

## **Symposium 2018 Poster Presenters**

Each Poster Presenter is listed below, along with a title and an abstract of their project.

- **Ayres, Patrick** "*The Lighthouse: Hamilton Gamble, The Dred Scott Decision, and Whiggery Asunder*"
  - In his lone dissenting opinion on the Scott vs Emerson case, Chief Justice Hamilton Rowan Gamble's opinion contained more than just a legal rumination on Missouri state law. The case was part of a larger trend in antebellum history over the slavery question that would ultimately lead to Civil War. In his response, Gamble reveals the inner tension in Missouri and the nation at large. This work centers on Gamble's motivation. During his lifetime, Gamble owned several slaves. As a younger lawyer, he even argued unsuccessfully against a strict interpretation of Missouri's "once free always free" principle in the landmark case, Rachel vs Walker (1836). The issue of "once free always free" was also at the heart of the Dred Scott case. Gamble's Dred Scott dissent then appears as a contradiction on the surface. This paper will illuminate why Gamble, himself a slaveholder, would dissent from the majority opinion that increased his rights to keep and maintain his property. For Gamble, the issue of the Dred Scott case had little to do with the morality or even material gains from the freedom of Dred Scott. The details of the case directly clashed with Gamble's long held political beliefs. As a member of the Whig Party, Gamble was enveloped in Whig political culture for around 20 years. I will argue that the Scott case directly challenged these fundamental beliefs of governance as espoused by Whiggish political culture. This was challenged by the growing tension in the Whig party over slavery.
- **Brown, Kip** "*Comparing Causal Inference Estimators for Average Treatment Effect of Treated Units in Observational Studies*"
  - There are multiple methods for estimating the average treatment effect of treated units in observational studies. Difficulty arises in doing this when a lack of covariate balance occurs between treated and untreated units. Covariate balance can be obtained using propensity score methods and reweighting schemes. The propensity score is defined by Rubin and Rosenbaum to be the probability of treatment assignment conditional on observed baseline characteristics. The propensity score is used as a balancing score, in order to determine the treatment effect in some experiment. I will discuss important theorems behind the propensity score, as well as several different methods for determining average treatment effect of the treated by using the propensity score as well as re-weighting schemes.
- **Ciskowski, Joy** "*Family Structure and Differences in Parenting Style*"
  - The present study is based on Adlerian theory and analyzes the relationship between different family configurations (biological, single, blended) and parenting styles measured by the Ferguson Parent Values Inventory (PVi) (Ferguson, Hagaman, Maurer, Mathews, & Peng, 2013). The PVi measures four parenting styles (autocratic, democratic, laissez faire, and competitive) based on the work of Lewin (1948) and

Dreikurs (1991) plus earlier factor analysis. Midwestern university students in 2016 reported how their parents raised them up to the age of nine years. Family configurations showed different styles for mothers than fathers. Mothers were found to be significantly more Laissez-Faire and Autocratic in single parent households versus the two other household categories. Fathers were found to be significantly more Autocratic and more Democratic for the category of biological parents raising the child versus the other two household categories. The results are discussed in terms of social norms related to gender and family dynamics.

- **Demirer, Raife** *"Investigation of Reactive Oxygen Species (ROS) Generation in Dispersed Primary Rat Islet Cells"*
  - The failure of pancreatic beta cells is the key determinant for the development of type 2 diabetes (T2D). Nutrient overload caused by insulin resistance and obesity increases mitochondrial respiration and ROS generation as the byproduct in pancreatic beta cells. Due to unusually low levels of enzymes that detoxify ROS, beta cells are highly susceptible to ROS-mediated damages. To understand the role of ROS in beta cell defects and alterations of mitochondrial membrane potential, we induced ROS generation in dispersed islet cells with 10 mM menadione in the presence and absence of an ROS inhibitor, N-acetyl cysteine (1 mM), followed by CellRox Green and mitrotracker treatment, ROS and mitochondrial membrane potential detecting agents, respectively. Cells were trypsinized, washed, and flow cytometry analysis was performed. As anticipated, menadione induced ROS generation compared to control (no treatment), which was inhibited by N-acetyl cysteine. Measurement of the mitochondrial membrane potentials showed the similar trend as ROS generation. In order to confirm this finding and visualize individual cells, we have also obtained images using 20X objective in Leica inverted fluorescent microscope. Quantitation of the intensity of CellRox Green using the ImageJ Image processing program corroborated the results obtained from the flow cytometry analysis. We have also determined the effects of menadione on ROS generation in insulin-secreting beta cells versus glucagon-secreting alpha cells, which showed the similar patterns. Next, we determined the effects of SR-135, a peroxynitrite decomposing catalyst, on ROS generation induced by excess nutrients (25 mM glucose and 500 mM free fatty acids). Cells treated with both excess nutrients and SR-135 (10 mM) for 2 days, unexpectedly, showed higher intensity of CellRox Green than those treated with excess nutrients alone. Furthermore, a control drug SRB (the same chemical structure as SR-135 but no peroxynitrite decomposing catalyst activity) brought down the intensity. Interestingly, the levels of nitrotyrosine, considered as the footprint of peroxynitrite, were higher in cells treated with excess nutrients alone than those treated with both excess nutrients and SR-135. We postulate that CellRox Green and nitrotyrosine detect two distinct species of ROS, superoxide and peroxynitrite, respectively. The ability to measure distinct ROS generation in beta cells would be valuable in elucidating the mechanisms by which excess nutrients cause beta cell defects, leading to type 2 diabetes.
- **Fentem, Andrea** *"The Impact of Couples' Conflicts on Everyday Sadists' Perceived Relationship Satisfaction"*

