Spring Research Day

April 3, 2018

Abstract Booklet

Organized by the Office of Research and Sponsored Programs

POSTER PRESENTATION ABSTRACTS

EASEL #1: SAVE OUR GIRLS: Sex Trafficking in the United States
Syria Aaron (Sociology)
Faculty Mentor: Jacqueline Zalewski

My poster will describe the research I have done in an independent study to better understand the sociological aspects of sex trafficking. The five analytical areas I have found in a review of scholarly literature include: definitional issues of sex trafficking and the extent of the sex trafficking problem in the US; common pathways into sex trafficking; the experience of sex trafficking; sex trafficking and health; and laws and other strategies to address and reduce sex trafficking in the US. In addition to describing the foci in each area in the research poster, I intend to describe the research gap I see regarding common pathways into sex trafficking.

Sex trafficking research is limited in many ways but some common pathways produce more research and data than others. For example, brothels, massage parlors are the top two forms of sex trafficking with the most research provided. The entry point with the least information provided is the fashion market district and the marriage agency network. Online, young poor girls are exposed and susceptible to vulnerabilities on websites that then serve as pathways into sex trafficking. My purpose for completing this scholarly review is to design a researchable topic in the area of sex trafficking, develop an IRB proposal, and submit it to the IRB this spring for approval. I will engage in empirical research on sex trafficking for a senior capstone course in sociology in fall 2018.

EASEL #2: A Comparison of Balance, Postural Sway, Jump-Landing Mechanics, Reaction Time, and Visual Motor Processing Speed in NCAA Division II Athletes With and Without History of Concussion
Haley Anderson, Lundin M.J., Morrison K.E. & Baer D.J. (Kinesiology)
Faculty Mentor: Nicole Cattano (Sports Medicine)

Background: A positive association has been found between concussion and subsequent lower extremity injury yet it is uncertain what deficits cause this. Further investigating possible deficits caused by concussion could help enhance rehabilitation and decrease risk of subsequent injury.

Purpose: To compare the results of the BESS, LESS, Ruler Drop, and King-Devick scores in participants 0 to 1 year post-concussion (0-1yr), 1 to 2 years post-concussion (1-2yr), and those with no history of concussion (NoHx).

Methods: A cross-sectional study was used. Forty-five participants reported to complete the BESS, LESS, Ruler Drop, and King-Devick test. Results: Statistically significant group differences were found in BESS single leg firm left-right excursion (NoHx: 4.81 ± 1.38, 0-1yr: 5.48 ± 3.65, 1-2yr: 10.08 ± 8.05; P = 0.02). Statistically significant group differences were found in single leg foam variability (NoHx: 0.79 ± 0.44, 0-1yr: 0.50 ± 0.22, 1-2yr: 0.55 ± 0.24; P = 0.04). There were many statistically significant moderate and strong positive correlations between BESS and postural sway variables. Although not statistically significant differences in reaction time did exist (NoHx: 0.16 ± 0.032, 0-1yr: 0.17 ± 0.03 1-2yr: 0.17 ± 0.021; P = 0.419).

Conclusions: Participants with a history of concussion 1 to 2 years ago had poorer postural sway than healthy controls. Clinicians should assess athletes with a history of concussion during pre-participation evaluations to discover poor performing athletes. Those who suffer a concussion or who may be at risk from a previous concussion could benefit from targeted preventative exercises.

EASEL #3: The Performance of Auditory Processing Disorder and Dyslexia on Dichotic Listening Tests
Sydney Anshel (Communicative Sciences and Disorders)
Faculty Mentor: Aaron Roman

Purpose: The purpose of this study is to determine if there is a statistically significant difference between the performance (e.g. scores) of individuals with Auditory Processing Disorder and Dyslexia on the dichotic listening tests. The poster will endeavor to explain these differences and detail these in an easy to understand format.

Methods: A review of sources with relevant information will be conducted to answer the above query. The results will be displayed on a poster of either cardboard or vinyl. If it is printed, this will likely be accomplished through the university library.

Results: From what the author has surveyed, it currently seems that there are differences between the test results of individuals with these two disorders. However, comorbidity presents a confounding factor and may influence the outcome of several studies referenced by the author in the research. Nonetheless, the realm of ear advantage on dichotic listening tests appears to be promising and may provide further insight into separating these two disorders during diagnostic tests.

Conclusion: Further analysis is needed. The author believes that further research studies may need to be conducted in order to definitively conclude that the results are valid, but has observed that the preliminary information may be gathered by preexisting studies. Certain studies presented evidence that would suggest dyslexia confers no ear advantage, but others provide different results that support the ear advantage hypothesis. It is obvious, however, that both disorders cause varying degrees of impairment on dichotic listening tests, including when they occur comorbidly.

EASEL #4: Overweight and Underserved in Adolescent Youth: A Contemporary American Paradox
Elyse Barletta-Sherwin (Health)
Faculty Mentor: Ramona-Elena Stone

Purpose: Food insecurity and the rates of overweight children are major health concerns in the US. This study aims to assess the association between food security and healthy weight in children ages 6 to 12.

Methods: Using the 2013-2014 NHANES survey, we tested the association between food security and weight, while controlling for race, gender, physical activity, and family income to poverty ratio.

Results: We found a significant association between food security and whether a child was overweight or not. Children in households with low or very low food security were about 2.4 times more likely to be overweight. There were no differences across gender, between white, African-American and Asian groups, however, the Hispanic and multi-racial children were more than twice as likely to be overweight. In addition, children who were active at least 3 days/week were twice as likely to be of normal weight.

Conclusion: Children from lower income families appear to be consuming unhealthy quantities of lesser expensive foods that are low in nutrient dense ingredients, yet high in fat and artificial ingredients. Thus, they are subsequently gaining unhealthy amounts of weight. The significant relationship between Food Security and children's weight indicates that the current eligibility criteria for federal Food Stamps and the types of foods they cover should be revised so that food insecure children are eligible for quality food assistance. Such gaps in service are indicative of larger social, political, and economic problems adversely impacting the health of children in economically disadvantaged groups.

EASEL #5: A Benign Approach to Analyzing Beer Degradation
Daniel Biegert & Giacomo Pazzaglia (Chemistry)
Faculty Mentor: Blaise Frost

There are hundreds of different brands of beers, each containing its own special blend of molecules that interact with the flavor receptors on your tongue. These flavor components that we refer to as molecules combine to give a pleasurable, or non-pleasurable experience. In some cases, the non-pleasurable sensation could be due to several chemical processes that have altered the composition of the flavor components. The purpose of our experiment was to quantitatively examine the degradation of the flavor compounds found in beer, specifically the α-acids found in beers with a bitter taste. The technique of cloud point extraction was used to separate out the organic, volatile, and flavor molecules most common in beer. While Super-critical fluid chromatography was used to quantitatively analyze the difference in these components between different samples of beer subjected to different environments, including light and high oxidative pressure.

EASEL #6: Exploring the Relationship between Aerobic Fitness, Functional Movement, Injury and Patient Reported Outcomes in Women's Lacrosse
Marybeth Bindel, Cattano NM, Heinerichs S & Morrison KE (Kinesiology/Sports Medicine)
Faculty Mentor: Nicole Cattano

Background: Previous studies have looked at the impact of functional movement screen (FMS) score and aerobic fitness (VO2max), and injury. Few studies have included patient reported outcomes (PRO) as a means of assessing overall well being over the course of a competitive athletic season.

Purpose: To assess PRO's over the course of a competitive season between aerobic fitness, FMS, and injury groups. Secondarily, we wanted to examine if there was a relationship between FMS and VO2max.

Methods: A prospective cohort study was used. Twenty-four healthy Division II women's lacrosse athletes completed the FMS and Yo-Yo Intermittent Recovery Level 1 fitness test prior to the start of preseason and completed a daily readiness questionnaire via email. The variables assessed are high (score>14) and low (≤14) FMS and fair (VO2max≤41.5) and good (VO2max>41.5). As well as the averaged PRO responses for each of the six questions on the questionnaire.

Results: Average VO2max score was 41.52±1.51. A strong positive correlation was found between injury and aerobic fitness. All individuals who sustained injuries had higher VO2max scores than those who did not sustain an injury. Those in the good group reported better PRO over time for fatigue and general muscle soreness than the fair group.

Conclusions: Those with higher aerobic fitness were found to sustain more injuries however reported better PRO's throughout the season. There was no difference in FMS scores among any group indicating aerobic fitness testing could be a more useful assessment in addressing injury risk.

EASEL #7: Textual Engagement: Surprising Effects of Reading Aloud on Student Writers
Michelle F. Blake (English)

In Peter Elbow's *Vernacular Eloquence: What Speech Can Bring to Writing*, he argues that reading out loud can help students achieve a more "lively" kind of writing at all stages of the writing process. The research presented in this poster focused on the effects of reading aloud on the last stage of the writing process, students' ability to recognize and correct sentence-level errors.

Students in six developmental writing classes took pairs of punctuation exercises on each of four topics: run-ons, fragments, commas, and semi-colons and colons. They alternated between reading the first exercise out loud and the second in their heads, and reading the first exercise in their heads and the second out loud. After taking each pair of exercises, they reported their quiz scores and their reactions in a Qualtrics survey. Students also used the read-aloud protocol on their own writing, and reported on those experiences in journals.

Results suggest that reading aloud has a small positive effect on most students' ability to correct sentence-level errors. Further, and perhaps more interestingly, results reveal that reading aloud leads to an almost-universal deeper textual engagement and increased self-efficacy levels, even in those students who did not like the reading aloud, and even in those students whose quiz scores went down on the exercises they read out loud.

In short, the study suggests that this simple practice helps students engage with writing in ways that positively affect both the quality of their work and their self-efficacy as writers.

EASEL #8: #TrendingTopics in Suicide Prevention: Advocating for Strength-Based Counseling Interventions
Sara Brewer (Counselor Education)
Faculty Mentor: Dr. Vickie Ann McCoy

In examining effective adolescent suicide prevention strategies, it is important to understand what has been done in the past, what is currently being done, and how current cultural trends are shaping future research. Suicide still remains the second-leading cause of death for young adults (World Health Organization [WHO], 2017). With the recent overwhelming influence of pop culture and social media, vulnerability factors of adolescents may also be changing in both frequency and intensity. It is of the utmost importance for counselors to educate themselves on recent trends in order to best contribute to preventative measures. In this research, authors strive to compile research on current trends in the field and in favor of strength-based intervention strategies. Although previous popular prevention strategies, such as behavioral contracting (Drew, 1999; Stanford, Goetz, & Bloom, 1994) or the Signs of Suicide™ school-based prevention program (Aseltine & DeMartino, 2004), have proven effective in certain areas, we advocate for a push towards strength-based, comprehensive, and culturally-sensitive interventions that can be even more successfully applicable in various settings. By identifying one's reasons for living, for instance, one can improve resiliency factors and develop coping skills that will hold relevant across all aspects of life.

