Presenter: Tajdar Ahmed (Grad Student)
Faculty Mentor: Peter Ping Liu, Rengdon Bai, School of Technology

Poster number 1 1-1:50 Grand Ballroom

Title: Smart Home Technologies

Abstract: With increasing demand in electricity and renewables making their way into grid systems, there is a need to make the grid advance to meet our needs. The smart grid technology has enabled us to accomplish this in many ways. A smart grid is a complex interconnection which can be divided to many sub-sections.

Residential loads are highly fluctuating and require close monitoring in order for the grid to meet the demand. In recent studies, it has been explained by so-called "duck curve" that there are possibilities when it would be difficult for utilities to compensate for load fluctuations due to introduction of renewables. For the grid to monitor closely, it requires a two-way communication between the grid and the consumer. "Smart homes" make this possible. Beside the interest of the grid, a smart home helps a consumer to manage their loads so that they can reduce their electricity consumption and ultimately reduce their energy cost.

In this paper, I would like to discuss various technologies that are available at our reach and discuss their merits and limitations. I would be showing how energy management systems can help in make smart homes a reality.

* * * * * * * *

Presenter: Kayla Albrecht (Grad Student)
Faculty Mentor: Jeanette Andrade, Family and Consumer Sciences

Poster number 2 2-2:50 Grand Ballroom

Title: Caffeine as an Ergogenic Aid

Abstract: OBJECTIVE: To evaluate the effects of caffeine consumption on athletic performance during endurance exercise.

METHODS: Articles, between 2011 and 2017, were extracted from PubMed, CINAHL, and PsycINFO databases using key words: caffeine, ergogenic aid, sports performance, and endurance. An 8-point inclusion criteria was established. These criteria were applied to titles and abstracts of extracted articles, and the quality of included articles was assessed using the AND Evidence Analysis Manual.

RESULTS: A total of 169 articles were found of which 15 were examined after applying inclusion criteria. Seven articles were included in the study based on quality assessment. All studies reported improvement in one aspect of endurance exercise performance when caffeine was consumed. Evaluation measures included time to complete exercise trial, time to exhaustion, Ratings of Perceived Exertion (RPE), and Feeling Scale (FS) ratings.

CONCLUSIONS AND IMPLICATIONS: The evidence supports caffeine as an effective ergogenic aid to improve both subjective and objective aspects of endurance performance. Further research is needed to examine the dose-response relationship between caffeine and sports performance.

* * * * * * * *

Presenters: Ryan Alderman (Senior), Hannah Baysingar, Lindsay Spitz, David Emrick**Faculty Mentor:** Antony Oluoch, Biological Sciences

Poster number 3 1-1:50 Grand Ballroom

Title: Aedes Mosquitoes in Coles County

Abstract: Aedes mosquitoes are vectors of a wide number of human viral diseases including Dengue fever, Yellow fever, West Nile virus, eastern encephalitis virus, and Zika Virus. Interest in this genus has peaked recently due to concerns about the spread of Zika virus. Between May and October of 2016, we carried out a survey for these mosquitoes in selected locations in Coles County, Illinois. We used a combination of light and gravid traps in both residential and wooded locations. A wide range of species of Aedes mosquitoes were identified: Aedes vexans (824), Aedes albopictus (437), Aedes Trivittatus (49), Aedes Triseriatus (56), Aedes Stiticus (1), Aedes Japonicus (93), Aedes Grossbecki (6), Aedes Canadensis (3), Aedes Atropalpus (8), Aedes Aegypti (4) and 13 unidentifiable species. Out of all the species collected, Aedes Vexans and Aedes Albopictus had the highest occurrence. Most mosquitoes were trapped in the months of July, August, and September. It is notable that Aedes albopictus (a potential vector of Zika virus) had a higher prevalence than Aedes aegyti (the established vector of Zika virus).

* * * * * * * *

Presenter: Fahad Alshammari (Grad Student)
Faculty Mentor: Isaac Slaven, School of Technology

Poster number 4 2-2:50 Grand Ballroom

Title: The effect of painting chemicals on the strength of life-safety ropes

Abstract: This study examines the effect of some of the chemicals on the strength of life safety rope. In this project, I will test synthetic ropes because painters frequently have to use synthetic ropes to access hard-to-reach places and we should make them on the safety side. Synthetic ropes are used in these situations, and they may be weakened by some of the chemicals used by painters. The test will be use some paint-thinning chemicals on the ropes and determine the breaking strength with chemicals and without chemicals. I will use t- tests to determine statistical significances.

* * * * * * * *

Presenter: Nadh Alsubaie (Grad Student)
Faculty Mentor: Barbara Carlsward, Biological Sciences

Poster number 5 1-1:50 Grand Ballroom

Title: Comparative studies of lignin content and cellular structure in wood of two Helianthus species H. argophyllus and H. winteri

Abstract: The primary purpose of my research is to examine and compare the cellular structure of wood in two species of Helianthus (sunflower): H. argophyllus and H. winteri. I will also compare lignin content in wood cells in these two species by using a stain specific to lignin (phloroglucinol) and by comparing relative wall thickness of sclerified cells between species. To examine the cellular structure of wood, I will rehydrate dried stems using water and Aerosol OT and make cross as well as longitudinal sections using a sliding microtome. Wood sections will be processed in two ways: permanent slides of counterstained wood will be used to examine cell structure/wall thickness and temporary slides will be made using phloroglucinol to examine lignin content. I will make observations of all slides using a brightfield Zeiss Axioskop microscope and take photographs using an attached AmScope MU300 digital camera. Given the overall habit of the plants, I hypothesize that Helianthus argophyllus will have much thicker cell walls with more lignin than H. winteri.