- As researchers continue to be hesitant with the new fourth component of the Dark Tetrad, everyday sadism, Paulhus and his colleagues (Furnham, Richards, Paulhus, 2013) stated that it requires a more thorough investigation. One way of expanding the research is looking more in-depth at their behavioral interactions with significant others and how it affects their relationship satisfaction. Conflicts and arguments within a relationship have been shown to hinder one's relationship satisfaction. However, would someone who is considered sadistic enjoy having conflicts with their significant other? From this study, it was found that sadism has a negative effect on sadistic individuals' perceived relationship satisfaction. Furthermore, couples' conflicts within their significant relationship has a partial effect on how they perceived their relationship as well. Overall, the current study adds new information to existing research by defining how everyday sadist's behaviors effect their relationship satisfaction with their partner.
- **Floyd, Brendon *"An Isle of Exiles in a Land of Immigrants: Discovering Irish-American Identity in the Early American Republic"***
  - The American Revolution helped spark the French Revolution which, in turn, inspired the Irish Revolt of 1798. But unlike both the American and French Revolutions, the Irish rebellion fell short and its agitators, the United Irishmen, were sentenced to prison, death, and exile. Those that went into exile made their way to both French and American shores where they brought a spirit forged in the fires of dissension. As this era came to an end on both sides of the Atlantic, the hope for an independent Ireland seemed more fantasy than an inevitability and what America represented for the Irish immigrant changed. This is a study of that transformation for the Irish-American community; how those Irish revolutionaries found their new identity in this land of opportunity and laid the foundations for what would become a uniquely American version of Irish nationalism. Using Benedict Anderson's concept of the imagined community, this study demonstrates how trans-Atlantic events of the late 18th and early 19th century, in both America and Ireland, provided discrete 'historical forces' that transformed Irish-American identity into a framework or 'modular' that not only allowed these immigrants to assimilate more efficiently but also allowed them to retain a distinct identity. In this context Irish immigrants and radicals to framed their independence and nationalism outside of an independent Ireland while, at the same time, preserve their sense of Irishness within an emerging American identity. In this regard, this generation of Irish in America proved to be one of the first and most influential "hyphenated" ethnicities in the new Republic.
- **Fraine, Shawn *"Sexual Victimization of the Transgender Population"***
  - Transgender victims of sexual violence have only recently been attended to in the literature; however, the research that exists suggests that they have a higher rate of victimization than the general population (Testa et al., 2016). A well-documented issue that often arises among survivors of sexual victimization is revictimization (Walker, Freud, Ellis, Fraine, & Wilson, 2017). As revictimization occurs, one's risk for such things as post-traumatic stress disorder and dissociation is heightened (Arata, 2002); in other words, as the likelihood of revictimization increases, so too does the risk of increased

mental health issues. To date, no known study has considered the revictimization rate or experience of people who are transgender. The purpose of this empirical study is to expand the limited research on prevalence rates of sexual victimization in the transgender community and to add to the literature by reporting on revictimization rates in this population. Also, unique to this study is the use of a broader definition of transgender so as to include those who do not wish to transition full time or those who identify as non-conforming or non-binary. Community samples will be recruited, and a Chi-Square Test of Independence will be used to compare the three groups (transgender, LGB, cisgender) on both victimization and revictimization. Our results supported our hypothesis, which implies that transgender individuals experience revictimization at higher rates than other populations. This also increases their likelihood of mental health diseases like PTSD and dissociation.

- **Gerard, Madelaine *"Black Widow: Female Representation in the Marvel Cinematic Universe"***
  - Oversexualized representations of women in media, and in particular, comic book film franchises like the Marvel Cinematic Universe, can be tied back to the classic feminist ideology of the 'male gaze.' Issues of representation, particularly for romantic interests who exist only to serve their male counterparts, systemically weakens female characters that may have been, from a textual standpoint, strong and independently motivated. These concepts articulate the patriarchal stronghold men have within the media industry, as well as works to target the films and comic books' predominately male audience and fan base. From an analytical standpoint, viewing the five films in which Natasha Romanoff or Black Widow is featured, as well as viewing each film's script, offered a large body of visual and textual data suitable for a qualitative content analysis. Following an intense study of both visual and textual representation of Natasha Romanoff, her character's arc, and varying motivations throughout the five films, she is visually, textually, and systemically sexualized and objectified. In two separate films within the franchise, her position as a strong, leading member within The Avengers is diminished by involvement in a romantic relationship or contact. In one of the most disturbing threats to her character, an aspect of her back story reveals that she was forcibly sterilized as part of her spy training. Natasha Romanoff, or Black Widow is not the hero challenging the patriarchy that many comic book fans had hoped for.
- **Grubbs, Eric *"Estimating System Reliability with Maximum Likelihood Estimators and Bootstrap Confidence Intervals"***
  - Scenarios of a software reliability model being able to complete a designated task before a fault is found will be considered. Tasks are consecutively performed with interruptions in the process if a bug is found in the software. These task completion times are independent of the failure arrival times. Various system configurations will be examined to estimate the probability of a task being able to be completed before a fault occurs after the designated test time. Point estimates will be calculated by using maximum likelihood functions while interval estimates are calculated using bootstrap methods.
- **Hake, Kourtney *"Respectability and Reality: Pleasures and Leisure in Victorian England"***

- This article addresses the scholarly imperative in Victorian literary studies of charting the differences between the public and private lives of the individuals in Victorian society. This article contends that literary scholars can expand literary and bibliographic studies of Victorian literature by investigating the private and public lives of popular figures in Victorian society. To support my position, I will gather evidence from personal diaries and letters and published works to contrast the differences between public and private life. Before exploring the difference between public and private lives, I will first define respectability in the Victorian society and the influences of such expectations on the leisure activities. This analysis leads to the conclusion that the transition between public and private life in the Victorian era was a large divide that lead to a conflict of identity.
- **Hasan, Md Nahid *"Design Study of a Piezoelectric Curved THUNDER via Finite Element Modeling"***
  - A piezoelectric-coupled finite element model for a THUNDER harvester (THin layer UNimorph DrivER) is developed and analyzed in this study. THUNDER is a curved piezoelectric energy generator developed by NASA Langley Research Center, which has better vibration absorption capacity and higher energy recovery efficiency compared to a flat PZT harvester. Currently, piezoelectricity is one of the most popular transduction mechanisms to convert mechanical vibration into electrical energy, which can be used to power wireless sensors, low-power electronic devices and other microelectromechanical systems. To apprehend piezoelectric effect of the THUNDER harvester through finite element simulation, piezoelectric THUNDER harvester was modelled in such a way that one of the THUNDER is fixed, other site was set free. It acts as a cantilever beam. The excitation forces were low frequencies distributed on the top of the dome line and an electric circuit element were also employed in harvester circuit to create load resistance across electrodes to enhance the power generation efficiency. In order to predict the performance of the THUNDER, piezoelectric coupled field analysis was implemented to achieve the accurate results. In piezoelectric coupled field analysis: Modal analysis was carried out to find the resonance frequency at which maximum performance characteristics of the THUNDER can be achieved. Furthermore, Harmonic and Transient analyses were performed to distinguish the voltage and power amplitude variation by manipulating the resistance of the electric circuit element, which was incorporated in piezoelectric-coupled FEM harvester circuit to predict the performance characteristics of the THUNDER.
- **Henderson, Yolanda *"The Experiences of Parents with Incarcerated Adult Children"***
  - The intent of this study is to better understand the experiences of parents and guardians with incarcerated adult children. According to the Bureau of Justice Statistics, there were 6,851,000 adults in the correctional system at the end of 2014. This number includes those who are incarcerated as well as those living in the community under supervision (BJS, NCJ 249513). It is fair to assume that many of those who are incarcerated have living parents. While the experience is different, parents of incarcerated adult children endure their own punishments. The incarcerated adult child