EASEL #9: Discourse Practices in the Mathematics Classroom of Experienced and Novice Teachers
Christina Bucci, Heather Fink, Alex Gottschall, Jessie Haverkamp, Kate McNamara, Brittany Parker, Megan Pavlitsa, Cailin Popp, Alex Rufolo, Stephen Schopf, Kiersten Spitzenberger, Katelyn Stout, Chris Trunk & Aysel Tuna (Mathematics)
Faculty Mentor: Kathleen McAneny

Undergraduate students in MAT390 seminar class examined discourse practices in mathematics classrooms. The purpose of this study was to evaluate how novice teachers (years 0 – 3 in teaching) and experienced teachers (more than 3 years in teaching) differ in organizing their classrooms to encourage discourse in mathematics. Teachers were invited to answer questions concerning discourse and classroom environment through the use of Qualtrics. 7 novice teachers and 34 experienced teachers responded to the survey. Results are still being evaluated; however, it appears that novice teachers use more written discourse and partner work than experienced teachers. The percentage is higher for experienced teachers in setting rules and expectations for their students. For altering the classroom setting to encourage discourse, experienced teachers and novice teachers appear to use similar configurations, such as different arrangements of desks, purposeful grouping, or making discourse practices an integral part of the setting every day. It is noted that the number of novice teachers is low, and we realize this impacts the data. More information needs to be obtained concerning teachers' definition of discourse and whether their definition mirrors the available research on this topic. We also question how the level of the mathematics classroom impacts the use of discourse, and we would like to pursue the equity aspect of this situation.

EASEL #10: Nitrogen and Phosphorus Co-limitation in the Gulf of Mexico
Jessica Capista (Biology)
Faculty Mentor: Joseph Montoya (Biological Sciences at Georgia Tech)

The Gulf of Mexico experiences a mix of nutrient limitation due to the high impact of freshwater runoff and the abundant populations of N2-fixing (diazotrophic) organisms in offshore waters. We conducted three nutrient amendment experiments to assess the effects of NO3-, PO43-, and SiO2 availability on phytoplankton communities by adding these nutrients singly and in all combinations to surface water. We measured change in phytoplankton abundance and nutrient concentration. We observed the greatest nutrient consumption and increase in phytoplankton abundance in water amended with both N and P, and significantly less growth and nutrient consumption when N or P alone was added. Our data provide strong evidence for co-limitation of phytoplankton by both N and P availability.

EASEL #11: Cultural Norms Affecting First-Generation College Students' Coping and Help-Seeking Behaviors
Janet Chang, Colin Mancini, Brianna McGrath-Mahrer, Kristen Ohl, Sujey Orama & Kiana Melendez (Psychology)
Faculty Mentor: Janet Chang

First-generation college students experience financial, academic, and personal challenges. The current research sought to examine how first-generation college students cope with various stressors and explore the applicability of "cultural mismatch" as a theoretical framework. This framework argues that the culture fostered by colleges and universities emphasizes a middle-class sense of independence, whereas first-generation college students typically are raised in a working class, interdependent environment. The present study explored the coping experiences of first-generation college students in the context of cultural mismatch. Eight focus groups (n = 60) were conducted to examine the influence of cultural norms on first-generation college students' coping and help-seeking behaviors for academic, financial, and emotional problems. Qualitative analyses revealed most students were self-reliant and underutilized social support due to relational concerns about burdening others, being judged by others, and making matters worse. These findings speak to the importance of culturally tailoring outreach efforts.

EASEL #12: Voices from Peru: Cultural Norms and Barriers to Help Seeking
Janet Chang, David Reyes-Farias, Sarah Vandegrift & Michael Antonio (Psychology & Criminal Justice)
Faculty Mentor: Janet Chang & Michael Antonio

Ventanilla, Peru is a socioeconomically disadvantaged community heavily impacted by substance abuse and gang violence. Given limited coping research on Peruvians and the relational importance of close social bonds for disclosure, the present study explored Peruvians' experiences with disclosure, well-being, and coping as well as their perceptions of community views. Eighteen adult respondents (3 males and 15 females) were interviewed about their experiences disclosing and coping with problems and community perspectives on well-being, coping, and mental health. Qualitative analyses revealed that most participants expressed a reluctance to disclose problems due to relational concerns about shame, judgments from others, gossip, and betrayal. Barriers to help seeking were compounded by structural, physical, and socioeconomic issues in participants' lived environment. The findings suggest that cultural perspectives on coping, social support, and well-being are complicated by public health considerations.

EASEL #13: Development of the Slaughter Beach Salt Marsh Salt Ponds
Michael Cohen, Alan Geyer & Garret Rees (Earth and Space Sciences)
Faculty Mentor: Daria Nikitina

The Slaughter Beach salt marsh, Delaware (part of the Milford Neck Wildlife Area) comprises of ~ 1400 acres of salt marsh platform dissected by tidal creeks, channels, tidal flats, salt pans, and a wooded highland area known as Sheppard's Island. The marsh is vegetated by Sp. Alterniflora, Sp. Patens, Distichlis Spicata species of salt marsh plants and is subject to tidal inundation. The area was part of the Army Corps of Engineers' mosquito control and drainage ditching efforts in the 1930's. Though the marsh systems of Bombay Hook (directly to the south) have been thoroughly studied, especially in

the aftermath of Hurricane Sandy, the Slaughter Beach salt marsh hydrologic systems remain poorly understood. Through the analysis of historical documentation and aerial photography, along with coring samples, modern lidar data and drone imagery, this study will serve to provide historical context and current conditions of the Slaughter Beach salt marsh hydrology. Specific attention will be given to the creation, evolution, and current state of Slaughter Beach salt marsh salt pans.

EASEL #14: Triadic Family Concordance in Salivary Alpha Amylase (and Cortisol) Response to Challenge
Jazmine Cooper (Psychology)
Faculty Mentor: Susan Gans

The purpose of this research study is to examine the interrelatedness of stress physiology among family members as they interact with one another, assessing physiological concordance. During a 60-minute laboratory session, participants filled out questionnaires and participated in a 20-minute video-recorded family interaction session where they were instructed to work together to build a house of cards. Four saliva samples for sAA assay were collected from each family member at 20-minute intervals throughout the session. In this study, we used a mixed ANOVA with Alpha Amylase response time as a repeated measure and family identification number as a between-group factor to examine whether sAA response differs among families. A significant interaction of sAA response time and family identification number indicates that sAA response during family interaction differs depending on family membership ($F(100,202) = 1.50$, $p < 0.01$). In other words, we find evidence to suggest that sAA response is similar among family members. To follow up on these findings we looked to see whether the effect of family identification held when looking at families observed to be distant and families observed to be cohesive separately. We found a significant interaction of sAA response time and family identification number among distant families ($F(38,78) = 2.14$, $p < 0.01) < 0.01$). The interaction effect was not significant, however, among cohesive families ($F(37,76) = 1.19$, $p = 0.26$), suggesting that sAA response patterns are similar among family members in distant families and different from one another in cohesive families.

EASEL #15: "fifty nights": a connection between music and visual art
James Devor (Music Theory & Composition)
Faculty Mentor: Peter Paulsen (Applied Music)

"fifty nights" is a chamber music composition written for woodwind quintet (flute, oboe, clarinet, French horn, bassoon) and percussion. The piece is ten minutes long and spans six movements. It was written to represent Cy Twombly's set of paintings, *Fifty Days at Iliam.*

The purpose of writing "fifty nights" was to create a modern piece of chamber music repertoire based on a work of visual art. Doing so required much research concerning classical and modern musical scores, the American abstract artist Cy Twombly, as well as the causes, events, and impacts of the Trojan War. The project was concluded with a performance of the work done by a group of WCU students at the end of the Fall 2017 semester

EASEL #16: WCU's Early Alert Program's Impact on Student Academic Performance
Jon Godwin (Learning Assistance and Resource Center- Early Alert Program)
Faculty Mentor: Jocelyn Manigo

The University's Early Alert Program is a proactive system of communication and collaboration of professors, program staff, academic advisors, and University students. The program looks to provide early intervention through early indicators to students identified through multiple collegiate channels as needing additional academic and social support. The program works by identifying students, contacting them, and scheduling regular meetings to allow them to achieve their academic goals as well as improve WCU's retention and graduation rates. Any student with a C- or below can be referred to the program. Our goal will be to examine program data from the fall 2017 (2175) semester and establish a link from attendance and enrollment in the program and academic success, as defined by an increase in GPA.

EASEL #17: The Relationship Between Home Prepared Meals and Intellectual Disability
Amelia Hamilton (Health)
Faculty Mentor: Ramona Stone

Purpose: This paper analyzes the association between eating home prepared meals and intellectual disability (ID) as measured by receiving or not early intervention/special education services. This study used youth (less than 22 years old) data from the 2013-2014 National Health and Nutrition Examination Survey (NHANES). We report on the differences between individuals with ID who eat home prepared meals only and those who consume non-home prepared meals. The purpose of this study is to examine the relationship between diet and ID as measured by receiving or not early intervention/special education services.

Methods: Statistical analyses include descriptive statistics, such as univariate and bivariate analyses, and a multivariate regression to test the relationship between type of meals and ID, while controlling for gender, race, age, educational attainment, and family income to poverty ratio.

Results: A significant association between consumption of home prepared meals and ID while controlling for gender, race, age, educational attainment, and family income to poverty ratio was found.

Conclusion: Individuals with ID consume significantly less home prepared meals than individuals without ID. These results indicate that children with ID may be more likely to suffer from inadequate diet; their educational achievements would likely improve should they be provided more nutritious meals. The key recommendation is to improve the health education of individuals who receive special education services, to teach them how to prepare their own meals and how to create a healthy diet plan, so that they develop healthy eating behaviors early in life.

EASEL #18: Solvent Viscosity and Index of Refraction Effects on Fluorescence Resonance Energy Transfer of DNA Duplexes
Abbas M. Husain (Physics)
Faculty Mentor: Shawn H. Pfeil

We quantify the effects of varying sucrose concentrations on Fluorescence Resonance Energy Transfer (FRET) between cyanine dyes attached to DNA duplexes. Sucrose is commonly used to mimic the crowded molecular environment inside cells. FRET is a useful proxy for distance between two fluorescent dyes, an acceptor dye and a donor dye, and is calculated from the intensity of emission from both dyes when the donor dye is optically pumped; as the distance between two dyes increases, the emission from the acceptor decreases. In this work DNA duplexes with known separations ranging from 7 to 19 base pairs between dye attachment sites were used to probe the effect of Sucrose concentration on FRET signals. Each construct was measured in sucrose concentrations ranging from 0 M to .85 M. The amount of FRET was quantified by decomposing the resulting fluorescence emission spectra into the weighted sum of the emission line shapes of the donor and acceptor dyes.