* * * * * * * *

Presenter: Frida Arrellano
Faculty Mentor: Richard Wandling, Political Science

Poster number 108 2-2:50 Grand Ballroom

Title: State Budget Crisis: Non-Profit Organization in Fiscal Distress

Abstract: This study examines how a nonprofit organization survives in fiscal distress, by focusing on the effects of lack of funding along with the strategies utilized in order to prevail. The research project is a case study of survival of a nonprofit organization called Mi Raza Community Center. Mi Raza Community Center has outreach-oriented educational, health, and

immigration services, focusing on the growing Latino community. The study explores funding and services provided from 2012 through 2015 by Mi Raza. Throughout these years Mi Raza has received various quantities of funding along with changes in the types of funding on a yearly basis. Despite the lack of funding the organization recently has experienced, it has managed to maintain most of its services available to the people. Ultimately, Mi Raza has targeted funding sources it can control and keep constant, in order to better manage the nonprofit organization in fiscally distressed times. The study considers strategies that have been effective to nonprofit organizations and determines if Mi Raza could apply them to ensure it continues to provide its services.

* * * * * * * *

Presenters: Maggie Arvesen (Senior), Kasey Lindemann
Faculty Mentor: James Barkley, Recreation Administration

Poster number 6 2-2:50 Grand Ballroom

Title: Social Connection and Pokémon Go: coincidence or more?

Abstract: Pokémon Go is a gps-based augmented reality game application for mobile devices. The game's reward system for players requires going outside to more and less specific gps locations/coordinates. The game revolves largely around the players ability to locate at a Poke stop where they may be rewarded with virtual items and/or Pokémon. The combination of location and timing (e.g., lures and spawn events) can bring large groups of people together in the same place at the same time long with specific timed events. This has the potential to increase the players social interaction. However, it is thought here that if the player is not motivated by, or seeking social connection they may be less likely to meet others; rather they would occupy the same coordinates. As such, this inquiry focuses on the following question: do players of Pokémon Go generally prefer social connection in their leisure more or less than non-players?

* * * * * * * *

Presenter: Shawn Ball (Grad Student)
Faculty Mentor: John Cabage, School of Technology

Poster number 7 1-1:50 Grand Ballroom

Title: Face-to-Face training vs. Online Virtual Reality Training

Abstract: The purpose of this study is to compare virtual reality training to traditional face-to-face training in an academic lab environment. The specific lab that will be utilized is the

construction lab located in Klehm Hall. Participants will include (Grad Student)s who have never utilized the construction lab before. There will be two sample sizes totaling to 50 students. The 50 students will take a pretest to assess their individual knowledge about the construction lab and tools. The first group of 25 students will receive traditional face-to-face training about the construction lab. The face-to-face training will utilize Microsoft PowerPoint Presentation. The second group of 25 students will receive training via virtual reality using 360-degree video and a virtual reality headset. The first group of students will be the control group receiving face-to-face training. The second group of students will be the experimental group receiving the virtual reality training. The treatment of this study is the virtual reality training method. At the end of the study, students will take a post-test about the equipment used in the construction lab and will utilize three pieces of power equipment in the construction lab.

* * * * * * * *

Presenter: Mikkel Beavers (Senior)
Faculty Mentor: Anna Cromwell, Music

2:30 pm Oakland Room

Title: Repetoire Project

Abstract: Choosing appropriate pieces and exercises is one of the biggest challenges for a string teacher. The American String Teachers Association (ASTA) has a ratings system for books, pieces, scales, and etudes to give teachers guidelines. In my lecture recital, I will present educational materials based on the rating system that would be helpful for students at each level. I will present the criteria for the first 4 levels and explain how the difficulty of the rhythms, string crossings, and finger patterns determine the level. I will demonstrate excerpts of pieces from each level so my audience will understand and hear the differences in the difficulty. While working on this project, I started looking at unranked repertoire to add to my lists. In addition, I added more criteria to each level. I will share my new criteria with the audience and perform excerpts from the pieces I ranked. I wanted to explore a variety of material, so I ranked some non-traditional music such as fiddle tunes and Irish jigs to appeal to a range of students. I will share those pieces with my audience as well. It can be hard to find new pieces that students have not heard before and want to play. Therefore, I composed two original melodies for each level. My goal was to compose educational material based on the ASTA rating system. The first melody of each level will be slightly easier than the second. For example, I will perform excepts from a level A and level B to demonstrate where the student might be at the start and finish of a level.

* * * * * * * *

Presenter: Mikkel Beavers (Senior)
Faculty Mentor: Anna Cromwell, Music

3:00 pm Oakland Room

Title: Violin Pedagogy

Abstract: Choosing appropriate pieces and exercises is one of the biggest challenges for a string teacher. The American String Teachers Association (ASTA) has a ratings system for books, pieces, scales, and etudes to give teachers guidelines. In my lecture recital, I will present educational materials based on the rating system that would be helpful for students at each level. I will present the criteria for the first 4 levels and explain how the difficulty of the rhythms, string crossings, and finger patterns determine the level. I will demonstrate excerpts of pieces from each level so my audience will understand and hear the differences in the difficulty. While working on this project, I started looking at unranked repertoire to add to my lists. In addition, I added more criteria to each level. I will share my new criteria with the audience and perform excerpts from the pieces I ranked. I wanted to explore a variety of material, so I ranked some non-traditional music such as fiddle tunes and Irish jigs to appeal to a range of students. I will share those pieces with my audience as well. It can be hard to find new pieces that students have not heard before and want to play. Therefore, I composed two original melodies for each level. My goal was to compose educational material based on the ASTA rating system. The first melody of each level will be slightly easier than the second. For example, I will perform excepts from a level A and level B to demonstrate where the student might be at the start and finish of a level.