endures a prison sentence while the family endures an emotional sentence. According, to Arditti et al. (2003), parents of incarcerated adult children experience isolation in addition to the emotional stress and parenting strain caused by the incarceration. This study will add to the limited literature on this topic. Given how critical family support is to successful reintegration back into the community following incarceration, it is critical that we work to maintain and even strengthen family relationships with incarcerated adult children. Themes were uncovered following a qualitative study using semi-structural interviews with ten parents of incarcerated adult children. Theoretical concepts of stigma and labeling explain families' experiences with embarrassment and shame. Stigma, furthermore, kept families from asking for help when resources were available. Using the theoretical framework of Symbolic Interactionism, I examine how parents are experience courtesy stigma. Emergent themes highlight the importance of family relationship ties to their incarcerated children.

- **Herman, Jessica *"Cultural Differences and Security of Attachment: How intercultural Couples identify Their Relationship Bond"***
  - **The security of attachment for couples of multiple cultures has been overlooked in the communication field. The social sciences alludes that mixed culture unions adds complexity which could affect attachment to partners. Significant differences for gender and marital status existed for inter-cultural couples within this study. In addition age and length of the relationship were correlated for those in same culture and mixed culture relationships. This study offers up inside for how attachment security is impacted by cultural differences.**
- **Hitchcock, Theresa *"SIUE/STL Art Hives: Little Free Art Hive"***
  - **An Art Hive is a community art studio that welcomes everyone as an artist and practices radical hospitality (Timm-Bottos, 2014). Throughout the 2017-18 school year my research advisor, Shelly Goebel-Parker and I have developed an SIUE/STL Art Hives program to launch the SIUE/STL Art Hive based on the open-source Concordia University model pioneered by Janis Timm-Bottos (Timm-Bottos, 2014). The Little Free Art Hive is an extension of this community arts research. Pairing the Art Hives principles with a built structure based on Little Free Libraries (2009), in a Saint Louis neighborhood creates a spontaneous art studio for anyone that may come in contact with the Little Free Art Hive. Practicing a gift economy and belief that everyone is an artist, this structure will be a collection site for art materials, sharing of ideas, and informal art displays to take place in a public area (Timm-Bottos, 2015). A structure will be built in the summer of 2018 and installed at Intersect Art Center in the Gravois Park neighborhood, to test the efficacy of the structure to empower and provide resources for artists. Through this preliminary work in the summer of 2018, I will be collecting qualitative and quantitative data from participants about their experience as an artist using the Little Free Art Hive. Through this pilot project and the collected data, the Little Free Art Hive will be reassessed to best fit the community needs and reflect the Art Hives principles. References: Little Free Library? Take a Book, Leave a Book. (2009). Retrieved March 02, 2018, from <https://littlefreelibrary.org> Timm-**

Bottos, J. (2014). Art Hives: Transforming communities. Retrieved March 02, 2018, from <https://arthives.org> Timm-Bottos, J, & Reilly, R. C. (2015). Neighborhood art hives: Engaging Communities in teaching and learning. O. Delanno-Oriaran, M. Parks, & s. Fondrie (Eds.), Service-learning and civic engagement: A sourcebook. Thousand Oaks, CA: Sage.

- **Josephs, Molly "Body Dissatisfaction, self-efficacy and trait self-control in NCAA athletes."**
  - Athletes face a significantly a higher risk of developing clinical eating disorders compared to nonathletes. One risk factor for the development of eating disorders is body dissatisfaction, which is when an individual has a subjective, negative view of their physical body (Stice & Shaw, 2002). Researchers in the field are calling for future research to examine factors that can be modified and strengthened through targeted interventions. Two such factors are self-efficacy and trait self-control. Self-efficacy is the belief is one's ability to organize the necessary steps to achieve desired goals (Bandura, 1997). Trait self control is the enduring ability to interrupt undesired behavioral tendencies and resist acting upon them (Baumeister, Vohs & Tice, 2007). The purpose of this study was to examine the relationship between the aforementioned variables. 105 NCAA Division I and II athletes completed an online questionnaire containing demographic information and measures for body dissatisfaction, self-efficacy and trait self-control. Pearson correlations found a significant positive relationships between trait self-control and self-efficacy. Significant negative relationships were found between body dissatisfaction and trait self-control and body dissatisfaction and self-efficacy. Additionally, two separate one-way ANOVAs were run assessing sex and division and the dependant variables. Female athletes were found to have higher amounts of body dissatisfaction than male athletes and athletes in division I schools also had more body dissatisfaction. Future research should examine the specific challenges NCAA division I athletes face to allow for proper support and interventions.
- **Jumper, Andrea "The Influence of Anticipation, Anxiety, & Avoidance on the Stuttering Experience"**
  - Stuttering is a diagnosis in both the speech-language pathology and psychology diagnostic manuals, yet it is mostly treated by speech language pathologist. This is odd considering both professionals' diagnostic manuals include criteria related to psychological distress/impairment. The purpose of this study is to provide further evidence of the impact of psychological distress/impairment on the stuttering experience. Specifically, the relationship between anticipation of stuttering events and avoidance, the relationship between avoidance and stuttering related anxiety, and the impact of avoidance, stuttering related anxiety, and self-reported stuttering severity on impeded participation of life activities. This study uses archival data collected to measure psychological traits associated with stuttering. The participants involved in the study were between 18-75 years of age and were recruited from online and in vivo stuttering support groups. Participants completed a series of online questionnaires that collected information related to demographics, anticipation of

stuttering events, avoidance, anxiety, self-reported stuttering severity and other psychological factors. I expect to find that those who anticipate stuttering events will report more avoidant behavior, avoidant behavior will increase as stuttering related anxiety increases, and avoidance and stuttering related anxiety are better predictors of impeded participation in activities compared to self-reported stuttering severity. The results of the study will highlight the impact of psychological distress on those who stutter and provide further evidence for both speech-language and psychological interventions for the treatment of stuttering.