EASEL #19: SFC Determination of the Scoville Index of Selected Peppers
Steven Huss & Mark Marrone (Chemistry)
Faculty Mentor: Mark Shuman

It is well known that the “hotness” of peppers is due to the presence of certain alkaloids which are comprised of capsaicin and several analogs of capsaicin (the capsaicinoids). The “hotness” of a pepper is measured in Scoville units (1 Scoville unit = 1 ppm of capsaicinoid in dried pepper mass). Peppers can be given a Scoville score by measuring the amount of each of the capsaicinoids extracted from a known mass of dried pepper. The type or quality (i.e. suddenness of onset, duration, etc.) of “hotness” depends on the relative amounts of the different capsaicinoids. Preliminary work has been done to establish a method for isolation of the capsaicinoids from various pepper types with subsequent separation of the individual analogs using Supercritical Fluid Chromatography (SFC). By calibrating the analysis with a capsaicin standard, the mass of each of the extracted capsaicinoids can be determined. The result for different batches of peppers is presented.

EASEL #20: Perspectives on Mathematics: Ending the Negative Cycle
Kelli Johnson & Pay Grey (Mathematics)
Faculty Mentor: Kim Johnson

The goal of this project is to gain insight into the underlying factors that contribute to beliefs and anxieties about mathematics experienced by pre-service elementary school teachers (PSTs). Teachers' beliefs about mathematics have a powerful impact on the practice of teaching (Charalambos, Philippou & Kyriakides, 2002; Ernest, 2000) and on the beliefs their future students have about mathematics (Karp, 1991). Identifying and addressing the causes of negative beliefs about mathematics held by PSTs is crucial for improving their teaching skills and to end the ongoing negative cycle of anxieties that teachers tend to ultimately perpetuate onto their future students. This project was designed to study the factors that initially contributed to the PSTs anxiety and phobias. Over 300 participants were asked to complete a survey focused on their beliefs about the nature of learning mathematics and their prior experiences in learning mathematics. Data analysis used a mixed method approach to look for correlations between the PSTs beliefs about mathematics and their experiences throughout their mathematics education. The results confirm that there are strong relationships between how mathematics was taught in their educational experiences and the level of their anxiety and confidence toward mathematics. As future teachers it is important to note that the PSTs lack of confidence in teaching math was highly correlated with an emphasis on memorization of procedures, and finding correct answers quickly. These findings are the first step in understanding these beliefs and how to address them in mathematics education courses.

EASEL #21: Comparing Changes in Proximity Between a Silverback and Two Western Lowland Gorilla (Gorilla gorilla gorilla) Infants at the Philadelphia Zoo
Emma Kaplan, Christina Pavia, Samantha Boughton, Jamika Carr, Lorri Fleishman, Robin Graney, Frank Imparo, Katherine Sipple, Samantha Smartschan & Madeline Vandevere (Psychology)
Faculty Mentor: Rebecca Chancellor

After giving birth, female western lowland gorillas vary in their proximity to the silverback. There is a gap in research examining how the infants' proximity to the silverback changes as they mature. We examined how proximity between two western lowland gorilla infants, ages 19 months (female) and 9 months (male), and a silverback changed over time. The male's mother was a first-time mother, while the female's mother was not. We predicted that as the infants matured, their proximity to the silverback would decrease and the male would do so at an earlier age after watching the older infant. We collected data at the Philadelphia Zoo through 30-minute focal scans of individuals with scans every 2 minutes. We collected data for 98.3 hours from August 2016 through January 2018. When we analyzed the two infants separately, we found that the male infant's proximity to the silverback decreased over time in the proximate category ($R2 = 0.62$, $F(1,5) = 8.37$, $p < .03$). However, the female infant's proximity to the silverback did not change. The female infant made contact with the silverback at four months of age. The infant male attempted to make contact at four months, but was blocked by his mother and successfully made contact at five months. Therefore, the male approached the silverback at an older age than the female but has since been in closer proximity. These results suggest that the differences in proximity could be attributed to the protectiveness of a first-time mother.

EASEL #22: Perceived Risk and Knowledge of Diabetes in College Students
Loagan Leshko & Jessica Dukes (Nutrition and Dietetics)
Faculty Mentor: Patricia Davidson

Diabetes is a public health concern, with research demonstrating the need for expanding diabetes education and prevention programs for young adults. The study aimed to determine the knowledge of diabetes mellitus, risk knowledge, and individual risk perception among college students at a state university. Two hundred students, 38% males and 62% females, completed the structured, self-administered questionnaire consisting of, socio-demographics, ten-item Risk Perception Survey for Developing Diabetes (RPS-DD)), and validated 24-item Diabetes Knowledge Questionnaire (DKQ-24). After completing the questionnaire, each student completed the American Diabetes Association Individual Risk Assessment (7 y/n questions). Statistical analysis included both descriptive and inferential statistics with the alpha level set at $p < 0.05$. Majority (75%) of the participants were aware of and identified a family history of diabetes. Sixty-three

percent of students had a poor knowledge of diabetes (≤ 65% correct answers), with an average score of 16 out of 24 total points. The majority did not understand the cause of diabetes and believed that diabetes was caused by consuming too much sugar and that the kidney was the primary organ involved in diabetes management. An average of only 50% of risk factors for diabetes were identified by 62% of participants. Ethnicity risk was not readily identified as a common risk factor. The data supports the need for improving young adult's awareness and knowledge of diabetes. The study has reinforced the need for improving college students understanding of diabetes mellitus risk factors and the importance of expanding the Diabetes Prevention Program to college students.

EASEL #23: The Effect of Reduced Audibility on Performance on the Mini-Mental State Examination
Heidi Liebenberg & Alexis Harkins (Communicative Sciences & Disorders)
Faculty Mentor: Aaron Roman

This study assessed the impact of reduced audibility on performance on the Mini-Mental State Exam (MMSE). In this study, subjects (n = 20) were randomly divided into two groups: reduced audibility and control (no reduction in ability). Reduction of audibility was administered through the Immersive Hearing Loss & Prosthesis Simulator (I-HeLPS). This poster will discuss the implications of reduced audibility and performance on cognitive measures used to identify mild cognitive impairment (MCI), such as the MMSE.

EASEL #24: Arch Height Index and Plantar Pressure Distributions in Females Post-ACL Reconstruction
Morganne Lundin, Cattano NM, Breymeier MM, Anderson HJ, & Morrison KE (Kinesiology)
Faculty Mentor: Katie Morrison (Sports Medicine)

Context: The potential long-term complications of ACL injuries can span from a reduction in activity levels to the development of osteoarthritis. There has been limited research to examine if foot type and plantar pressure distributions may contribute to these gait adaptations 1-5 years post ACLR

Objective: To evaluate the differences in arch height and plantar pressure distributions in females post ACLR and healthy controls.

Methods: Observational cohort. Forty females ages 18-25 participated in the study. Arch height index (AHI) and arch stiffness for each subject were measured. Plantar pressure distributions were analyzed on a Tekscan© mat

Results: Analysis of plantar pressures revealed no significant differences between groups for variables HCT p=.614, Dem(p=.655), EX(p=.68) or PPG (p=.11). With regard to arch characteristics there was no significant difference (p=.351) in AHS between CON(5988.21±2685.33) vs. ACLR(5279.76±2011.18), but there was a trend towards significance (p=.083) in AHI values between CON(.370±.0236) vs. ACLR(.359±.018).

Conclusions: Although we were unable to identify significant differences in plantar pressure distributions, there was a noted trend that AHI values were lower in the ACLR group indicating a more planus foot. This increases pronation during stance, which causes internal tibial rotation and preloads the ACL. This change in loading at the knee may have contributed to their original injury risk, but may also put these individuals at greater risk of long term complications. It has been shown that an increase in pronation in gait increases the knee adduction moment, which has been linked to the development of OA at the knee.

EASEL #25: Video Measures of Running Ground Contact Times and Vertical Ground Reaction Forces
Sabrina M. Mangeri, Tyler D. Whitacre, David J. Stearne & Kenneth P. Clark (Kinesiology)
Faculty Mentor: Kenneth P. Clark

Ground contact time (GCT) and Vertical Ground Reaction Force (VGRF) are key variables in regards to running performance, metabolic rate, and musculo-skeletal stresses. However, there are few field-based methods with acceptable accuracy to quantifying these variables in comparison to a force plate. The development of commercially available high-

speed video cameras (HSC) may provide a cost-effective method for determining these variables during ontrack running. Purpose: Validate video-based measures of GCT and VGRF compared to a laboratory force plate. Methods: 20 subjects (13 males, height = 1.76±0.07m, mass = 78.0±9.0 kg, leg length = 0.90±0.04m; 7 females, height = 1.65±0.07m, mass = 68.3±9.4kg, leg length 0.87±0.06m) volunteered and provided written informed consent. A high-speed camera (Apple iPad Pro 9.7) filming at 240 Hz was placed at three locations designed to replicate a camera panning in a track setting. The camera filmed the ground contact on the force plate as subjects performed three running trials at different self-selected speeds (jog, run, sprint), with two minutes recovery between each trial. Velocity was measured with an automatic timing system (Free Lap), and VGRF was directly measured using an in-ground laboratory plate (Kistler 5691A) collecting at 1000 Hz. Results: Complete statistics are provided in Table 1. The highspeed camera demonstrated excellent accuracy for GCT (R2 = 0.97), but was less accurate for calculations of average VGRF (R2 = 0.85). Conclusion: A commercially available HSC filming at 240 Hz can accurately determine GCT during running, but caution is warranted when using the proposed method to calculate VGRF.

EASEL #26: The Anonymous Collection of Longitudinal Data: An Investigation of Self-Generated Identification Codes and Methodological Challenges
Ellen McCauley (Psychology)
Faculty Mentor: Dr. Jodi McKibben

When collecting sensitive information over time, it is not only necessary to match participants' responses, but also desirable to maintain participants' anonymity. In such longitudinal research, a common approach is to use a Self-Generated Identification Code (SGIC). Unfortunately, there is a dearth of research identifying the ideal elements to use in such codes. The purpose of this research is to identify a reliable SGIC that efficiently connects respondents over time while maintaining their anonymity. Participants (nOBTAINED = 106, nUSABLE = 94) completed an SGIC during two sessions eight weeks apart. The experimental group was informed that the research included sensitive information on a second survey set, whereas the control group was informed that the research was solely focused on the SGIC. No sensitive information was requested. However, the minor deception permitted the analysis of whether participants' belief that sensitive information would be requested affected the consequent matching of the SGIC over an eight-week period. Contrary to previous literature, these results suggest that it is possible to create a stable SGIC that allows for matching participants over multiple time periods, even when participants are informed that sensitive information will be requested.

EASEL #27: Assessment of Screening to Identify Female Athlete Triad Risk in NCAA Division II Female Collegiate Athletes
Samantha Miller, Karpinski C., & Keenan L. (Kinesiology/Nutrition)
Faculty Mentor: Katherine Morrison (Sports Medicine)

Background: There is limited research on prevention strategies and screening procedures for those at risk for the Female Athlete Triad (FAT). Specifically, there is no NCAA regulation to adequately screen, despite the FAT Coalition providing a recommended 11-item questionnaire to identify those at risk. Currently, our institution incorporates a Health History Questionnaire (HHQ) containing 4 of the 11-items.