* * * * * * * *

Presenter: Tina Bien (Junior)
Faculty Mentor: Isaac Slaven, School of Technology

Poster number 9 1-1:50 Grand Ballroom

Title: Employing Polarized Light Microscopy to Determine Root Causes in Yarn Failure in Kern Mantle Life-Safety Rope Manufacturing

Abstract: A life safety rope manufacturer began to observe that red yarns were failing at a higher rate than all other colors during the weaving process. The purpose of this study is to determine the root causes in yarn failure. An Instron Series 4467 Universal Testing Machine will be used to pull the yarn fibers at a rate of 2.75 inches per minute. Once the specimen breaks, the machine is stopped and the peak load (lbs) and extension (in) is recorded. Once recorded, the specimens will be placed in labeled bags and taken to be examined in polarized light through a microscope. This processes will be done with both red yarns and white yarns to determine if there is a difference, both in strength and physical characteristics, between the red and white yarns. With understanding the causes in yarn failure, we can report back to the manufacturing company affiliated and provide them with our research, which will influence their next steps.

* * * * * * * *

Presenter: Tina Bien (Junior)
Faculty Mentor: John Cabage, School of Technology

Poster number 8 2-2:50 Grand Ballroom

Title: Optimization of Efficiency in Computer Software within the Construction Industry

Abstract: The purpose of this research is to identify the best computer software that are the most effective within the construction industry. Companies are gradually shifting from manual practices to various software and technologies to optimize business and communication efficiency. With the plethora of software available, the industry does not fully understand which programs are the most popular and which are the most effective. As the industry is struggling with adapting with Building Information Modeling, companies are spending a lot of money trying to understand which software will improve their operational efficiency. Implementation will start with analyzing annual technology reports from various companies/organizations as well as attending expositions and webinars to acquire the most accurate research data. As the best programs are identified, the results of this research will be applied to the classrooms of the construction focus within the applied engineering and technology major.

* * * * * * * *

Presenter: Jesse Blair (Senior)
Faculty Mentor: Wutthigrai Boonsuk, School of Technology

Poster number 10 2-2:50 Grand Ballroom

Title: Smart home thermostats ROI

Abstract: I will be researching the effectiveness of several different smart-thermostats for the household. I will determine how much money they save over time, how quickly they pay for themselves, and ultimately, which is the best investment.

My major is AET-sustainable/renewable energy. This research will help me evaluate the method of saving energy by the use of smart home technology.

Smart home technology has recently become one of the rapid growing areas in the consumer market. Currently there are several popular brands in the market – Ecobee, Nest, Honeywell, etc. This research focus on smart thermostat which is a device that should help consumer save their electric cost in long term while it requires less temperature input from a user. In this research, different smart thermostats will be compared to determine their effectiveness and return on

investment (ROI) for the consumers regarding their average usages and types of residential households. The results should help consumers make better decision on investing on the device.

* * * * * * * *

Presenter: Lenora Breeden (Senior)
Faculty Mentor: Angela Glaros, Anthropology

3 pm Effingham Room

Title: What We Bring to the Table

Abstract: This project places emphasis upon storytelling in ethnography. The purpose is to collect "dice stories" from players of the popular tabletop role-playing game, Dungeons and Dragons. In doing so, I intend to further understand the purpose of storytelling in the co-creation of fantasy narratives, as well as the game dice as material culture.

* * * * * * * *

Presenter: LeAnn Brown (Senior)
Faculty Mentor: Jeffrey Stowell, Psychology

1:45 pm Greenup Room

Title: Psychological Functioning of Occupational Therapy Patients with Upper Extremity Injuries

Abstract: The purpose of this experiment is to study the relationship between social support, depression, and optimism in patients with upper extremity injuries undergoing occupational therapy. Past research has shown that higher levels of social support have been associated with more satisfaction with life and less depression. One studied presented that individuals with higher social support also had lower levels of depression and hopelessness. It has yet to be studied how depression in patients with upper extremity injuries in occupational therapy are affected by their social support and optimism. I hypothesize that patients with a higher level of social support will have greater optimism about life and lower levels of depression. Social support will be measured with the 18-item MOS Modified Social Support Survey that includes sub-scales of tangible support, emotional support, affective support, and positive support. The Hospital Anxiety and Depression Scale is a 14-item survey that measures the level of depression and anxiety. The Life Orientation Test is a 10-item questionnaire that measures optimism and pessimism. These three surveys will be completed by patients that have suffered from an upper extremity injury and that are currently in occupational therapy in Illinois. I plan to analyze my data in a multiple regression. I hypothesize that greater optimism about life and greater levels of social support will predict lower levels of depression in individuals with upper extremity injuries.

* * * * * * * *

Presenter: Theresa Byas (Senior)
Faculty Mentor: John Bickford, EC/ELE/MLE

Poster number 11 1-1:50 Grand Ballroom

Title: Martin Luther King's Representation in Trade Books

Abstract: Education initiatives require significant changes. All history and social studies teachers must integrate multiple texts from diverse perspectives, which will likely increase teachers' uses of non-fiction trade books to complement textbooks, primary sources, and documentaries. All English and language arts teachers must spend more than half their allotted time on non-fiction topics, which enhances the position of history content and history-based trade books. Trade books are a logical curricular resource, yet the education initiatives do not provide ready-made curricula and research indicates historical misrepresentations emerge frequently in trade books. This research explores trade books' representation of Dr. Martin Luther King, Jr., one of America's most evocative figures. Relevant historiography informed the content analysis. The data pool was organized by Primary (K-2), Intermediate (3-5), and Middle Level (6-8) to consider representation between and within grade ranges. Findings included historical misrepresentations related to his specific advocacies, the origins and types of the reactionary resistance he confronted, and references to advocacy groups and individuals who supported his push for radical change. Findings are contextualized within the research literature related to trade books, particularly those related to slavery and Civil Rights.