- Karcher, Daniel *"Determining the Function of Two Predicted Dicer-like Genes in the Model Mushroom Fungus Schizophyllum Commune"*
  - RNA interference (RNAi) is a conserved mechanism in eukaryotes by which small (20-30 nt) RNAs guide the silencing of target transcripts. RNAi has been found to function in regulation of gene expression, heterochromatin formation, and genome defense against viruses and transposons. Though the functions and mechanisms of RNAi have been studied extensively in Ascomycetes, comparatively little research has been done in other clades of fungi, like the mushroom-forming Basidiomycetes. Two genes predicted to encode Dicer-like proteins, which catalyze production of small RNAs involved in RNAi, have been identified in the genome of the model Basidiomycete fungus *Schizophyllum commune*. There is evidence that mechanisms for dsRNA-triggered RNA silencing are present in *S. commune*, but the underlying mechanism of this response has not been studied. It is expected that at least one of the two predicted dicer-encoding genes is involved in this mechanism of RNA silencing, but it is unknown whether they have functions in genetic regulation or genome protection. Each of the two predicted dicer genes was deleted by homologous recombination. Compatible single deletion mutants were crossed to produce progeny lacking both predicted dicer genes. Single and double deletion mutant strains are capable of mating, fruiting, and producing viable spores. To determine whether either dicer-like gene has an effect on silencing, hairpin RNA-encoding copies of the endogenous gene SC15 were ectopically integrated into the wild type and double mutant genomes. It is predicted that SC15 expression will be silenced in the wild-type transformants, but not in the double mutant.
- King, Hayden *"A Triangular Network Analysis of Government and Community Stakeholders of Watershed Management"*
  - Groundwater resources are heavily utilized for public drinking water systems but remain underappreciated in urban infrastructure. Groundwater quality and quantity parameters are outlined by federal legislation, but compliance and enforcement have been historically difficult due to institutional and regional problems. Multiple levels of government are increasingly turning to public entities for natural resource governance. As such, participatory forms of democracy including Environmental and Deliberative Democratic (EDD) methods are becoming more applicable to a dynamic society. This project will ascertain the presence of EDD principles in groundwater governance among Lake Geneva, Wisconsin area stakeholders. A comparative analysis

with Green Lake, Wisconsin and Lake Simcoe, Ontario will illustrate proactive and reactive approaches to groundwater management. A mixed methodology will include qualitative data regarding the action of participatory governance obtained via citizen surveys and elite-level interviews with decision makers. Additional quantitative data for groundwater nutrient parameters will be obtained from federal, state and local environmental groups. These data will be used to address research questions regarding EDD public policy practices, and the quality and quantity of groundwater resources for both areas. This research will contribute to the body of literature regarding environmental and deliberative democracy. Anticipated results will reveal a precautionary, citizen inclusive governance framework in Lake Geneva, while Green Lake is expected to have a similar governance structure established after environmental concerns were apparent.

- Kukielski, Stephen *"Design, Synthesis, and Evaluation of 3,4,5-Trisubstituted-1,2,4-Triazoles as Selective SST4 Agonists for the Treatment of Alzheimer's Disease"*
  - This research investigates the lead optimization of 3,4,5-trisubstituted-1,2,4-triazoles as somatostatin subtype 4 (SST4) agonists to alleviate the progression and symptoms of Alzheimer's disease. Alzheimer's pathology has been associated with the aggregation of Amyloid- $\beta^2$  (A $\beta^2$ ) plaques in the brain. We hypothesize that the SST4 agonists described herein will enhance the clearance of A $\beta^2$  plaques through the activation of SST4 leading to an increase in neprilysin, an endopeptidase associated with plaque degradation and clearance. In this research, the affinity and selectivity of functionalized triazole analogues for the somatostatin SST4 receptor were explored. The resulting structure activity relationship (SAR) information from these studies is currently being used to determine optimal substitution of candidate molecules and improve their drug-like properties (e.g. metabolic stability and solubility). Several new series of compounds were developed that were found to have high affinity and selectivity for the SST4 receptor (low to sub- nM Ki). In addition, selected molecules have been shown to have agonist properties in functional assays. Finally, we describe the development of a new modular and parallel-friendly synthetic route for the preparation of previously inaccessible arylthio-linked analogues. The compounds designed and synthesized during this research have not only been identified as potential candidates for increasing neprilysin levels, but have also aided in elucidating many aspects of selective SST4 receptor binding.
- Lau, Szengar *"Gender Differences in Job Satisfaction and Organizational Commitment in the Video Game Industry"*
  - This study will review the history of video games, how gender and gender discrimination play important roles in video game history and culture, and the damaging consequences of gender discrimination in the video game industry. This study explores if women within the industry experience more gender-based discrimination than men and if women, therefore, experience lower job satisfaction and organizational commitment in the industry compared to men. Lower job satisfaction and organizational commitment could lead to more turnover among

women in the industry and less women working in the industry overall, which can further perpetuate the gender inequality and non-supportive environment for women entering the field.

- Lee, Soyeon *"Perfluorooctanesulfonic acid (PFOS) Modulates Behavioral Changes and Gene Expression Associated with the Circadian Rhythm in Drosophila Melanogaster"*
  - Behavioral disorders appear to have complex etiologies including both genetic and environmental factors. PFOS, one of the persistent perfluoroalkylated compounds (PFCs), is known to elicit adverse effects in various organisms. Previous studies have demonstrated that PFOS and other PFCs cause neurotoxicity due to the enhanced calcium influx through voltage-gated  $\text{Ca}^{2+}$  channels (VGCCs), leading to the nerve hyperexcitation and oxidative damages. The aim of this study is to investigate comparative mortality responses of flies treated with different concentrations of PFOS. Additionally, behavioral modifications and gene transcript levels in newly emerged adult flies reared on sublethal PFOS during the larval stages are currently assessed. Based on our preliminary findings, it is clear that PFOS (20  $\mu\text{M}$ , 100  $\mu\text{M}$ , and 200  $\mu\text{M}$ ) is toxic to flies in a concentration dependent manner ( $p < 0.05$ ). Adult male flies exposed to sublethal amounts of PFOS until the end of the larval stage showed significantly decreased locomotor activity during the subjective day time ( $p < 0.05$ ), and exhibited prominently delayed ( $\sim 4$  hr) peak transcriptions of per gene. The outcomes in this study are expected to provide behavioral, biochemical and molecular biological evidence for further understanding of PFOS neurotoxicity and its impact on the fly circadian rhythm.
- Lupardus, Joshua *"Anxiety and Depression: Temporal Manifestations of the Same Disorder?"*
  - Anxiety and depression are some of the most common forms of mental illness. About 66 percent of the population diagnosed with generalized anxiety disorder will also be diagnosed with a form of depression in their lifetimes (Kaufman & Charney, 2000). While historically anxiety and depression have been seen as inherently separate conditions, recent research has indicated that the two disorders may be more closely linked. Watson and Clark's (1991) tripartite model explains that the comorbidity rates of the disorders and overlapping symptomology could be due to an underlying, shared factor that they called negative affect. Eysenck, Payne, and Santos (2006) found evidence to suggest that anxiety and depression may be temporal manifestations of the same disorder which they called negative affect in reference to the tripartite model. Two other studies have since found evidence for this temporal differentiation (Pomerantz & Rose, 2014; Rinaldi, Locati, Parolin, & Girelli, 2017). This study aims to add to a growing body of research and to make it more generalizable.
- Ma, Li *"Testing the Isotopically Different Tunneling-Ready-State Conformational and Electronic Structures in Hydride Transfer Reactions"*
  - Different donor-acceptor distance (DAD) in H-transfer and D-transfer tunneling-ready-state (TRS) leads to different TRS conformations, in terms of the steric environment and electronic structures. First, the steric effect on the  $1^\circ$  isotope dependence of  $2^\circ$