Purpose: 1).Examine the differences between the HHQ and FAT Questionnaire's ability to highlight athletes at risk and 2).Determine if those at risk exhibit additional objective FAT markers. Methods: Non-analytic cross-sectional survey and follow-up analysis. Data was collected over three phases, consisting of the HHQ (Phase I), FAT Questionnaire (Phase II), Brief Eating Disorder in Athletes Questionnaire (BEDA-Q), and BOD-POD Analysis test (Phase III). 193 female athletes participated in Phase I & II. 45 participants completed Phase III.

Results: 64 of the 193 athletes who participated in Phase I & II were highlighted as "at risk" with the 11-item questionnaire compared to 4 athletes using the HHQ, resulting in a 31.1% increase in risk identification. Frequency distributions were run on the HHQ, FAT Questionnaire, and BEDA-Q. Three out of the four Wilcoxon Rank test showed statistically significant differences between responses on the HHQ and FAT Questionnaire. There was no correlation

between the number of "flags" on the FAT Questionnaire, BEDA-Q Score (rs=0.198, p=0.192) and % body fat (rs=0.096, p=0.532).

Conclusions: More female athletes were highlighted at risk for the Female Athlete Triad using the recommended 11-item questionnaire in comparison to the current 4-items.

EASEL #28: Human Bocavirus: An exploratory risk assessment
Chelsey Moore (Health)
Faculty Mentor: Neha Sunger

Human bocavirus (HBoV) was first identified in 2005 as pathogenic parvovirus, due to its presence in respiratory tract specimens from Swedish children with lower respiratory tract infections (RTIs). Currently, a causal relation between the presence of the virus and respiratory illnesses has not been established. However, increasing evidence in literature and epidemiological studies indicates a statistical association between HBoV and acute respiratory tract disease (citations). Herein, we aim to conduct an exploratory risk assessment for exposure to HBoV in young children using surrogate viruses (Adenovirus 4 and Coxsackie virus). A hypothetical scenario involving an adult day-care worker with active HBoV releasing infectious viral particles as aerolized droplets while tending to infants aged six-to twelve-months was evaluated. The infant's risk of contracting the virus was calculated using an Airborne Infection Risk Model and existing dose-response models for each surrogate. Stochastic exposure models were developed to capture the uncertainty in the risk assessment. The mean risk estimate based on the Coxsackie and Adenovirus 4 models were 0.18 and 0.96, respectively. Overall, the risk to infants in the facility was significant (> 10-3), indicating the need to further evaluate the potency of this virus. Pathogen concentration in air (PFU/m3) appeared as the key driver of the risk assessment. As a result of this study, a benchmark framework presenting the quantitative risk assessment for HBoV infection in infants in a daycare setting was designed that can be potentially used as a template for analysis in future as more information becomes available on HBoV infectivity.

EASEL #29: The effects of an adjustable workout system on performance gains in collegiate lacrosse athletes
Sabrina M. Murphy, Cory Walts, David Stearne & Kenneth P. Clark (Kinesiology)
Faculty Mentor: Kenneth Clark

Periodization training is commonly implemented when training athletes of all levels. The utilizing of autonomy within a periodization program, however, is not something that has been utilized.

Purpose: to determine if significant increases in performance variables would be present between an 8-week, undulating or flexible daily undulating periodization program.

Methods: 34 division 3 college aged lacrosse players of both genders volunteered and provided written consent. Pre-and post- test measures were bench press, hex-bar deadlift, counter-movement vertical jump, acceleration, speed and change of direction for both the left and right sides. After initial testing, subjects were assigned to one of two training groups: a) nonlinear periodization (n=17, age=19.94±1.31 years, height=67.94±2.82 inches, weight=161.66±31.29 pounds) or b) daily flexible undulating periodization (n=17, age=19.41±1.37 years, height=67.72±4041 inches, weight=159.44±30.27 pounds). The training protocol for each group consisted of an 8-week 3-day-per week program.

Results: Improvements were seen in both groups for maximal hex-bar deadlift, acceleration, speed, maximal countermovement jump, and change of direction left. The control group recorded slower times for change of direction on the right side from pre-to-post testing and the experimental group showed a decrease in maximal bench press strength.

Conclusion: These results indicate that flexible daily undulating periodization is as effective as nonlinear periodization for eliciting performance enhancements in division 3 lacrosse players.

EASEL #30: What can I do with a sociology degree? The success of West Chester University sociology alumni
Yonahandi Pineda, Allen Snyder & Diamond Pless (Sociology)
Faculty Mentor: Dr. Jacqueline Zalewski (Anthropology & Sociology)

"What can I do with a sociology degree?" This question is often asked by students inquiring into the sociology major. The aim of this study—called the Sociology Majors Project (SMP)—is to get insight from West Chester alumni into the job and career possibilities with a sociology degree.

SMP was developed by Drs. Jackie Zalewski and Miguel Ceballos. It is a research project incorporated into the Sociology of Work course in spring 2018, and it has been approved by West Chester University's (WCU) IRB. The 20 students in the course are participating in one of five roles in the SMP that are spread over the semester so Dr. Zalewski can work with each group. At the center of this project, sociology alumni from WCU are contacted. Those who consent to the study are then surveyed by pairs of students in the class about their jobs, careers, and ongoing education following their graduation from WCU. The data is recorded, analyzed, and used to promote the accomplishments of sociology alumni from WCU and also the value of a sociology degree. We represent one of the student groups, the share findings group. In the research poster, we plan to give background information on SMP, describe the five roles, and share early results from our data and analysis.

By participating in the SMP students get certified on human subjects' research. They have opportunities to reflect on professional jobs and their goals. And they gain valuable (and documentable) human capital in authentic, real-world activities.

EASEL #31: Numerical Solution to the 1-D Non-Linear Schrodinger Equation
Ben Plumridge (Mathematics)
Faculty Mentor: Andreas Aristotelous, Ph.D.

An algorithm is being developed for the numerical solution to the non-linear Schrödinger equation using the finite difference method for the spatial and temporal discretization. First, the well-known theta-method is being implemented with fixed point iteration to solve for nonlinearities. Next, the goal is to implement the Besse relaxation method to solve the semi-classical limit Schrödinger equation where the Planck constant is small and compare its performance with the theta-method. The advantage of the Besse relaxation method is that is linear and thus, it does not require the solution of nonlinear systems.

Results from the theta-method algorithm will be presented. The convergence of the algorithm is tested for known solutions, as a means of validating the algorithm. The theta method so far has been tested on the diffusion equation, complex diffusion equation, non-linear diffusion equation and the linear Schrödinger equation. Numerical convergence has been established for all of these equations. The theta and Besse relaxation methods for the numerical solution of the non-linear Schrödinger equation are still under development. Once developed, convergence will be tested for each method applied to the non-linear Schrödinger equation.

EASEL #32: Compensation Legislation for The Wrongfully Convicted: The Case of Pennsylvania
Emily Powers (Political Science- International Relations)
Faculty Mentor: Gerardina Martin (Honors College)

This policy analysis focuses on the topic of legislation addressing compensation for those who have been wrongfully convicted. The research uses the case study of Pennsylvania, which is one of only eighteen states which has no legislation regarding compensation for the wrongfully convicted. To begin, the problem with the lack of any compensation statute regarding the wrongfully convicted is outlined, followed by a detailed policy history. In order to identify the best solution to the presented problem, this paper then analyzes the different policy options, then finally makes a policy recommendation. Upon examination of the research regarding the value of compensation statutes for those who have

been wrongfully convicted, evidence supports that this type of legislation is conducive to justice and should be incorporated into Pennsylvania's regulations.

EASEL #33: Chemical Analysis of Leaf Litter from a Humid Forest on Serpentinite Derived Soils in Southwest Puerto Rico
Dustin A. Renninger, Jamie Vann & David R. Vann (Earth and Space Science)
Faculty Mentor: Jamie Vann

Serpentinite is an ultramafic rock that contains high amounts of heavy metals and low amounts of plant essential nutrients relative to crustal rocks. Therefore, soil derived from serpentinite typically has a low Ca:Mg ratio, low nutrient levels, and high heavy metal content. These attributes, along with limited water holding capacity, are believed to cause "Serpentine Syndrome" in plants, which commonly produces low biomass and low productivity vegetation, often rich in endemic species. This study was designed to examine the relationship of leaf litterfall chemistry across rainfall, soil depth, and landscape gradients in a serpentinite ecosystem. We analyzed litterfall from fifty plots from four months in 2005 (March, June, September, December) from Susúa State Forest, a second growth, humid forest on serpentinite soils in Puerto Rico. We digested a 0.5 g sample of ground litterfall (oven dried at 65oC) with 8 mL nitric acid and heated it for 150 minutes at 110oC in a graphite block digestion system. We then added 2 mL hydrochloric acid and heated the sample at 95oC for 20 minutes. Digests were diluted and analyzed on an ICP-AES for base cations (Ca, Mg, K,) and heavy metals (Al, Fe, Ni, Cr, Cu, Zn, Co, Mn).

Preliminary analysis comparing March and June 2005 litterfall chemistry shows a seasonal effect for six elements and the Ca:Mg ratio, while landscape position has an effect on four elements. Soil depth and rainfall have a limited effect, in comparison, and final analysis with September and December litterfall may help explain these differences.

EASEL #34: Earth Abundant Metal Oxide Nanoparticles for Sensing Applications
Benjamin Roe & Joseph Swanson (Physics and Chemistry)
Faculty Mentors: Shawn H. Pfeil & Kurt W. Kolasinski

The goal of this project is to characterize the growth of metal oxide nanowires with the intended final purpose being sensing applications. We are focused on Earth Abundant metal oxides due to their significantly lower putative toxicity than the current generation of quantum dots and rods. We are currently examining iron (III) and copper (II) oxides as these have band gaps compatible with photoluminescence in the visible region. In one preparation method, metal seed particles are ablated onto a silicon wafer and nanowires/nanoparticles are grown by thermal oxidation in a tube furnace. In a second preparation method, laser ablation of the metal target is performed in pure water or an aqueous solution, and nanoparticles are ejected directly into the liquid. The resulting structures are characterized using a combination of Atomic Force and Scanning electron microscopy. Photoluminescent properties are examined via fluorimetry. Here we present data on the size distribution of these metal seed particles and the photoluminescent properties of both iron and copper nanostructures.

EASEL #35: **Nonverbal communication in business negotiation in *Shark Tank***
Natalia Sakhartova (Communication Studies)
Faculty Mentor: Elizabeth Munz

This research project examines the importance of understanding nonverbal communication in business negotiations by exploring the extent to which nonverbal cues affect credibility in a business environment. Given that separate nonverbal cues may not have significant meaning until combined into a cohesive set of various types of cues, the current research examines the effect of the combination of such nonverbal behavior manifestations as eye contact and body posture on the credibility of participants of the Shark Tank show at the time when entrepreneurs-contestants present their ideas to the panel of five self-made and well-respected venture investors. Shark Tank provides a great opportunity for an entrepreneur to raise funds for his/her business by trying to influence the decision makers both verbally and using nonverbal

communication making this reality show an excellent source of data on nonverbal tactics used by entrepreneurs-contestants during business negotiations.

