even in thin (5-10 nm) samples, but with a greatly reduced TC0.

89. *Plants: Finding Their Identity with the rbcL Gene*
Bryan Demosthene, Justin Santiago and Nalini Odapalli, Valencia College

Finding their identity with the rbcL gene Identifying and comparing species of plants from one another requires their DNA. Every living organism has DNA in their cells. Each organism's DNA sequence is specific to its species and even among the same species, there is still variation. The plant samples' DNA must be isolated from the rest of the cell material. This amount of DNA is considerably small, so it is replicated many times over by PCR. A consensus sequence of the DNA can then be deduced from the results. The DNA sequence of the well preserved rbcL gene is compared to other DNA sequences from a database. From that, identifying the genus and possibly the species of the plant is now viable. There comes the ability to differentiate between plants that might look the same phenotypically but are not quite the same genetically. This process has helped genetically identify various species from around the world.

90. *Deciphering the Botanic Genetic Code using DNA Barcoding*
Heather Issa and Nalini Odapalli, Valencia College

DNA barcoding is a bioinformatics method that is used by many scientists around the world for the purpose of identifying and classifying unknown species of organisms. It involves a meticulous process of isolating a target gene and amplifying its genetic contents through PCR. Gel electrophoresis was used to confirm the successful amplification of the target gene. The findings were sequenced and compared to sequences within the BLAST database while morphological similarities were used to determine the physical patterns. The isolation and electrophoresis was meant to ultimately extrapolate the highly conserved *rbcl* gene segment that is 500-800 base pairs long. This gene is found in all plants and encodes for the protein RuBisCO. After sequencing the *rbcl* gene, phylogenetic relationships were built using multiple sequence alignments within the BLAST tool. The findings in this report reflect phylogenetic relationships that were obtained in order to identify the species that were collected and documented.

91. *Writing in the Discipline for Studio Art Undergraduates*

Laura Miller and Julietta Chung, Florida State University

This project applies Writing Across the Curriculum (WAC) and Writing in the Discipline (WID) initiatives to undergraduate Studio Art curriculum as a heuristic tool to improve student's visual art practice and prepare them for graduate-level writing. Scholars involved in Studio Art MFA programs have noted graduate students' difficulty at adopting writing as a part of their creative practice, but they focus on addressing the issue at the graduate level rather than scaffolding undergraduate curriculum to support students' transition to upper division writing. This thesis argues that writing instruction should be incorporated into Studio Art undergraduate study to prepare students for careers and further study in the arts while improving their art practice through introspective journaling, research, and revision. This research reviews WAC/WID scholarship to determine writing assignments and exercises best fit for visual art students through the framework of rhetorical situation, genre, and discourse community. While this project is ongoing, preliminary results point to expressive writing exercises like freewrites and journaling and persuasive critical essays as appropriate writing assignments for studio art undergraduates because they allow students to explore their own art within the broader cultural landscape as well as develop their own critical voice as participants in their discourse community.

92. *Plastics under a Microscope: Accumulation of Microplastics in Oyster Spat in Mosquito Lagoon*

Megan Robbins and Linda Walters, University of Central Florida

An estimated 15- 51 trillion pieces of microplastics are floating around our oceans and growing by the day. Microplastics are less than 5 mm pieces of plastic that originate from larger pieces of plastic broken down into smaller pieces. Commonly encountered types of microplastics include microbeads, fibers, and fragments. Microplastics are synthetically made from materials such as polyethylene and polypropylene. The eastern oyster *Crassostrea virginica* is a filter feeder that consumes microplastics which may affect reproduction, slow growth rates, and produce thinner shells. To determine if juvenile *C. virginica* were ingesting microplastics in Mosquito Lagoon, we collected spat at 1, 2, and 6 months from 4 restored reefs. Individuals were measured and weighed then placed into

hydrogen peroxide to breakdown organic tissue and vacuum-filtered using NOAA protocols. For comparison, adult oysters were collected from 4 different live reefs on same days and water was collected from all reefs at time of adult oyster and spat collections. All were processed using NOAA protocols. 1-month old spat had an average of 7.3 microplastics per oyster and 2-month spat had an average of 13.3 per oyster. Fibers dominated collections by 85% and the most abundant color was clear in spat and adults. We need to better understand the abundance, distribution and impact of microplastics in all species, but especially organisms like oysters that are vital for water filtration in our estuaries.

93. “Poverty Porn”: The Narratives of INGO Media Campaigns
Monique Costner and Tanu Kohli, Florida State University

International non-governmental organizations (INGOs) have different strategies of raising awareness and funds for their causes. Sometimes however, these strategies can rely on the use of stereotypical or dehumanizing depictions of people from the developing world. We have all seen the images of hungry children with bloated stomachs, presumably from some African or Asian country. To what extent do these narratives present a grossly simplified version of the struggles people in poverty face? The term “poverty porn” has been coined to describe these kinds of shock-based images which reduce people to their vulnerability and helplessness. Narratives within INGO media campaigns can either contribute to, or combat stereotypical images of developing regions. The first section of this research will discuss representations of people from developing regions. Second, the research will examine strategies employed in several digital-based INGO media campaigns through their use of visual and verbal tools. Third, the research will analyze the ethical nature of media campaigns which contribute to or combat stereotypes. It is important for international non-governmental organizations and those within the field of international development to consider how communication strategies impact the understanding we have of developing regions. This research aims to look critically at INGO communications and provide best practices for organizations constructing their own media campaigns.

94. *The Potential Collapse of Restricted Utilitarianism into Kantianism: A Metaethical Analysis*
Hannah Woods and Sarah Vincent, University of North Florida

Kantianism and utilitarianism are renowned among ethicists for their irreconcilability, as they are polar opposites on the spectrum of moral theories. As they have been habitually considered dichotomous without exception, the metaethical discourse on potential correlations between these particular moral theories is nonexistent – that is, no link between the two has been considered hypothetically plausible. In my essay, I proffer and explore connections between traditional Kantianism and J. J. C. Smart’s restricted utilitarianism to begin closing this metaethical literature gap. Through critical analyses of both Immanuel Kant’s *Groundwork for the Metaphysics of Morals* and Smart’s “Extreme and Restricted Utilitarianism,” the conditions of each moral theory are objectively evaluated, and any surreptitious correlations between the moral theories’ conditions are

made explicit. Based on my findings, I ultimately argue that Smart's restricted utilitarianism demonstrates characteristics that may potentially lead to it collapsing into Kantianism, and thus other formulations and variations of utilitarianism may as well. I additionally encourage further metaethical research to discover covert links between prevalent moral theories, for doing so may revolutionize contemporary ethics.