KIEs in H-transfer reactions is investigated to test the isotopically different TRS conformations. The kinetics of hydride transfer from Hantzsch ester (HEH-4,4-h,h) and HEH-4,4-d,d to 10-methylacridinium ion (MA<sup>+</sup>) and 9,10-dimethylacridinium ion (DMA<sup>+</sup>), the 2<sup>°</sup> CH<sub>3</sub>/CD<sub>3</sub> KIEs at the 9-<sup>1°</sup>- and 10-<sup>1°</sup>-positions of DMA<sup>+</sup>, and the 2<sup>°</sup> H/D KIE at the 9-<sup>1°</sup>-position of MA<sup>+</sup> in their reactions with the donor HEH, were determined. The <sup>1°</sup>-2<sup>°</sup> KIEs at the bulkier CH<sub>3</sub>/CD<sub>3</sub> groups would be expected to be dependent upon the 1<sup>°</sup> isotope but not the <sup>1°</sup>-2<sup>°</sup> KIE. Second, the 1<sup>°</sup> isotope dependence of the Hammett correlations at the donor or acceptor would suggest the isotopically different TRS electronic structures. Here, the substituent effect on the 1<sup>°</sup> KIEs was determined for hydride transfer from 1-(substituted phenyl)-1,4-dihydropyridines (G-ANAH-4-h,h and G-ANAH-4-d,d, as donors) to 10-methylacridinium ion (MA<sup>+</sup>). The 1<sup>°</sup> KIEs with substituents (-X) changing from electron-donating to electron-withdrawing groups, such as p-OMe, -H, p-Cl, p-CN and m-CF<sub>3</sub>, were obtained. The observed 1<sup>°</sup> isotope effect on the 2<sup>°</sup> KIEs and the substituent effect on the 1<sup>°</sup> KIEs were explained in terms of the isotopically different conformational and electronic TRSs.

- Martin, Charles *"Social Media and its Impact on Black Greek Letter Organizations"*
  - The relevancy of Black Greek Lettered Organizations (BGLO's) is often at question. Research supports that they demonstrate positive group affiliation and identity outcomes, but fall victim to media coverage about negative pledging and hazing incidents. Therefore, most faculty staff and non-Greek student opinions about "Black Greek Life" are perpetuated by news propaganda and stereotypes (Mitchell et al. 2013). Black Greek Letter Organizations or BGLO's are a significant leadership, academic development and involvement opportunity for undergraduate students as they provide a framework upon which to build a stronger sense of community and identity. Social media can be used to reinforce this feeling of community and connectedness. The purpose of this phenomenological study will interview members of Black Greek Letter Organizations at a predominantly white, medium-sized, state-supported Midwestern university to examine their perspectives on the use of social media to facilitate feelings of connectedness and identity development. The results of this study will provide recommendations for best practices on how fraternity/sorority advisors and chapter advisors can use social media to support student development in BGLO's
- Martino, Michael *"Mitochondrial ALT2 Plays a Role in Physiologic and Pathologic Hepatic Gluconeogenesis"*
  - Previous studies have demonstrated that liver specific deletion of the mitochondrial pyruvate carrier (MPC) resulted in elevated alanine transaminase 2 (ALT2) expression and enhanced alanine-pyruvate cycling. To better understand the role alanine plays in hepatic gluconeogenesis, liver specific ALT2 KO (knockout) and double KO (ALT2/MPC2) mice were studied under physiologic and pathologic conditions of increased gluconeogenesis. Knockout of ALT2 resulted in altered expression of genes involved in amino acid and pyruvate metabolism which were sufficient to maintain

blood glucose during exhaustive exercise and fasting. Despite a clear lack of effect on these metabolic outcomes, male LS-ALT2 null mice were found to fatigue earlier than female knockout mice. More work must be done to clarify if the effects of ALT2 KO are sex dependent. Interestingly deletion of both MPC2 and ALT2 in liver resulted in reduced exercise capacity. Additionally, gluconeogenesis was found to be impaired in these mice during recovery from exercise as evident by reduced blood glucose concentrations and impaired skeletal muscle glycogen replenishment during recovery. ALT2 expression is also elevated in livers of high fat diet-induced obese, and db/db mice. We suspected that the elevated ALT2 expression could play a role in the increased glucose production associated with these insulin-resistant models. Indeed, liver-specific ALT2 KO, or acute knockdown with retro-orbital injection of an ALT2-shRNA-adenovirus improved fasting glucose and glucose tolerance in these mice. Current studies aim to investigate the factor(s) responsible for regulating ALT2 expression in these insulin-resistant models, as well as assess the role of ALT2 in NASH.