EASEL #36: Perceptions of Safety and Inclusion in the Transgender, Non-Binary, and Gender Fluid Population at West Chester University
Rebecca Seeley (Communication Studies)
Faculty Mentor: Elizabeth Munz

This project examines issues of safety and inclusion, both inside the classroom and in campus involvement, for Transgender, Non-Binary, and Gender fluid college students. Students who identify within these populations were interviewed about their experiences as a student in these communities. Students were asked about their experiences and interactions with faculty and other students, in addition to their experiences and attitudes toward the general campus climate. Results from the interviews suggest ways to improve Transgender, Non-Binary, and Gender fluid students' experiences.

EASEL #37: Insights into atmospheric aerosol particle morphology from simulations of single-particle light scattering
Gabriel Seymour (Physics)
Faculty Mentor: Kevin Aptowicz (Physics)

Characterizing the distribution of aerosol particles in Earth's atmosphere is a challenging endeavor. Traditionally, aerosol distributions are extracted from land-based and space-based measurements of light scattering. However, in order to invert light scattering data to characterize aerosol distributions, the light scattering properties of the constituent particles must be known. Although the scattering properties of homogenous spherical particles are well known, the same is not true for nonspherical particles. In this work, we explore different models of nonspherical aerosol particles and test our models using light scattering from real atmospheric aerosol particles. In particular, using an image autocorrelation method which was previously devised, we quantify features in the light scattering patterns from atmospheric aerosol particles. Using three different models for nonspherical particles (i.e., spheroids, Chebyshev, and inclusions) we calculated simulated light scattering patterns and performed the autocorrelation analysis on these simulated patterns. We then compared the results of the analysis of the simulated particles to that of the experimentally captured atmospheric aerosols particles. We found that the calculated light scattering patterns from simulated spheroids particles were the best match to the experimentally captured light scattering patterns from atmospheric aerosol particles.

EASEL #38: Preliminary Data Review of Experiences of Students in Recovery from Substance Use Disorder
Adam Sledd (Graduate Social Work)
Faculty Mentor: Dr. Amber Holbrook

Purpose: Students of higher education in recovery from a substance use disorder have unique needs in the areas of safety, socialization, housing and academics. This qualitative needs assessment with students in recovery at West Chester University (WCU) is designed to provide data to inform development of a university-supported collegiate recovery program (CRP).

Background: Previous research indicates improved social, academic, and recovery-related outcomes for students supported by a CRP, including higher GPAs, improved retention rates, and longer periods of abstinence compared to peers. However, programmatic components of CRPs vary considerably between universities and little research is available to guide development. The needs assessment conducted targets the perceived needs and barriers for students at WCU.

Methods: Semi-structured qualitative interviews are conducted by an MSW student trained in qualitative interviewing techniques. Six questions addressed the students' expectations of the college experience, use of resources, perceived needs and barriers, and the desired elements of support on campus. Interviews are audio-recorded, transcribed, and checked for accuracy prior to coding. This protocol was .approved by the WCU Institutional Review Board.

Results: Preliminary themes have emerged which indicate a need for increased recovery support on campus. Students expressed developmentally-specific challenges related to social inclusion and managing increased freedom, while balancing academic stress and the tasks necessary for successful recovery.

Conclusions: The development of a CRP could assist in meeting the academic, recovery, and social needs expressed. Provision of supports may also advance WCU strategic objectives related to diversity and inclusion, while improving student success and retention.

EASEL #39: δ^{13}C variation in three ecotypes of the tussock-forming Arctic sedge *Eriophorum vaginatum* under experimental warming
Katie Thompson (Biology)
Faculty Mentor: Jessica Schedlbauer

The foundation species, *Eriophorum vaginatum*, is a tussock-forming sedge found in Alaska's moist acidic tundra. *Eriophorum vaginatum* ecotypes are locally adapted to climate, and this threatens long-term species viability given rapid Arctic warming. We sought to determine whether variation in δ^{13}C, a proxy for water-use efficiency (WUE), was related to growth limitations observed for the species under warmer temperatures. We expected that lower stomatal density and a tendency toward reduced stomatal conductance with increased vapor pressure deficit (VPD) in southern ecotypes would lead to more enriched leaf δ^{13}C (higher WUE) under warming, relative to northern ecotypes. To examine this hypothesis, leaves of three Alaskan ecotypes (south, central, north) were collected from common gardens at the central and northern sites. Half the leaves collected were from plants exposed to a warming treatment. Significant differences in δ^{13}C were observed among ecotypes at both gardens. This pattern was largely driven by the central ecotype, which had more depleted values at the northern garden and more enriched values at the central garden. In the northern garden, δ^{13}C differed significantly between treatments, with more depleted values under ambient conditions. Contrary to expectations, the ecotype from the central location was most responsive to changes in growth temperature, thus VPD. A treatment effect at only the northern garden may reflect the higher humidity of this location, leading to lower evaporative demand at ambient temperature. Overall, these findings indicate that latitudinal ecotypic differentiation in *E. vaginatum* is not reflected in δ^{13}C, thus WUE.

EASEL #40: Metal assisted etching of silicon: which way is up?
Bret A. Unger, Shannon C. Knight & Teresa Lee (Chemistry and Physics)
Faculty Mentors: Shawn H. Pfeil & Kurt W. Kolasinski

We explore metal assisted catalytic etching (MACE) of flat bulk Si wafers, laser ablation pillars, crystallographically defined macropores, metallurgical grade silicon powder and single-crystal powder. Porosification of Si powders leads to multiple pore orientations on polycrystalline particles but a single predominant pore orientation on any given face of a single-crystal particle. Electrostatic forces, Van der Waals forces, and cooperative behavior between metal particles play a role in etching. A better understanding of this anisotropy as well as the morphologies and sizes of the ensuing silicon nanowires (SiNWs) could improve applications of the material.

EASEL #41: Impact of a 20-week Snack Bag Program on the Dietary Intake of Collegiate Athletes
Christine Karpinski, Lex Versak, Katie Gunter, Katya Wolf & Mallory Ritthamel (Nutrition)
Faculty Mentor: Christine Karpinski

Objective: Assess the impact of a snack bag program on the dietary intake of collegiate female basketball players.

Methods: One-group, pretest-posttest design. Participants received personalized meal plans week 1, in addition to daily access to snack cart. Dietary intake data was collected at baseline and week 9, and body composition data was collected at baseline and week 18. A program satisfaction survey was completed in week 20.

Results: The sample consisted of 12 female athletes. From baseline to post-intervention, there were no significant difference in absolute intake of energy, carbohydrate, protein, fat, saturated fat or the micronutrients. Body weight and lean body mass did not significantly change. The mean intake for energy and all macronutrients was below their calculated needs at baseline and week 9. The mean intake of sodium, vitamin C, and iron (pre-) were below the DRI. Fiber, potassium, vitamin A, calcium, and iron (wk 9) were above the DRI. Based on satisfaction survey results, 85% of subjects utilized the snack station at every practice or more than half of practices (n = 11); all athletes (n = 13) reported the individualize meal plans to be somewhat or very helpful; and nine (69%) of the athletes reported sometimes or often following their meal plan.

Conclusions and Implications: Despite satisfaction with the program, the provision of a healthy snack station did not significantly improve dietary intake or body composition. The results of this study can be used in the planning and implementation of future programs.

EASEL #42: Impact of Asthma on Emotion Recognition Task Performance
Erin Walsh & Navy Spiecker (Psychology)
Faculty Mentor: Farzin Irani

Objective: Asthma is a chronic condition that affects health and socioeconomic well being. Primarily taxing lung functionality, asthma also affects brain functioning and cognitive processes (e.g. memory and attention) through insufficient oxidation and inflammation-based mechanisms. The current study examined the relationship between asthma and emotion recognition. We hypothesized participants with well-controlled asthma would not have different emotion recognition abilities compared to controls without asthma.

Method: 78 participants - 39 with self-reported asthma and 39 healthy controls were recruited from the PSY 100 SONA pool. We successfully assessed cognitive capabilities and cognitive functioning using the University of Pennsylvania's Computerized Neurocognitive Battery (CNB, Gur et al, 2009). Data from subtest, the Penn Emotion Recognition Task (ER40) was used to measure emotion recognition. The extent of asthma control was examined using the Asthma Control Test.

Results: Data was analyzed using SPSS version 24, with no differences between groups on socio-demographic variables including age, gender, and education. The means for age of participants 19 + 2.67, completed level of education 12 + 3.30, and ACT response 21.61 + 3.06, were demonstrative of a well controlled asthma sample. Examination of accuracy (percentage of correct responses) found variance between groups did not reach statistical significance ($t(72) = -.96$, $p = .34$).

Conclusion: Our results are consistent with our hypothesis and past studies in that individuals with well controlled asthma do not demonstrate deficiencies on cognitive tasks. Future studies can include more variability in severity and control of asthma to consider additional impact on cognitive functions.

EASEL #43: Measuring single-particle absorption from elastic light scattering patterns of complex aggregates
Sequoyah Walters (Physics)
Faculty Mentor: Dr. Kevin B. Aptowicz

Particle absorbance is one possible pathway to discriminate between different types of particles. We explore a potential method for characterizing the absorption of a single particle by analyzing the two-dimensional angularly-resolved optical scattering (TAOS) pattern of the particle. For a complex aggregate, the light scattering cross-section of a particle is strongly dependent on the overall size as well as the absorptive properties of the particle. By performing an auto-correlation analysis of the TAOS pattern, we can estimate the size of the aggregate independent of its absorption. We can also measure, within the constraints of our experimental geometry, the approximate light scattering intensity from the scattering pattern. With the scattering intensity and nominal particle size we can roughly estimate the absorption of the

particle. This approach was tested by simulating the scattering from a cluster of spheres using multi-sphere T-matrix method code.

EASEL #44: Divide and Profit: Mainstreaming Hate to Secure Viewership
Tyler Walton (Sociology)
Faculty Mentor: Julie Wiest

It is well documented in the scholarly literature that news consumers prefer like-minded stories and that news organizations often slant coverage to match the ideologies of their niche audiences. Further, prior research has shown that some news organizations are more offensive and divisive than others and that such content tends to be more persuasive. Given the currently contentious political atmosphere, it seems more important than ever to understand the role that news media may play in sowing discord throughout American society. This study draws on research and theorizing in media effects and persuasion to develop a framework for identifying divisive tactics used in news programs and uncovering any evidence of Gerbner's concept of mainstreaming. A qualitative content analysis was performed on the 6 p.m. and 10 p.m. news shows on the three biggest cable news channels—Fox News, CNN, and MSNBC—for a one-week period. Findings indicate (1) that 6 p.m. shows tend to be less divisive than 10 p.m. shows, (2) that one channel stands out from the rest in terms of divisiveness, and (3) that one show in particular contributes to what is being coined as a "mainstream of hate."