* * * * * * * *

Presenters: Katie Causer (Senior), Darbey Jenkins
Faculty Mentor: William Minnis, Management

1:45 pm Effingham Room

Title: Entrepreneurial Spirit

Abstract: I will be presenting my succession business plan for my parent's restaurant, Mario's Pizza, in Pontiac, Il. I will be working with Dr. Minnis as my mentor to focus on a succession plan. Although I would be owning my parent's restaurant I want to show how I will "Katiefy" Mario's Pizza. This is the main focus of my business plan, but I would like to take a brief look at the entrepreneurial spirit that lives inside my family, my friends, and myself during my presentation. This portion of the presentation will include talking about my family members and then having a guest come speak as well. My guest is a close friend, Darbey Jenkins, who I met in the Entrepreneurship minor where we bonded over our entrepreneurial spirit. I look forward to sharing this creative, innovative, and disruptive spirit with you!

* * * * * * * *

Presenter: Jeff Chandler (Grad Student)
Faculty Mentor: Wutthigrai Boonsuk,. Peter Liu, Technology, Barry J. Kronenfeld, Geology-Geography

Poster number 12 2-2:50 Grand Ballroom

Title: Utilization of GIS in Sustainable Energy

Abstract: Various sustainable energy resources have become mainstream and widely accepted by the public and governmental entities as the direction in which they, and the country, should proceed. However, there is still much concern and even resistance to these sustainable energy sources because of the viability in particular locales along with the cost and resources needed in order to install and maintain the sustainable energy resource. It is my intention to research, analyze, and propose a solution to this problem using Geographic Information Systems (GIS). GIS can serve a tool to inform the decision-makers in which sustainable energy resource is most viable for their locale, and the best specific location for the sustainable energy resource installation.

It is my assertion that by using GIS, the cost and resources needed in order to maintain sustainable energy resource installations are significantly reduced thereby making them a more affordable option. GIS can provide the necessary data as to which type and where to install the sustainable energy resource. My study focuses on solar installations in three different locales which were chosen for their geospatial significance. With the variances in population, urban density, landscape, and elevation, the results illustrate the universal applicability and multi-faceted benefits of utilizing GIS when planning, implementing and maintaining sustainable energy resources.

* * * * * * * *

Presenters: Kelly Clark (Junior)
Faculty Mentor: Barbra Carlsward, Biological Sciences

Poster number 13 1-1:50 Grand Ballroom

Title: Epidermal Anatomy of Twelve Species of Aerangis (Orchidaceae)

Abstract: This research is being conducted to determine whether or not members in the same genus (Aerangis) have the same epidermal anatomy. Both the adaxial and abaxial epidermis will be examined. Leaf scrapings will be made with a single-edged razor blade and stained using a 1% solution of safranin in 50% ethyl alcohol. Permanent slides of each leaf scraping will be made on a brightfield Zeiss Axioskop. The members of this genus have some similarities and some differences between each other, thus making the separate species somewhat difficult to

identify. Such as, the difference in cell sizes between the upper and lower epidermis. The adaxial epidermal cells are larger in comparison than the abaxial epidermal cells. Leaves in this genus are broad and full; however, when there is little water the leaves can become tough and leatherlike. Therefore, the epidermal anatomy will be similar within the genus and there will be very little differences in the structures like, trichomes and the shape of the epidermal cells. One difference that could be expected is position of the stomata. Some species within the same genus have stomata on both the top and bottom epidermis, while others only had stomata on the bottom epidermis.

* * * * * * * *

Presenters: Sandra Coleman (Senior), John Morrell
Faculty Mentor: Wutthugrai Boonsuk, School of Technology

Poster number 14 2-2:50 Grand Ballroom

Title: School of Technlogy at NRC

Abstract: Later this semester our robotic team from the School of Technology will participate in the National Robotics Challenge in Marion, Ohio, and take a challenge on the maze robot contest. In this competition, a self-control robot needs to find an exit to get out of the maze within 5 minutes without touching the maze walls. There are several 90-degree turns, 45-degree turns, as well as inclined and declined paths throughout the course. We will be creating a non-tactical sensor, leaving the robot to travel throughout the maze without physical touch on the walls. The competition rules and design specifications for both the maze race and robot are given to all competitors. In our presentation, we will describe the development process of our autonomous robot including designing the robot, choosing non-tactile sensors for the robot, and major algorithms to navigate the course. We hope that our presentation will help provide an initial design platform not only for the maze robot but also for other autonomous robots such as search and rescue robots.

* * * * * * * *

Presenters: Megan Cooper (Junior), Maryneth Biyok
Faculty Mentor: Antony Oluoch, Biological Sciences

Poster number 15 1-1:50 Grand Ballroom

Title: Using Real Time PCR for the definitive Identification of Culex species

Abstract: Culex mosquitoes are important vectors of human and animal diseases. In Illinois, and many other states, Culex restauns and Culex pipiens are the most widely distributed and

most prevalent species. While control of these vectors depends on their trapping and accurate identification, mosquitoes from these two species are often difficult to distinguish morphologically. For this reason, we utilized a real time PCR protocol using primers and probes specific to both species to accurately distinguish mosquitoes that would otherwise have been difficult to characterize on the basis of morphologic appearance.

* * * * * * * *

Presenters: Megan Cooper (Junior), Maryneth Biyok
Faculty Mentor: Antony Oluoch, Biological Sciences

Poster number 16 2-2:50 Grand Ballroom

Title: Occurrence of Culex mosquito species in Coles County Illinois

Abstract: Culex species are blood feeding mosquitoes that belong to the subfamily Culicinae. This genus contains insect species that are responsible for the transmission of diseases of medical and veterinary importance such as West Nile Virus and St Louis Encephalitis Virus. Several species of this genus have been reported to occur in Illinois. In order to ensure adequate control measures, there is a need to continually update the database for the seasonal and spatial occurrence of these and other mosquito species. Between May and October 2016, we carried out a survey for Culex mosquitoes at six locations in Coles County using both light and gravid traps. A total of 559 Culex mosquito species were trapped and sorted by species. This report details the species specific distribution, and temporal occurrence of these insects in Coles County.