- Mincy, Callie *"Unique Cohorts of Cells within Salivary Gland Cancers Exhibit Aggressive Behaviors"*
  - In cancer metastasis, cells lose intercellular connections resulting in increased ability to migrate away from the primary tumor. Although salivary gland cancer cells break away from the primary tumor and exhibit higher migratory capacity, they do not migrate individually, rather as distinct cohorts. Migrating cancer cells lose cell-cell adhesion properties, however we hypothesized that although cancer cells lose their adhesive interactions, the migrating cohort of cancer cells will over-express cell adhesion molecules to enhance 'stickiness' as they migrate. This advancing cohort of cancer cells exhibits increased migratory behaviors that may promote aggressiveness of cancers, increasing metastasis. In addition to increased expression of cell adhesion molecules, we also hypothesized that EMT markers are conjointly upregulated in these cohorts, thus enhancing their ability for rapid migration. We further speculated that these behaviors are controlled by the extracellular matrix. Using routine immunofluorescence techniques and western blotting, we showed that cancer cell cohorts uniquely re-expressed cell adhesion molecules that were typically downregulated. In addition, EMT markers were downregulated in these cohorts as compared to the cancer cells. Using a wound/gap closure two-dimensional migration assay, we showed that although cancer cells exhibit a significantly increased migration rate, the unique cohorts of cancer cells were far more aggressive. We conclude that within a given cancer cell population, there exists cohorts of cells, which behave as cohesive groups exhibiting aggressive migratory capacity. These cancer cell cohorts could potentially be the advancing cells during metastasis, and their presence could mean increased cancer progression associated with poor prognosis.
- Murfin, Kendyl and Rader, Oliva *"Cholera in Nineteenth Century St. Louis"*
  - In the mid-nineteenth century, an epidemic disease repeatedly terrorized the United States: cholera. The city of St. Louis, MO, was hit particularly hard, but its experiences

with the cholera epidemics has been largely ignored. As the force of disease threatened to decimate its population in each wave of the epidemic, the citizens of the city found themselves repeatedly abandoned by the government officials whose duty it was to protect them. It was in these dark times that St. Louisans rallied together to fill the void left by their City Council to save themselves and their city from the ravages of cholera. This research outlines the ways in which their actions can be seen in the establishment of the bureaucratic institutions, infrastructure and policies that mitigated the spread of the disease, while exposing the yet unanswered question of why the City Council repeatedly failed to act to protect its constituents.

- Muzzarelli, Toni *"Should Psychotherapists Disclose Their Religion and Religiosity to Clients?"*
  - There is an abundance of research devoted to studying therapist self-disclosure. Separately, there is a multitude of research geared towards the study of religion within the realms of psychotherapy. Surprisingly, very little research has been conducted on the combination of these two topics, specifically in regard to the effects of therapists self-disclosing their own religious affiliation to potential clients. The most published research that has explored this area Gregory et al., (2008), has now taken place a decade ago. Given the current state of religious trends and intolerances within the United States, this current investigation aims to replicate the study of Gregory et al., (2008) using participants from the same medium-sized Midwestern university. Like Gregory et al. (2008), this study will examine which, if any, religious orientations (Christian, Jewish, Muslim, Atheist, or no mention of religion) will have an effect on the likelihood of participants seeing that therapist. Extending beyond Gregory et al. (2008), this study will consider not only the religiosity of the participant, but also the religiosity of the therapist. Specifically, although the Gregory et al., (2008) study found a relationship between client religiosity and religious preference towards a therapist, this study will take it a step further and examine the religiosity of the therapist (practicing or non- practicing), and its effect on potential client preferences.
- Overstreet, Abigail *"Apologizing after Microaggressions: The Influence on Client Perceptions of Therapists"*
  - If a therapist does something that offends a client, should the therapist apologize? What if the offensive act is an ethnic or racial microaggression?  
The first questions regarding the potential uses of apology by therapists in general, has received very little attention from researchers. Thirty years ago, Goldberg (1987) discussed the topic and suggested that the use of apology by a therapist was unnecessary unless the therapist made a blatant, objective error such as overcharging the client. The general topic of therapist apology has been revisited only rarely, and in most cases non-empirically or tangentially, in more recent years (e.g., Pinkerton, 2008; Klinger et al., 2011). None of these discussions of therapist apology addresses the notion of microaggressions or even multicultural psychology more broadly. The purpose of the current empirical study is to address that issue by measuring perceptions of a therapist who does, or does not, apologize after committing an ethnic/racial microaggression toward a client. Data collection for this study is

currently in progress at the time of this abstract submission. Participants will read one of six vignettes, developed with guidance from Sue (2010), and respond to survey questions immediately following. We hypothesize that vignettes that portray the therapist apologizing after the microaggression will elicit more favorable attitudes about the therapist than comparable vignettes that include the microaggression with no apology. We speculate that the control condition (no microaggression is committed) will elicit more favorable attitudes toward the therapist than either condition in which a microaggression is committed.

- Perniciaro, Audie *"Optimization of a Mouse Model of Necrotizing Enterocolitis"*
  - Necrotizing enterocolitis (NEC) is a disease with high mortality rate in premature infants characterized by necrosis of the intestines. NEC pathogenesis is multifactorial including intestinal immaturity, formula feeding, and hypoxia/ischemia which ultimately leads to microbial dysbiosis, inflammation, and sepsis. Because current models fail to reliably produce disease, this study aimed to develop a better model for future research. We hypothesized that inoculum derived from the small intestine, the site first impacted, the incidence of disease would increase over traditional cecum inoculum. We homogenized the inoculum by freezing stocks that could be thawed in lieu of growing new cultures because they offer less bacterial variability between studies. In a first experiment, pups were born naturally, dam fed for 72 hours, then gavaged with inoculum from the small intestine, cecum, or sterile saline. Treatment groups underwent hypoxia, cold stress, and formula feeding while controls continued to be dam fed and housed. As expected, treatment groups had a significant decrease in body mass compared with control, and lower birth weight pups fared worse in terms of outward clinical symptoms associated with disease (diarrhea, abdominal distention, apnea, lethargy). Initial DGGE results of small intestine contents suggest that the microbiota of control vs treatment groups strongly differ with a slight difference between small intestine and cecum inoculum groups. Further investigation using DGGE, sequencing, and histology is needed to strengthen these early concessions. However, if these trends continue, it is an important insight into the possible microbial atmosphere which leads to necrotizing enterocolitis.
- Sautman, Matthew *"Queering a Black Temporality in Octavia Butler's Kindred: Ruminations on an Afrocentric Understanding of Present, Past, and Future"*
  - This project concerns Octavia Butler's usage of time in her 1979 novel *Kindred* in order to better understand how she uses the novel to reflect her own subject position as an African American woman. Butler's usage of time in *Kindred* may be fundamentally queer (in the phenomenological/geospatial sense), posing a challenge to differentiating the present, past, and future from one another, but drawing on critical conversations by Mila Milatovic, Stella Setka, Katherine McKittrick, and Eileen Donaldson, along with an amalgamation of queer, postcolonial, and Black Feminist theory, I differentiate present from the past and future in order to emphasize *Kindred's* sociopolitical significance. *Kindred*, as a text rooted in the present, the American 1976 Bicentennial setting that the book partially takes place in, is a piece of

textual activism that critiques American Exceptionalism and its capability to sanction oppression through post-racial ideology, but as a text rooted in the past, *Kindred* represents Butler's own historical recovery project and challenges the kind of Black Nationalism that argues for a clean break from the past generation. Butler's Afrocentricity calls attention to the insidious presence of White Supremacist Patriarchy in the present is tied to the ubiquitous presence of White Supremacist Patriarchy in the past, and her subtle futurism hints at the capacity for this same hegemony to persist into the future. Ultimately, I argue, *Kindred* is a pedagogical novel, which Butler uses to disrupt White Supremacist Patriarchy and convey a praxis for reorienting American culture towards a Black Feminist temporality.