EASEL #45: Leading Instruction Change with Technology: A Multiple Case Study
Nora Wheeler (Education & Social Work)
Faculty Mentor: Dr. Heather Schugar (Literacy)

The influx of technology in schools over the last several decades has changed the K-12 educational landscape from instruction to assessment. Although local, state, and federal government policymakers encourage technology integration, the process is complex and requires the examination of technology in broad terms. According to the United States Department of Education Office of Educational Technology, many schools continue to face barriers with using technology in meaningful ways to improve learning on a daily basis. I designed a qualitative, multiple case study to determine the potential of using Donnelly, McGarr, and O'Reilly's Teacher ICT Integration Model as the foundation for understanding an elementary teachers' instructional technology decision-making in order to help educational leaders navigate change. The extent to which each case allowed common first- and second-order barriers to limit technology integration varied. Time, a focus on assessment, and required content objectives emerged as important decision-making factors for all cases. Educational leaders can lead instructional change with technology integration by establishing a clear vision with common goals that creates and sustains a student-centered learning environment. Determining the opportune conditions for all of the different teachers in a school building presents a significant challenge for educational leaders. By exploring the lived experience of four elementary teachers, I identified several themes that translate into tangible building-level goals. Although some require district-level decisions, the findings provide data to support requests for change (e.g., the creation of a list of vertically aligned core apps).

EASEL #46: The Acute Kinematic Effects of Sprinting with Motorized Assistance
Tyler Whitacre, Sabrina Mangeri, Micheál Cahill, Christian Korfist, and Kenneth Clark (Kinesiology)
Faculty Mentor: Kenneth Clark

Maximum velocity sprinting speed (Vmax) is highly correlated with performance in many sports. Although assisted running has become popular for training Vmax capability, acute effects are not fully understood.

Purpose: Investigate acute effects of overspeed training with the 1080 Sprint motorized towing device.

Methods: 14 male sprinters (age:18.0±2.5 years; height:1.75±0.07m; mass: 70.4±6.4kg; 100m personal best:10.80±0.31s) participated in a single testing session on an indoor track. Subjects completed four 60m trials under two conditions; the first two sprints without assistance and the next two sprints pulled with assistive force (7kg) from the 1080 Sprint. Subjects accelerated to top speed by 20m, sprinted at top speed from 20-40m, and decelerated from 40-60m. Vmax was

determined from 30-40m split time, measured with an automatic timing system. Sprints were filmed with a high-speed camera (960 Hz) panning with runners during the 30-40m split. Video analysis was used to determine ground contact time (GCT), flight time (FT), step rate (SR), step length (SL), and indirect measures of vertical force (VF). Dependent t-tests and effect size statistics were calculated for outcome variables.

Results: During assisted sprints, significant increases in Vmax occurred due to substantial increases in SL but not SR. Although SR did not demonstrate significant between-condition differences, there were small but significant decreases in GCT and increases in FT, indicating moderate increases in VF.

Conclusion: Decreased GCTs and increased VFs during assisted sprints could represent a beneficial stimulus if used in training. However, future research is needed to determine the longitudinal efficacy for improving Vmax.

EASEL #47: The indirect role of behavioral ecology in prey selection by an apex marine predator, the northern elephant seal
Regan Wilson (Biology)
Faculty Mentor: Jennifer Maresh

Understanding the drivers of prey selection by predatory animals requires realistic estimates of the energy value of their prey. Deep-sea forage fishes are the primary prey for many marine predators and, despite being the most abundant vertebrates on earth, very little is known about them. In this study, we used oxygen bomb calorimetry to determine the caloric value of 44 deep-sea species from areas nearby foraging northern elephant seals (Mirounga angustirostris). The relationships between energy density, various behavioral and ecological characteristics of the prey themselves, and predator preference were compared using simple linear regression, independent samples t-tests, and one-way ANOVA. Preliminary results from 15 species indicate an average energy value of 6802 ± 1812 kJ kg-1 wet mass, which is 20% higher than that of species typically found at more shallow depths nearshore. Prey diet guild and hunting strategy do not seem to be important characteristics driving prey selection by elephant seals, but depth may be. Forage fish inhabiting so-called mesopelagic depths (200-1000 m), as well as nocturnal vertical migrators, had the highest energy density on average (7661±2721 and 7827±1444 kJ kg-1, respectively), which aligns strongly with elephant seal foraging behavior. Interestingly, once at these depths seals do not preferentially select the most energy-rich species despite some individuality to their prey preferences. These results suggest that these seals may use water depth as a reliable, first-cut indicator of profitable prey at a macro level but then base specific prey selection decisions on other factors not measured in this study.

EASEL #48: Preserving Traditional Food Culture through Working on a Didactic Farm in Perugia, Italy - Summer 2017 WCU Study Abroad Program
Jena Wood, RD LDN, Dr. Lynn Monahan DCN, RDN, LDN & Dr. Michael Di Giovine PhD (Nutrition and Dietetics)
Faculty Mentor: Lynn Monahan

Background: Agritourism in Italy combines agricultural activities on a farm with tourist services. Visitors tour the farm, sample and purchase farm-produced, local products. Agritourism supplements farm revenue, and promotes positive economic, social and ethical effects by connecting tourists with local farmers, while fostering an appreciation of agriculture and tradition. Some Italian farms have a didactic approach where students work on the farm to acquire specific skills in preserving sustainable techniques of farming.

Purpose: I argue that agritourism and didactic education on Italian farms is an effective way to teach and therefore, preserve traditional food systems, by transferring food production knowledge to the next generation and promoting food choices that include moral and ethical considerations.

Methods: This ethnographic study was conducted during a 5-week field school in Perugia, Italy during Summer 2017 and was co-taught by WCU professors (Nutrition and Anthropology). Students toured several agritourism farms and producers

(vineyards, saffron, beer, pecorino cheese) and worked and learned under the tutelage of the owner of the didactic farms; instruction included how to prune, role of animals in food production, sustainability, etc. Anthropological techniques included participant observation, ethnographic interviews, oral history elicitation and visual anthropology.

Results and Conclusion: Education via didactic and agritourism farms and food producers is beneficial for all parties. Participation in these programs forges bonds between consumers and producers, piques interest in these dying practices, creates revenue for producers, preserves heritage and traditional food culture and influences food choices to favor local, culturally, ethically produced food.

EASEL #49: The impact of collectivistic values on student citizenship and counterproductive behaviors
Kristel Buschan, Rachel Peters, Alyssa Saputelli & Priyatharsini Selvarathinam (Psychology)
Faculty Mentor: Vipanchi Mishra (Psychology)

The purpose of this study was to examine the relationship between cultural value of collectivism and student engagement in citizenship behaviors (OCBs) and counterproductive behaviors (CWBs) at school. A secondary purpose of this study was to examine if self-monitoring moderates the relationship between collectivism and student engagement in OCB's and CWB's at school. Data was collected from 392 students at a Northeastern University who completed the survey in exchange for course credit. Students completed measures of interdependence, citizenship behaviors, counterproductive behaviors and self-monitoring. Data was analyzed using regression analyses. Results indicated that collectivism significantly predicted student engagement in OCBs (= .31, $p < .001$). However, collectivism did not significantly predict student engagement in CWBs (= -.07 , n.s). Furthermore, self-monitoring did not significantly moderate the relationship between collectivism and student engagement in OCBs. However, self-monitoring significantly moderated the relationship between cultural value of collectivism and student engagement in CWBs (= -.10, $p < .05$). These findings further support previous research that collectivism is positively related to OCBs. The results imply that adopting a culture of collectivism in educational institutions and organizations may lead to increased OCBs. Also, as students enter the workforce, employers may want to seek out individuals who possess collectivistic tendencies to increase OCBs. They can also seek out high self-monitoring individuals as it plays a moderating role in reducing CWBs when associated with collectivism. Furthermore, in organizations that experience high levels of CWBs, teaching self-monitoring may be a way to reduce CWBs as well.

ORAL PRESENTATION ABSTRACTS

Presentation #1: How smooth is a dolphin? Ridged texture and hydrodynamics from skin molds on live animals
Frank Fish (Biology)

While the skin of cetaceans is considered to be smooth to the touch, the skin of dolphins and porpoises has a ridged texture. The ridges on the skin were hypothesized to have a hydrodynamic benefit during swimming. However, previous morphological studies were limited in their description of the dimensions, location, and orientation of these ridges. We used a high resolution (down to 0.1 micron), non-destructive molding technique (Repliset) to capture the skin texture of five live bottlenose dolphins (Tursiops truncatus). Samples were made on the dorsum, lateral body, dorsal fin, flipper, and caudal flukes. We mapped the surface topography of casts of the molds using a photometric technique, and quantified surface texture, ridge presence, and ridge height. No ridges were observed on the dorsal fin. Ridges of about 2-9 microns were observed on the dorsal skin, but surface geometry significantly varied among the other body positions, where the ridges could be up to 11 microns in height. These results were low compared to the 14-41 microns for ridges measured previously. The roughness of the skin at all locations is too low to have any hydrodynamic effect on the flow for a swimming dolphin. The roughness values of the dolphin were equivalent to a trout covered by mucus and lower than fast-swimming fish. Our results indicate that the ridges on the body are too small to reduce drag as was previously hypothesized – in fact the ridges are too small to change boundary layer flows.

Presentation #2: Pre-Season Injury Rates in a Division-II Football Team Before and After NCAA Pre-Season Practice Rule Changes
Daniel Baer & John Smith (Sports Medicine)

Purpose: In 2017, the NCAA implemented rule changes to enhance safety for college football athletes during pre-season participation. The purpose of this study was to compare the number of injuries and time lost during two consecutive football pre-seasons before and after the rule changes.

Methods: In this descriptive epidemiology study, athletic trainers maintained daily injury reports and medical documentation during the 2016 and 2017 football pre-seasons at an NCAA Division-II program. We calculated overall injury rate per practice session, time-loss injuries per session, lower extremity (LE) muscle strains per session, and time-loss LE strains per session.

Results: In 2016, we recorded 79 total pre-season injuries (3.16/session), with 32 resulting in time lost (1.28/session). In 2017, we recorded 63 pre-season injuries (3.15/session), with 22 resulting in time lost (1.10/session). We recorded 25 LE muscle strains in 2016 (1.00/session) with 13 resulting in time lost (0.52/session). In 2017, we recorded 11 LE strains (0.55/session) with 4 resulting in time lost (0.20/session).

Conclusions: To our knowledge, this is the first report on NCAA Division-II football pre-season injury rates following NCAA rule changes. After the rule changes, we observed fewer time-loss injuries per session (14.06% decrease), and a decrease in the number of acute LE strains (45.00% decrease) and time-loss strains (61.54% decrease) per session. However, we did not observe a meaningful difference in total number of injuries per session (0.32% decrease). These preliminary findings suggest that rule changes may reduce the number and severity of LE muscle strains during pre-season football.