* * * * * * * *

Presenter: Megan Corder (Grad Student)
Faculty Mentor: Dianne Timm, Counseling and Student Development

2:45 pm Greenup Room

Title: Do Student Impressions of Community College Presidents Matter?

Abstract: We say that a president's approach, visibility, and personality impact the student experience, but how do we know this? This presentation will look at community college students' impressions of the college president and the factors influencing their perceptions. Two researchers conducted qualitative interviews with students from two community colleges to understand what and how student impressions are shaped. The results of this study will be shared toward understanding where student perceptions come from.

* * * * * * * *

Presenter: Cheyenne Creek (Grad Student)
Faculty Mentor: Nichole Hugo, Family and Consumer Sciences

Poster number 17 1-1:50 Grand Ballroom

Title: Cultural Sustainability

Abstract: The tourism industry is an important field because it has large economic impacts to cities and influences many travelers each year. To keep the tourism industry booming, cultural sustainability needs to be addressed. Cultural sustainability is an important topic in the hospitality industry, even though it is still developing. It is necessary to study because it preserves landmarks and only allows changes that coincide with the culture of people living there. Before fulling being able to understand it, it is vital to know what sustainability and sustainable development is. In addition, examining the ways that cultural sustainability is currently being strived for through global organizations, such as the United Nations Educational, Scientific and Cultural Organization (UNESCO), and their initiatives, which include the designation and monitoring of World Heritage Sites. Gaps in the current research and case studies are examined in the context of cultural sustainability by analyzing the Durham Castle and Cathedral in Durham, England, the Blenheim Palace in Oxfordshire, England, and the Forth Bridge in Scotland.

* * * * * * * *

Presenter: Jack Cruikshank (Grad Student)
Faculty Mentor: Ryan Burge, Political Science

12:50 pm Oakland Room

Title: Praising the Kims: The Role of Media Coverage in the World's North Korea Problem

Abstract: From 2006 to 2016, the Democratic People's Republic of Korea conducted five underground nuclear tests, each of which captured the attention of the world because of the renewed volatility of the hermit nation. After each of these tests, a variety of world leaders denounced the rogue state, while others simply reported on the seismic activity and went about the business of their own states. This research seeks to find out more about the countries that cover North Korea in their respective media. By studying these post-nuclear-test reactions in terms of media coverage, this research shows that, throughout the year, media outlets in Great Britain report on DPRK news in greater quantities than do other geographic regions; United States outlets, however, show the greatest percentage increase in media coverage in the immediate aftermath of a DPRK nuclear test. This research concludes by discussing the role of media and cultural hegemony when conducting business with a state that regularly refers to the

"imperialist Americans" and all of the toil that such "evil" Americans have caused the North Korean government and people.

* * * * * * * *

Presenters: Tori Daniels, Samantha Orr, Meagan Ramey
Faculty Mentor: Angela Glaros, Anthropology

1:30-2:20 Casey Room

Title: Sensing Body, Self and Culture: Putting Sensory Ethnography into Practice

Abstract: 1. Sensing Trauma: Western Sense Hierarchies in PTSD Symptom Management

Tori Daniels

2. Sensory Rituals: A Comparison of American Tattoos and Kayapo Body Painting, Samantha Orr

3. Being Fat on Campus: Emplaced Knowledge of Constraints on Large Women in College,

Meagan Ramey

This session builds on sensory ethnography projects conducted by students in The Body in Anthropological Perspective class (ANT 3612) in Fall 2016. Sensory ethnography is a process of creating and representing knowledge drawn from ethnographers' own experiences (Pink 2007), in order to understand how the senses mediate our bodily experience of cultural worlds. In analyzing the role of sensory awareness in Post-Traumatic Stress Disorder-related anxiety, Tori Daniels argues that classical Western bodily hierarchies continue to dominate common treatment techniques. Samantha Orr argues that both tattooing in the United States and body painting among the Kayapo in Brazil can be understood as bodily rituals that engage the senses. Meagan Ramey uses Pink's (2009) concept of "emplaced knowledge" to gain a new understanding of the spatial and social constraints on large women on a college campus.

* * * * * * * *

Presenter: Kaitlyn Dela Cruz (Senior)
Faculty Mentor: Nikki Hillier, Health Studies

Poster number 18 2-2:50 Grand Ballroom

Title: Misuse of Study Drugs Among College Students

Abstract: The purpose of this study was to explore the misuse of study drugs (Adderall, Vyvanse, Ritalin) on a college campus. Study drugs are prescribed to people with ADD/ADHD however, students still use them when not prescribed. The 22 question survey was distributed to 25 students at a Midwestern university to asses knowledge, attitudes, and behaviors about study drugs. SPSS was used to analyze the data. The motivation and frequency of usage is examined through this study.

* * * * * * * *

Presenter: Baylee Dibble (Senior)
Faculty Mentor: Kathryn Havercroft, Special Education

Poster number 19 1-1:50 Grand Ballroom

Title: Visual Hierarchy Strategy: Increasing On-Task Behavior of a Student in Second Grade

Abstract: A second-grade student participated in a single-subject design (A-B) behavior modification study. It was hypothesized that the implementation of a visual hierarchy for requesting help would increase time on-task by reducing the need to avoid activities due to lack of understanding. Duration data was collection on the student's on-task behavior for 30-minute sessions during an afterschool tutoring program. During baseline data collection, the student was on-task for an average of 13 minutes, four seconds. During intervention data collection, the student was on-task for an average of 23 minutes, three seconds. The researcher determined that the intervention was successful in increasing the student's on-task behavior and could be implemented in other settings, such as the general classroom and at home, if necessary. Research should be conducted on the ability for the student to maintain on-task behavior if the intervention was removed and the effectiveness of the intervention in other settings. This intervention could be implemented with other students with similar behavior characteristics, with adaptations if necessary, and could be used with individual students or whole classes.