- Sewell, Elaine (presenting for Schneider, Claire) *"An International Studies Mapping Project at Southern Illinois University Edwardsville"*
  - In Fall 2016, a new International Studies undergraduate degree program was launched at Southern Illinois University Edwardsville (SIUE), providing students with opportunities to understand the social, political, economic, and cultural developments in various world regions and prepare them for careers in a globalized world. During the 2016-2017 academic year, an Undergraduate Research and Creative Activities (URCA) student assistant, under guidance from the program director, started a project of mapping international studies resources and careers, thus helping conceptualize international studies issues and opportunities from an interdisciplinary perspective. In Fall 2017, another URCA student assistant has supported the continuation of the international studies mapping project at SIUE with a content analysis of websites of International Studies academic programs. In Spring 2018, the same URCA student will continue the content analysis, moving from data collection to a more indepth examination, research results writing, presentations, and publication. The primary objectives of this project have been: to create a resource book, useful for International Studies students and faculty, identifying, cataloguing, and providing overviews of international studies topics and trends, journals and reports, career pathways and options, key organizations, and educational programs; and to assess how topics and trends are represented and pursued as resulting from the websites of universities offering programs in International Studies.
- Shah, Keyur *"Analysis of Thermal and Optical Effects of Water Droplets on PV Panel Performance"*
  - Temperature is the major aspect which can affect the efficiency of the solar panel. And during the rainwater flow develops over the inclined solar plate which can reduce the operating temperature of water. After rain because of adhesive force between water and solar plate surface, water stay on the tops of the solar plate in the form of droplets. Many research shows that remaining water droplets on the top of the solar plate can also affect the efficiency of the solar panel. Droplets of water also concentrate the solar rays on the solar plate which helps to absorb more light. Also, Droplets helps the PV Panel to remain cool.
- Stuart, Kurt *"Thermodynamic Analysis of a 5-Stroke Engine"*

- In this paper, the air-standard cycle analysis is performed for a 5-stroke engine to obtain the indicated thermal efficiency and power output over a range of operating points and design characteristics, including engine RPM, compression ratio, overall expansion ratio, expansion cylinder clearance volume, and transfer port volume. The results are compared with those of a baseline 4-stroke engine. This analysis is accomplished by an air-standard, 2-zone, curve fit specific heat thermodynamic model for both engines with heat release function with heat transfer and mass loss for both the combustion cylinder and the expansion cylinder. The results indicate increased thermal efficiency and power output over the baseline 4-stroke engine, depending on the engine RPM and overall expansion ratios.
- Tan, Huey Yii *"Technology-Enabled Mindfulness and Gender Effects on Sequential-Task Performance"*
  - Our research explores the mutual effects of a technology-enabled mindfulness exercise and gender on task performance. In particular, we find evidence that initial task performance predicts subsequent task improvement when mindfulness is practiced. We also demonstrate the moderating influence of gender, such that the effect is significant only among males.
- Tillery, Morgan *"Impact of Leaders' Use of Self-Deprecating Humor on Direct-Reports' Perceptions of Leaders"*
  - Research has shown to support the idea that use of humor impacts subordinates' perceptions of leaders, and that using the right humor can improve these perceptions (Gkorezis & Bellou, 2015). For example, one type of humor, self-deprecating humor, has been found to improve relational perceptions, including perceptions of self-confidence, individualized consideration, people-oriented leadership and trust in the leader (Gkorezis & Bellou, 2015; Hopton, Barling, & Turner, 2013; Steiger, Formann, & Burger, 2010; Tremblay & Gibson, 2015). Perceiving a leader to be more relational increases satisfaction with the leader and perceptions of the leader's effectiveness (Dobbins & Zaccaro, 1986; Gkorezis & Bellou, 2015). However, individual differences of the subordinate affect these relationships, specifically, participants trait affect can make the use of humor more or less beneficial to supervisor-subordinate relationships, as those with negative affect are less affected by humor (Ruch & Hofmann, 1998). For this study, 268 participants, collected via MechanicalTurk, were shown a video of one of three humor conditions and then surveyed over their perceptions of the leader in the video as well as their own affect and demographics. The videos included a brief scene between a leader and subordinate getting coffee at work. Each of the conditions included three statements, depicting either positive, or self-deprecating, negative, or aggressive, humor or no use of humor. Hypothesized relationships included a positive relationship between self-deprecating humor and perceptions of leadership, a negative relationship between aggressive humor and perceptions of leadership, and a moderation affect by the participants' state affect. Results are being formulated.
- Udjoh, Manikomevwe *"Demonstrating the usefulness of GIS in Oil Spill Risk Management."*