Presentation #3: Addressing cigarette and e-cigarette smoking among college students: A social norms approach
Casey Stover (Health)
Faculty Mentor: Gopal Sankaran

While the rate of cigarette smoking has declined from 25.5% to 16.8% since 1990, it still remains the leading cause of preventable disease and death in the United States. Across the nation, significant differences exist between perceived (76.8%) and actual smoking prevalence (10.0%) among college students. Hence, the present study tests the hypothesis that a social norms approach to correct first-year students' misperceptions on smoking behavior would lead to a lower prevalence of cigarette and e-cigarette smoking among them at West Chester University. The social norms campaign was developed using the university's mandatory first-year student behavior survey titled Think About It. The campaign is currently being implemented with yard signs and posters and will be displayed on campus through April 2018. An anonymous online post-survey will measure the first-year student's cigarette and e-cigarette smoking behaviors and perceived peer behaviors following the intervention. Data analysis will be completed using SPSS 24. The analysis will utilize the Fall 2016 ACHA National College Health Assessment and the Think About It survey to assess if misperceptions and the prevalence of smoking behaviors declined among first-year students following the campaign. A 2-sample t-test will be used to test for significant differences in pre- and post-intervention perceived smoking behavior, as well significant differences in the prevalence of smoking among first-year students pre- and post-intervention. This presentation will highlight the methods, discuss barriers and facilitators to program implementation, and share the plan for analysis.

Presentation #4: A Comparison of the Physiological Effects of Drinking to Thirst versus Drinking to a Generic Schedule During 2 Hours of Running in Thermoneutral Conditions
Morgan Worley, Fowkes-Godek S, Morrison KE, McGinty S, Klock A & Stevens C (Kinesiology)
Faculty Mentor: Sandra Fowkes-Godek (Sports Medicine)

The 2000 NATA fluid replacement position statement includes guidelines for scheduled drinking to avoid losing greater than 1-2% body weight. A recent consensus statement suggests that drinking to thirst is more appropriate.

Purpose: Investigate the physiological effects of drinking to thirst versus drinking to a schedule during 2 hr of continuous running in a thermoneutral environment.

Methods: Eight male and five female trained endurance runners (age=33.6±10.7yrs,height=172.9±7.6cm,weight=70.2±11.4kg,%bodyfat=15.0±5.9%,VO2max=58. 4±9.0ml/kg/min) completed two experimental trials (Thirst versus Scheduled). Participants ran on a treadmill at 60% VO2max for 2hr in a climatic chamber (21ºC and 40% RH). Scheduled drinking was as follows: 600mL 2hr pre-trial, 300mL 20min pre-trial, and 300mL every 10min during running. In the Thirst trial subjects drank when they felt a deep-seated desire for water. Outcome measures included blood electrolytes(Na^+ , Cl, K^+), Δbody weight(kg), fluid intake(L), and sweat loss(L). Correlated t-tests were used and $p<.05$ was determined apriori.

Results: Pre-trial urine osmolality (Thirst=318.4±191.6mOsm/kg and Scheduled=260.6±195.4mOsm/kg) and blood electrolytes were not different. Blood Na^+ was different between Thirst and Scheduled mid-trial(141.6±2.1 versus 137.9±2.4mmol/L,$P<.001$), post-trial(142.7±2.6 versus 135.7±2.5mmol/L,$P<.001$), and 20min post-trial(142.7±2.5 versus 136.6±3.1mmol/L,$P<.001$), as was Cl^- mid-trial(103.9±2.5 versus 101.8±2.3mmol/L, $P<.001$), post-trial(104.7±2.5 versus 99.3±2.5mmol/L, $P<.001$), and 20min post-trial(104.7±3.0 versus 100.2±3.4mmol/L, $P<.001$). Body weight was different between Thirst(-1.6±0.5kg) versus Scheduled(0.4±0.7kg, $P<.001$). Fluid intake was lower in Thirst(0.58±0.42L) versus Scheduled(3.26±0.72L, $P<.001$), but sweat losses were not different between Thirst(1.95±0.46L) versus Scheduled(1.84±0.70L).

Conclusion: Drinking to a generic schedule promotes body weight gain and a decline in blood Na^+ , whereas drinking to thirst resulted in blood Na^+ within the normal range

Presentation #5: Racial Differences in Renin and Aldosterone and Their Relationship to Sweat and Urine Electrolyte Losses in Male Collegiate Athletes During Pre-season Practices
Shane McGinty (Sports Medicine)
Faculty Mentor: Sandra Fowkes-Godek

Purpose: To investigate racial differences in the Renin-Angiotensin-Aldosterone system (RAAS), that have been implicated in the racial disparity in hypertension, and their relationship to sweat and urine electrolyte losses during exercise.

Methods: Data was collected before the first pre-season practice and during football and soccer practice on day 10 of practices. Eight Caucasian and 8 African-American male division II collegiate football and soccer players volunteered and did not differ in physical characteristics. A venous blood sample(8mL) was drawn before the first pre-season practice (baseline) and pre-practice on day 10 of practices. Sweat and urine electrolyte concentrations(mmol/L) were analyzed by ion-selective electrodes.

Results: Significant differences were found in renin at baseline (Caucasian: 1.22±0.56ng/dL/hr, African-American: 0.57±0.22ng/dL/hr, P=0.013) and at pre-practice (Caucasian: 1.30±0.51ng/dL/hr, African-American: 0.77±0.34ng/dL/hr, P=0.042), where concentrations of urine sodium (Caucasian: 48.8 ± 33.7mmol/L, African-American: 97.7±40.1mmol/L, P=0.029) and chloride (Caucasian: 95.2±49.7mmol/L, African-American: 151.5±42.7mmol/L, P=0.039) also differed. Moderate to high correlations were found in African-American players between pre-practice renin and the concentration of urine sodium (r=-0.80, P=0.02) and potassium (r=0.74, P=0.03) with chloride approaching significance (r=-0.67, P=0.07). Similar correlations were found in African-American players between renin and sweat sodium (r=0.74, P= 0.03) and chloride (r=0.75, P=0.03). Whereas in Caucasians, significant correlations were found for pre-practice aldosterone and potassium concentrations in both urine (r=0.71, P=0.05) and sweat (r=0.84, P=0.01).

Conclusions: These results suggest a potential racial difference in the influence of these hormones on the mechanism by which electrolytes are lost and may need to be replaced in African-American versus Caucasian athletes.

Presentation #6: The Relationship Between Depression Symptoms, Pain and Athletic Identity in Division II NCAA Athletes at Preseason
Lindsay Bodine, Lindsey Keenan, Bear, DJ, & Daltry, RM (Sports Medicine)
Faculty Mentor: Lindsey Keenan

Purpose: Most individuals diagnosed with depression first experience symptoms in their young adult years, putting college students at an increased risk. Pain has been found to be related to depression symptoms; however, the experience of pain and depression symptoms may be unique in the athletic population and has not yet been studied. The relationship between these three constructs has not yet been examined in the literature. The purpose of this study is to examine the relationship between depression symptoms, pain, and athletic identity in collegiate student-athletes.

Methods: Participants completed three surveys on electronic tablets during preseason physicals. Measures included the Patient Health Questionnaire-9 (PHQ-9), a validated, brief depression symptom screen, the Numeric Rating Scale (NRS) measuring pain on a 0-10 scale, and the Athletic Identity Measurement Scale (AIMS), a seven-item Likert-scale quantifying the extent to which participants identified as athletes.

Results: The mean PHQ-9 score was 2.43±3.138, the mean NRS score was 0.81±2.113, and the mean AIMS score was 38.52±7.644. A significant, weak positive correlation was found between depression symptoms and pain (r=.304, p=.003) and between athletic identity and depression symptoms (r=.258, p=.013).

Conclusion: Our data supports that student-athletes experiencing pain may experience more depression symptoms. Student-athletes with a high athletic identity may also experience more depression symptoms. Sports medicine

professionals should observe or screen student-athletes for depression symptoms, especially those expressing pain and who identify highly with the athletic role.

Presentation #7: Synthesis and characterization of molecularly imprinted polymers for gunshot residue compounds
Alexandra Sterner (Chemistry)
Faculty Mentor: Monica Joshi

Molecularly imprinted polymers (MIP) are used produce high affinity binding sites for organic, inorganic, and biological molecules. These binding sites provide selectivity to target analytes and structurally similar compound upon formation of a complex with a functional monomer. MIPs have been used in forensic science for the sensitive detection of illicit drugs, explosives, pollutants, and fire accelerants from complex matricies. In this presentation we apply MIPs for the selective detection of target organic gunshot residue (OGSR) compounds such as diphenylamine, ethyl centralite, 2,4-dinitrotoluene, and Akardite-II. Current protocols for gunshot residue (GSR) analysis focus mainly on inorganic gunshot residue (IGSR) components using scanning electron microscopy. Challenges to OGSR analysis include the lack of specificity of some compounds to GSR and their loss during storage. We explore the use of MIPs to selectively bind target OGSR compounds. The four analytes chosen for this study are strongly associated with GSR having restricted applications unrelated to GSR. The functional monomer forms around each of the target analytes to form a specific cavity for each compound. This study discusses the synthesis of four different polymethacrylate MIPs as well as their ability to cross-react with their structural analogues. All MIPs are analyzed by scanning electron microscopy to determine nanoparticle morphology, Fourier transmission infrared spectroscopy (FTIR) is used to characterize the imprinted polymer with and without the target analyte present. The binding efficiency of the MIP is studied using mass spectrometry. Due to the selectivity and sensitivity afforded by MIPs, the detection of propellant gunshot residue will significantly improve.

Presentation #8: The OSHA Effect
Seth Shriner (Management)
Faculty Mentor: Paul Rotenberry

The Occupational Safety and Health Administration (OSHA), has led the fight to save American worker's lives. OSHA governs health and safety standards of working conditions for American workers under the U.S. Department of Labor. This study examined the effectiveness of OSHA over the last several decades, looking at research on fatality rates, occupational illness and injuries in the three most deadly work industries: Construction, Agriculture and Transportation/Utility. This paper presents evidence that OSHA has significantly reduced illness, injury and fatality rates within the United States workplace, despite arguments to the contrary.