* * * * * * * *

Presenter: Kelsey Dougherty (Senior)
Faculty Mentor: Ramrattan Heidi, Communication Disorders and Sciences

Poster number 20 2-2:50 Grand Ballroom

Title: The Prevalence of Noise-Induced Hearing Loss Among High School and Middle School Band Students

Abstract: Hearing loss is common health problem that often goes unnoticed. Noise induced hearing loss (NIHL), which is a hearing loss caused by exposure to loud noises, can result in a feeling of isolation, frustration, loneliness, and withdrawal from social interaction (Echalier, 2010). When precautions are taken, NIHL can be completely preventable. Music teachers, who

are regularly exposed to band practice, have a high prevalence of NIHL (Behar et al., 2004; Maffei et al., 2011). If music teachers are at higher risk for NIHL, it is logical to assume that their students may also be as teenagers and young adults are already at a higher risk for NIHL than any other age group. The purpose of the current study is to determine the risk for developing NIHL in middle school and high school band students.

Subjects will be twenty middle and high school band students and ten non-band students which will be compared to determine whether band participation increases the risk of developing NIHL. Subjects will submit to a comprehensive audiological evaluation which will include assessment of hearing thresholds. Length of exposure in band participation is also examined to determine if longer band participation (high school age group) will increase the risk for developing NIHL over shorter participation (middle school age group). Exposure to noise levels from musical instruments considered in the study will include home practice time as well as in school. If results indicate band participation may result in higher risk of developing NIHL, recommendations for prioritizing prevention would be made.

Data collection is in progress and data analysis will begin in December 2016.

References

Behar, A., MacDonald, E., Lee, J., Cui, J., Kunov, H., & Wong, W. (2004). Noise Exposure of Music Teachers. Journal Of Occupational & Environmental Hygiene, 1(4), 243-247. doi:10.1080/15459620490432178

Echalier, M. (2010). In it together: The impact of hearing loss on personal relationships. Royal National Institute for Deaf People. Retrieved from: http://idainstitute.com/fileadmin/user_upload/documents/In%20It%20Together%20-%20Impact%20on%20Personal%20Relationships.pdf

Maffei, L., Iannace, G., & Masullo, M. (2011). Noise exposure of physical education and music teachers. Noise & Vibration Worldwide, 42(1), 9-16.

* * * * * * * *

Presenter: Lauren Dowd (Grad Student)
Faculty Mentor: Jeanette Andrade, Family and Consumer Sciences

Poster number 21 1-1:50 Grand Ballroom

Title: Microwaveable Gluten Free Breakfast Bar

Abstract: A gluten-free lifestyle has become one of the most popular diet trends in the United States. Currently, one in five individuals include gluten-free foods into their diet. Diet trends also

show fruit and vegetable consumption has declined by seven percent over the past five years. In addition, individuals are spending less time preparing meals at home. Research suggests approximately 31 million Americans do not eat breakfast. This is alarming considering consuming breakfast has been shown to jumpstart the body's metabolism, lead to a lower BMI, provide higher daily calcium and fiber intake, and better memory and attention performance throughout the day. In response to these trends, future dietitian Lauren Dowd created a microwavable gluten free breakfast bar. Registered dietitians meet with gluten-free patients to explain appropriate meal options. Therefore, creating a microwaveable gluten-free breakfast bar can be an excellent breakfast option for those who follow a gluten-free lifestyle. The product is a convenient, microwaveable, gluten-free, baked oatmeal breakfast bar that provides the consumer with a whole serving of fruit. The bar is designed to be a frozen product, since freezing the bar will inactivate microbes present in the food, allowing it to have an extended self-life. To be ready for consumption, the consumer will microwave the bar for three minutes. The bars will go through a taste testing panel to evaluate appearance, texture, flavor, and general acceptability. The panel will taste two variations of the bar, with the dependent variable being microwaving methods. The product recipe will be manipulated based on the results for a second taste testing panel. The product will also go through two objective tests. The final product will be marketed towards middle class males 25-64 years old, utilizing mediums such as commercials or social media advertising. The purpose of this study is to evaluate the microwaveable gluten free breakfast bar through taste testing panels and objective testing.

* * * * * * * *

Presenters: Amy Duncan (Senior), Alanna Gibbs
Faculty Mentor: Jeanette Andrade, Family and Consumer Sciences

Poster number 22 2-2:50 Grand Ballroom

Title: Benefit Brownie

Abstract: Food scientists and consumers are talking more about functional foods (Fuller 2011) which is defined as a food that benefits one or more target functions in the body, reduces disease risks and improves overall health status for individuals (Vicentini 2016). The chronic diseases that functional foods can lessen are obesity, type 2 diabetes, high blood pressure and cholesterol, and these health complications are on the rise as approximately half of American adults had one or more chronic health diseases (Center for Disease Control 2016). Regarding the better health status property, functional foods can increase micronutrient intakes of children, especially, and young and middle-aged adults. Receiving the required micronutrients is especially important for these age groups because they lack in consuming foods with those nutrients (CDC 2008). Gluten has been a popular topic among Americans, and an abundance of gluten-free food products are in stores to target those who have celiac disease or a gluten intolerance. Some people do not consume gluten for diet reasons, as well. The combination of functional and gluten free foods