- The Niger Delta region of Nigeria is one of the largest deltas in the world spanning more than 70000Sq km and contains vast wetlands. This densely populated region is the center of oil exploration with vast oil fields spread across the states of the delta. However, the discovery and exploration of oil brought with it the accompanying environmental problems such as oil spillage, gas flaring, ecosystem destruction leading to pollution of the air, soil, vegetation, farmlands, drinking water sources and fishing creeks. The United Nations Environmental Program (UNEP) 2011 report states that it would take thirty years and 1 Billion dollars to clean up the Niger Delta, but any sort of cleanup process must be preceded by a thorough understanding of the spatiotemporal pattern of occurrences of oil spillage. This study therefore focuses on using Geographical Information Systems (GIS) and remote sensing tools to highlight the causes and extent of spills. Spill sites will be superimposed against such parameters as population, land use and poverty levels to show impact while hotspot analysis will be used to emphasize high, intermediate and low impact areas which is very useful in planning the cleanup process. The need for detailed data collection and establishment of a GIS department in government monitoring agencies and Multinational Oil Companies alongside advancements in oil spill detection and control will be emphasized. Models like GNOME and the use of Unmanned Aerial Vehicles have proven very useful in detecting and determining the size and trajectory of spills.
- Villarreal Rodriguez, Lucero *"Stem Cells affected by UV Radiation in Planarian Flatworms"*
  - The planarian flatworm *Schmidtea mediterranea* is an ideal in vivo model to perform regeneration studies because of the worms' unlimited restorative and physiological renewal capacities provided by their specialized stem cells called neoblasts (Alejandro Sánchez, 2005). I identified the planarian homologs of human genes implicated in repair UV damage to DNA. In order to elucidate the role of DNA repair in general stem cell function and assess whether NER reparative pathways are important for neoblast maintenance and regeneration, I silenced the planarian homologs of XP by RNA interference (RNAi) in the presence and absence of UV damage. I also tested the worms' regenerative ability inducing a wound following the knockdown and UV exposure to observe how well they repair their lost tissue. Phenotypes indicating affection to stem cell population were observed, as affection in the regeneration such as asymmetry and development of supernumerary after UV radiation. Understanding how DNA repair pathways function in planarian stem cells will help us better understand how they maintain the stem cell population and use it to regenerate without aging or cancer.
- White, Jack *"Synchronous Motor Drive for Indirect Motor Installations"*
  - In the recent decades, the industry has adopted synchronous motors driven by variable frequency drives (VFD) as one of the mainstream installations for operating machinery. Many of such installations involve sensorless motor drives, which operate the motor without the need of shaft position sensors saving installation costs and the level of complication. In certain deployments, there is a need to connect a filter or a very long cable run between the motor drive and the motor. This oftentimes causes

problems in sensorless motor operation due to the lack of direct drive-motor connection. My research focuses on developing a method of sensorless detecting of motor shaft position which enables indirect drive-motor connections and especially insertion of additional devices between the drive and the motor. For the Symposium, I will demonstrate a scaled-down model of a typical variable frequency drive and a motor, illustrating the problem, and a variety of solutions to the problem. In particular, the model will demonstrate: 1.) Voltage ringing caused by long cable runs. 2.) Filter device and a bearing spark debouncer used as insertion device between the drive and the motor. 3.) Motor start problems with and without inserted devices along with possible improvements in shaft position estimation.

- Wiley, Janet and Schweitzer, Rachel *"Foster Parent Religiosity"*
  - Foster parents strive to provide a safe, stable environment for the children they bring into their homes. Many foster parents are motivated by religious values to become foster parents. Foster children often have histories of abuse and neglect that can lead to externalizing behaviors. Affiliation with religious communities could support foster parents by providing them purpose and meaning as well as social and material support. Religion can also provide the foster children a sense of belonging in the greater religious community. However, dissimilar levels or types of religiosity could provide conflict between foster parents and children. Through surveys and interviews current foster parents reported that religious practices are important to them. They described religious practices they had in their homes and their participation in religious communities. They also reported that the foster children in their home willingly became involved in the religion of the family.
- Wright, Mallory *"TWIST Regulates EMT Processes and Influences Salivary Gland Progression"*
  - The extracellular matrix is a network of proteins secreted by cells that forms a scaffolding for cells. It is also involved with many signaling pathways as it contains surface receptors to transduce signals into the cell. While the extracellular matrix normally regulates tissue development and homeostasis, its dysregulation contributes to neoplastic progression via excessive proliferation, death resistance, and remodeling towards EMT. Due to extracellular matrix's ability to promote cancer progression we seek to understand if placing normal salivary gland cells under the influence of a cancerous extracellular matrix leads to EMT through interactions with the extracellular matrix. Twist is a helix-loop-helix transcription factor, which has been associated with many types of epithelial cancers. Twist overexpression has been implicated in low differentiation, advanced clinical stage, metastasis, and recurrence of various cancers, including oral squamous cell carcinoma. Twist functions as a signal transducer and activator of MAP kinase, Ras, and Wnt signaling, processes that can result in increased proliferation and cancer progression. We evaluated Twist's involvement with the extracellular matrix in inducing EMT. Using a combination of routine immunofluorescence techniques and migration assays, we showed that under the influence of the cancer extracellular matrix, normal cells began to express EMT markers. Silencing of Twist enabled these markers to be decreased in cancer cells and

also decreased migration. We conclude that Twist could be regulated cancer progression by enhancing expression of EMT markers and increasing cell migration, and silencing Twist could abrogate cancer progression by decreasing cell migration and eventual metastasis.

- Yanik, Erim *"Magnetic Field Analysis of Circular Halbach Magnet Arrays and its Effect on Heat Transfer of Domestic Magnetic Refrigeration Systems"*
  - In this study, magnetic field strength inside the bore of the circular magnet array was studied analytically and experimentally and the results were compared with the mathematical model developed. A permanent magnet called NdFeB 52 MGOe is employed as the magnet array whereas Gadolinium is utilized as the magnetocaloric material which has the same geometry as the magnet array and positioned concentrically in it. The working fluid flows through the clearance between the magnet array and the MCM. The magnetocaloric effect, resultant entropy change and heat transfer rate around the MCM were observed. It was found that with the cylinder long enough the magnetic field remains constant along the axial direction. All three different methods were observed to be in close agreement which ensures analyses for more complex array geometries can be conducted in the future by using this mathematical method developed for domestic magnetic refrigeration systems.
- Young, Letrice *"Ready or Not: A Comparative Analysis of the Career Readiness of Student Athletes vs. Non-student Athletes"*
  - Due to the dismal probability of 21st century athletes making the transition to the professional ranks of their chosen careers, it is in their best interests to have an alternative career plan. According to current statistics as offered by the National Collegiate Athletic Association (NCAA), 9.1% of baseball players, 1.1% of men's basketball players, 0.9% of women's basketball players, 1.5% of football players 5.6% of men's ice hockey and 1.4% of men's soccer all have the probability of going on to pursue a career in professional sports. Despite these numbers, some athletes still think they 'may go pro'; thus, they do feel a sense of urgency to learn the nuances of preparing for a job, let alone a career. Many of them do not know anything about the job application/career planning process. Furthermore, since it would seem best for them to stay in the realm of sports, they should also automatically prepare for a career in some aspect of sports in order that they may remain in the realm of the arena that makes them happy. Thus, it is the purpose of this study to explore the career understanding of today's athletes as they are preparing to leave their post-secondary sports careers. It is also important to assess the understanding of how non student-athletes perceive post-secondary career readiness.