Presentation #9: The Joy & Wonders of Co-Teaching: Reflecting on Teaching and Learning in Real Time
Matthew Kruger-Ross and Pauline Schmidt (Educational Foundations and Policy Studies and English)

Two professors, two different academic backgrounds, two different departments on campus; one class. Drs. Kruger-Ross and Schmidt co-taught WRH 325: Technology in the English Classroom last spring and are currently teaching it for the second iteration. They each bring an expertise that meets in the middle for a dynamic, organic teaching and learning experience for Secondary English Education majors and themselves. This presentation will briefly highlight what we have learned through our co-teaching experience (experiment) so far. We will share the challenges that occurred when we were given a syllabus and how we challenged ourselves to make it our own. We will articulate what we revised, edited, and revamped going from one semester to another, including assignments and activities. For example, our students envision their Teaching Philosophies through memes, traditional research papers, and digital videos. Our students also participate in "Book Clubs" and have generated multimodal lesson plans that would introduce their books to middle or high school students. Finally, our students create Online Teaching Portfolios that will have practical applications as they transition

from undergraduate students to student teachers to 'real' teachers in the profession. We will also share some publications in progress that have emerged from this work.

Presentation #10: Archives and language history: Building a corpus of colonial Mexican Spanish
David Reyes-Farias, Gabriela Stephens & Israel Sanz-Sánchez (Languages and Cultures)
Faculty Mentor: Israel Sanz-Sánchez

This presentation will describe steps in the building of a corpus of early colonial (1530-1630) documents written in Spanish in Mexico City. This corpus is the initial stage of a larger project to investigate the progression of dialect contact among the various forms of Spanish brought to Mesoamerica during the 16th century, and how mixing among the various forms of language spoken in early colonial Mexico influenced subsequent patterns of change in this dialect. When considering the linguistic development of Spanish in colonial Mexico, it is important to remember that the only direct evidence available are written documents, from which we may extract information that sheds light on the development of Spanish in Mexico and its sociohistorical context. With support from a FAStR grant from the WCU Foundation, data collection began in May 2017 with a search in the online databases of the National Archives and the Historical Archive of Mexico City, followed by a visit. Work in these archives involved obtaining special permission and going through several layers of clearance to be allowed to work with the colonial documents. Each page had to be carefully photographed, filed, and catalogued for later investigation. Data collection and cataloguing was completed in August 2017, and it was the necessary preliminary step to the ongoing transcription and linguistic analysis of the documents. Overall, our work in this corpus exemplifies the methodological challenges involved in investigating the history of a language, as well as the opportunities that archival research offers to unveil the linguistic, social and cultural past of a community.

Presentation #11: Anterior Process Fracture of the Calcaneus in a Collegiate Women's Soccer Player: A Case Report
Kelly St. John, Neil Curtis, Smith JJ & Baer DJ (Sports Medicine)
Faculty Mentor: Neil Curtis

Background: A 22-year-old female NCAA Division-II collegiate soccer player suffered a right ankle injury during a soccer match. She landed with a flat right foot causing an axial load, resulting in ankle and foot pain. Upon evaluation, her chief complaint was lateral right mid-foot pain. Active dorsiflexion and inversion elicited pain. The athlete had no history of right ankle or foot injury.

Treatment: Immediate X-rays were negative. The injury was treated as a lateral ankle sprain and mid-foot sprain. The athlete was immobilized for 2 weeks. She completed the season despite continued pain. Following the season, she was immobilized for an additional 3 weeks. An MRI scan was read as negative for fracture. Her symptoms persisted so the athletic trainer referred her to a foot and ankle orthopedic specialist. A subsequent CT scan revealed an anterior process fracture of the calcaneus. The athlete had surgery to excise the displaced fragment.

Uniqueness: Anterior process fractures of the calcaneus represent between 3% and 23% of all calcaneal fractures. In this case, the athlete had an unusual mechanism of an axial load in a neutral position. Calcaneal anterior process fractures are frequently misdiagnosed. Diagnostic imaging, including x-ray and MRI failed to identify the fracture, causing a delay in a definitive diagnosis.

Conclusions: Delayed diagnosis likely contributed to a nonunion of the fractured fragment. Athletic trainers and other healthcare providers should be familiar with the unique signs and symptoms of a calcaneal anterior process fracture.

Presentation #12: Interviewers Violating Normative Question-Answer Turn-Taking Structure in U.S. Political News Interviews
Marissa Caldwell (English)
Faculty Mentor: Innhwa Park

Using Conversation Analysis, this study examines the interviewer's violations of the normative question-answer turn-taking structure expected in news interviews. Previous literature regarding news interviews has identified a rigid turn-taking structure that categorizes the interview. Traditionally, the interviewer solely asks questions, avoiding response tokens or any expression of agreement or opinion, and the interviewee is restricted to answering the questions posed to him or her. The data in the current study include over two hours of video recordings of political news interviews in the American media surrounding the 2016 presidential election and the Trump administration's policies in 2017. Interviews from three prominent American news broadcast networks are analyzed: American Broadcasting Company (ABC), Cable News Network (CNN), and Fox News. The analysis of these political news interviews focuses on the interviewers' violations of the typical question-answer turn-taking structure of interviews and examines the categories of violations according to the purpose they serve in the interview. The results of the study indicate that all analyzed interviews display violations of the turn-taking structure by the interviewer, which serve three main purposes: contribution, clarification, and acknowledgement. Unlike previous research describing the rigid structure of the news interview, the analysis of data from the current study suggests that political news interview content and structure is co-constructed through the interviewer's violations. This co-construction allows both the interviewer and interviewee flexible roles in the creation of the news interview, rather than limiting them to a strict question-answer format.

Presentation #13: Students' Perception of Academic Success Workshops
Maria Crossan (Learning Assistance and Resource Center)
Faculty Mentor: Jocelyn Manigo

Purpose: The purpose of this research is to become aware of students' perceptions of the Academic Success Workshops (ASW) in relation to their academic success. According to Thalluri (2016), the type of generalized study skills presented in these Academic Success Workshops have been overlooked as being important components to academic success, but can be crucial as we expand access to higher education to students of diverse backgrounds. The focus of this study is to see if students also recognize the value of these workshops.

Methods: The students attending the workshops are asked to fill out a Qualtrics survey following the ASW which asks them questions regarding their perceived value of the information they learned in the ASW.

Results: The results demonstrate that all of the students agree to strongly agree with the following statements: "I learned valuable information that I will use throughout my college career," "I was reminded of general skills that I plan on using in the future," and "These workshops are helpful."

Conclusion: This research provided valuable insights in what information and skills students are gaining through the ASW's offered through the LARC. This research shows that not only do the workshops teach and remind these students with specific and effective academic skills, the students are also being introduced to many of the support resources available on campus through these workshops, including tutoring, counseling, Smarthinking Online Tutoring and Lynda Campus. Overall, the students that attend these workshops are finding them to be valuable.

Presentation #14: Community Partners Perceived Costs and Benefits on the Service-Learning Relationship
Tyler Draxton (Social Work Graduate)
Faculty Mentor: Chun-Chen (Liz) Wang (Business & Marketing)

In order to gain a more comprehensive understanding of the service-learning relationship in higher education, this study utilized a quantitative empirical approach to examine community organization's perceptions of the university-based service learning relationship. Hypotheses deriving from the social exchange theory, the researchers theorized that higher

perceptions of the value and benefits within the partnership would contribute to higher levels of satisfaction, increase perceptions of the quality and benefits would be correlated with increase impact of the relationship, and higher perceived costs would decrease level of impact and satisfaction of the service-learning relationship. Coordinating with the Office of Service-Learning and Volunteer Programs at West Chester University, 150 organizations listed within their database of community partners were listed sent an online survey via email with 41 organizations completed it after two weeks. Mean results show that those organizations engaged in service-learning projects indicate positive satisfaction and perceptions towards the experience. Initial findings do not indicate significant correlations between dependent and independent variables identified. Further investigation is required to discover a deeper understanding of community organizations perceptions in order to develop new partnerships and sustain current involvement.

Presentation #15: The Art Collective
Christeyn Fremont (Art & Design)
Faculty Mentor: Kristopher Benedict

The Art Collective is a club formed from necessity. Its purpose is to fill a need that the University lacks- professional Development for Art Students. There is no class for art students, or those interested in museum studies, to learn how to display, hang or communicate with galleries. This club presents opportunities on campus and in the West Chester community for students to put their art out there and to learn how to display it, hang it, and network to continue to be shown all while connecting them with other creative thinkers. The club's goals are to bridge the E. O. Bull center with the rest of campus through student run art shows on both main and south campus along with the professional development of its members.

Presentation #16: *Supergirl*: A Female Hero Trapped in the Patriarchal System Perpetuated by Mass Media
Madison Pollino (Communication Studies)
Faculty Mentor: Matthew Meier

Mass media plays an instrumental role in shaping the minds and opinions of individuals by reinforcing gender stereotypes that model the correct way to act in society. In contemporary pop culture, a divide undoubtedly exists between men and women relative to power and ability on both physical and intellectual levels. This divide dates back to the Victorian Era and is clearly visible in present-day media portrayals that support the seeming immutability of gender roles. As a result of this dynamic, dangerous patterns prevail relative to media representations of women in film, music, video games, and television. A significant issue within pop culture is the unnecessary criticism that female protagonists endure when they fail to adhere to hegemonic patriarchal structures. For this reason, the series Supergirl exemplifies this systemic problem. While this series seeks to portray Supergirl as a strong and powerful female, a content analysis reveals that the public within the show often censures her for her inability to fully measure up to her male cousin, Superman. Supergirl struggles to escape from her cousin's shadow and establish herself as a credible and competent hero. Series like Supergirl give merit to the misconception that putting the actions and behaviors of women under microscopes is acceptable.

Presentation #17: Relationship of Power Assessments to Sprinting Mechanics and Performance
Tyler D. Whitacre, Sabrina Mangeri & Kenneth P. Clark (Kinesiology)
Faculty Mentor: Kenneth Clark

Tests such as the standing long jump (SLJ) and shot-put throw (SPT) have traditionally been employed to assess neuromuscular power. However, while prior research has linked power to sprinting performance, the relationships between power tests and specific kinetic variables during maximum velocity sprinting speed (Vmax) are not fully understood.

Purpose: Investigate relationship between measures of power and Vmax sprinting performance and mechanical variables.

Methods: 39 varsity intercollegiate track and field athletes (14 males, height:1.80±0.08m, mass:75.3±8.3kg; 25 females, height:1.69±0.05m, mass: 60.8±4.9kg) volunteered and provided written informed consent. During a single testing

session, subjects completed two trials in a 60m sprint, SLJ, and SPT. During the 60m sprint, split times were recorded from 30-40m, 40-50m, and 50-60m. The 30-40m zone was filmed with a high-speed camera (240 Hz). Video analysis was used to determine ground contact time (GCT), flight time (FT), step rate (SR), step length (SL), and vertical force (VF).

Results: Data analysis is presented in Table 1. Between-gender correlations revealed that SPT tests share a moderate relationship with sprint performance. SLJ tests showed marked differences between genders, raising questions regarding the efficacy of testing the standing long jump in females.

Conclusion: While classic tests of neuromuscular power (SLJ and SPT) share a moderate relationship with overall sprint performance, the relationship between these tests and specific mechanical variables during Vmax sprinting is less clear. Reactive strength tests that more closely mimic the unilateral SSC actions that occur during running may better explain the mechanical determinants of maximum velocity sprinting.

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