were the driving forces behind the conception of the Benefit Brownie which is a low fat, low sugar, high fiber, high in vitamins, and gluten free brownie. This functional food product will be a desirable, tasty source for people to lower their disease risks and obtain essential nutrients without the guilt. This brownie would be made like any traditional brownie made in a home kitchen. The recipe that will be utilized is as follows: 145 grams vegetable/fruit puree, 80 grams unsweetened cocoa powder, .75 grams teaspoon salt, 4.20 grams vanilla extract, 200 grams white-granulated sugar, 95 grams eggs, and 65 grams rice or sweet potato flour. In analyzing the potential success of this brownie, a SWOT analysis was conducted. A SWOT analysis is an analysis on the strength, weakness, opportunities, and threats of a product (Andrade, 2017). One strength of this product is that it is high in fiber, low in fat and sugar, and gluten-free which makes is able to be classified as a functional food, and that is what consumers want. Moreover, it can target various populations. Also, most of the micronutrients (vitamin C, B vitamins, vitamin A, vitamin E) and macronutrients (simple carbohydrates, fiber, fat) will come from raw foods such as fruits and vegetables, and consumers want to see natural ingredients in products. Concerning weaknesses, one is that the shelf-life is undetermined. Another potential weakness is low acceptability because an addition of a puree changes texture and flavor, which may not be acceptable to some consumers. The opportunities of the Benefit Brownie are that there are still a lot of flavor combinations that can be tried. Because there are many benefits offered, there are many different places and people the product could be sold to. Lastly the treats to the Benefit Brownie would be the different product already out to consumers that are like it such as: Special K brownies, and Fiber One Brownies. Another threat to the Benefit Brownie would be supplements because they are easily consumed and purchased. Many variations will need to be made, analyzed nutritionally, and taste tested to choose the best brownie fit for a functional food classification.

* * * * * * * *

Presenter: Jessica Eimen (Senior)
Faculty Mentor: Kathryn Fenton, Music

2 :00 pm Oakland Room

Title: Bernstein, Gould, the Media..Oh My

Abstract: On April 6, 1962, Leonard Bernstein sparked one of the most controversial debates for classical music in the 20th century. Prior to Glenn Gould's performance of Brahm's Piano Concerto in D Minor, Bernstein gave a disclaimer that Gould's interpretation was very inappropriate and the audience should hold Gould accountable to his actions rather than Bernstein. Appearing immediately in the next morning's papers, the Bernstein-Gould debate featured several key components supporting the value of the controversy. By analyzing and evaluating firsthand sources published in newspapers and deciphering audio recordings from the event, I directed my research in a unique aspect of the controversy. Rather than dwelling on the

motivation behind Bernstein's or Gould's actions, my research focuses on the role the media played in igniting this controversy and creating an environment where the controversy's spark continued to thrive. Understanding and interpreting events and the role of the media from significant historic events is extremely crucial because it provides the tools and knowledge necessary for deciphering the media in present day. Bernstein's speech addressing his disconnect from Gould's performance of Brahm's Piano Concerto in D Minor was an unprecedented situation that resulted in one of the most controversial moments in 20th century orchestral history. By understanding how the media's involvement affected this great controversy, individuals will gain historic insight on the types of misinterpretations and on-goings present within the media today.

* * * * * * * *

Presenter: Thaija Evans (Junior)
Faculty Mentor: Eunseong Kim, Journalism

1:45 pm Oakland Room

Title: Gun Violence in Chicago: A Comparison of Two Mainstream Newspapers

Abstract: Over the past decade Chicago has been marked the murder capital of America due to the increasing gun violence, and it has yet to rid itself of negative labels and perceptions. This paper analyzes the differences in the news coverage of Chicago gun violence by two major newspapers: the Chicago Tribune and the New York Times. With large followings, both the Chicago Tribune and the New York Times have an obligation to the public to produce unbiased, accurate, and relevant content using the best possible sources available. Without proper reporting the public is inclined to believe subjective information and left blind to the actual facts. Each news story was analyzed to determine the news outlets, their geographic regions, emotion attached, assumed blame, relevant statistics, and focus. After analyzing 38 news articles from each publication, 76 in total, my findings indicate several key ideas including the Chicago Tribune's interest in finding a solution to the issue, the New York Times' slight prompting of nationwide panic, and both papers' use of personal and rectified accounts to illustrate the situation.

* * * * * * * *

Presenter: Freskim Farizi (Grad Student)
Faculty Mentor: Isaac Slaven, School of Technology

Poster number 23 1-1:50 Grand Ballroom

Title: Does OSHA Save Lives?

Abstract: This research analyzed the effect of OSHA's performance on workplace safety. OSHA's budget has a direct impact on its performance. Conversely, fatality rate is a good indicator of workplace safety. Therefore, examining the relationship between these two factors was the main focus of this research. Data for analysis were taken from 1992 to 2015, because the Department of Labor (DoL) introduced the Census of Fatal Occupational Injuries (CFOI) in 1992 and there was no data available on workplace fatality rates beyond 2015.

Data was gathered from Department of Labor's website regarding appropriations to OSHA, while data on workplace fatality rates was gathered from Bureau of Labor Statistic's website. Regression analysis were conducted and presented on a scatter plot to see whether there is a correlation, if yes how strong is it, between OSHA's appropriations and workplace fatality rates in US. The research question was: Does a higher OSHA appropriation lead to lower fatality rate?

The main limitations of this research include currency depreciation and other factors which might have contributed to workplace fatality rates. The limitation on currency depreciation has been addressed by adjusting OSHA's budgets on the 2015 dollar value. In addition, fatalities resulting from the September 11 terrorist attack were excluded from the total for 2001.

* * * * * * * *

Presenter: Taylor Fatheree (Senior)
Faculty Mentor: Isaac Slaven, School of Technology

Poster number 25 1-1:50 Grand Ballroom

Title: Comparative Analysis of Furniture Dowel Joint Strength Among Various Dowel Styles

Abstract: The goal of the project is to determine if there is a structural benefit gained from higher cost of specialty cut wooden dowels as a joining material in wood furniture joints. A pairwise comparisons made among spiral cut dowels, fluted dowels, and home-made smooth dowels. Further investigation examines the effect of depth on the strength of the joint for these three dowel types. Recommendations are made based on the considerations of joint strength and the relative cost of the dowels.

* * * * * * * *

Presenters: Taylor Fatheree (Senior), John Morrell, Noah C Przygoda, Sandra S Coleman, Aditya Y Patel, Max Naseri

Faculty Mentor: Wutthigrai Boonsuk, School of Technology

Poster number 24 2-2:50 Grand Ballroom

Title: Development of a Multifunctional Bionic Hand

Abstract: The Open Hand Project was launched in 2013 with the hopes of providing 3D printed bionic hands as affordable prosthetics. While the price of a high-end bionic hand can reach the neighborhood of $100,000, the Open Hand Project is focused on the creation of a low-cost product and the use of a creative commons licenses. The creative commons licenses allow this project to grow rapidly. More people have access to the product because it is open source. Several designers have already contributed to the original designs that were created by the Project Team.

In our research study, we modify the original 3D printed design from the Open Hand Project. Several features will be added to the hand including using Radio Frequency Identification (RFID) technology to preprogram the movement of fingers and palm. This feature will allow user to perform repeated tasks in daily routine such as grapping a drinking glass, typing on a keyboard, or picking up a bag. Since we aim to provide the hand for young children, the mechanical and electronic parts will be easily removed and reused in the new hand when the child grows up or needs a replacement. Finally the hand will be made of biodegradable materials that can be easily and safely decomposed.

* * * * * * * *

Presenter: Kalvin Ferrill (Senior)
Faculty Mentor: Isaac Slaven, School of Technology

Poster number 26 2-2:50 Grand Ballroom

Title: The effects of light intensity and temperature on energy production in polycrystalline photovoltaic panels

Abstract: I propose a research experiment to measure light's intensity at different wavelength and color temperatures. Using a LED studio light as a source, I will first take readings of the wavelength frequency and color temperature of the light being produced with a spectrophotometer. After that data has been taken I will use a simple solar panel to get a reading of the amount of energy being produced at the respected wavelengths and color temperature. With the LED studio light, I will be able to adjust the intensity and color temperature of the light being produced to acquire a wide range of data. The purpose of this research is to compare my data with the accepted values for light intensities at various wavelengths and to test the efficiency of the solar panel array being used.

* * * * * * * *

Presenter: Landon Ghast (Senior)
Faculty Mentor: Gary Aylesworth, Philosophy

2:30 pm Greenup Room

Title: Nietzsche and Heidegger on Language

Abstract: Several different theories and philosophies have been postulated about language depending upon the perspectives from which language has been studied. This paper shall examine and compare the philosophies of language developed by Nietzsche and Heidegger, which are as intriguing as they are different from one another.

* * * * * * * *

Presenter: Mikayla Grant (Junior)
Faculty Mentor: Kraig Wheeler, Chemistry

Poster number 27 1-1:50 Grand Ballroom

Title: Deconstructing crystal assemblies of 5-phenyl-1,3-dioxolan-4-ones Using Molecular Shape

Abstract: Oxybutynin, an anticholinergic pharmaceutical agent currently used to relieve bladder difficulties, has several precursors that offer important opportunities to investigate the topological factors influencing molecular recognition. One analogue, (t-butyl)-5-phenyl-1,3-dioxolan-4-one, is the focus of this investigation where we explore the importance of how molecular chirality and systematically varying the substituent size attached to the pendant phenyl group directs molecular assembly. In the absence of strong directional non-bonded contacts of this system, it reasons then that the topological features should provide a major contributor to crystal packing. To date, only the crystal structure of the unsubstituted homochiral phase is known. Building on this previous observation, our work utilizes mandelate chiral templates to prepare and crystallize a homologous family of racemic, homochiral, and quasiracemic 5-phenyl-1,3-dioxolan-4-one materials. Because the quasiracemates selected for this study are constructed from pairs of chemically unique compounds of opposite handedness, altering the pendant functional groups and their relative steric properties emphasizes the structural boundaries of these co-crystalline systems due to the complementary features of the building-blocks. Outcomes from this work help to clarify the understanding of molecular features responsible for the observed supramolecular patterns. Additionally, detailed insight of molecular alignment based on molecular shape offers greater understanding of the roles 5-phenyl-1,3-dioxolan-4-ones play in the design of functional materials.

* * * * * * * *

Presenter: Samantha Gray (Grad Student)
Faculty Mentor: Barbara Carlsward, Biological Sciences

Poster number 29 1-1:50 Grand Ballroom

Title: Effects of Estrogen on Mature Neuronal Cells

Abstract: The brain is one of the most complex organs in the body. It is composed of billions of neurons, and many specialized areas that work together to make it function the way that it does. One of these special areas is the olfactory bulb. The olfactory bulb controls the nerves related to odor in the brain system. There are also many factors that can effect the way the brain functions. One of these factors is the addition of the sex hormone estrogen. It has been known for many years that estrogen can alter the physiology of neurons within minutes. The purpose of this project is to find whether there is a difference in mature olfactory neurons due to injections of estrogen. In order to test this theory, a control mouse brain will be compared to an estrogen injected mouse brain. To examine these results, an olfactory marker protein stain will be used to target the mature olfactory neurons. In relation to other research done on the topic of estrogen injection, it is very likely that the brain injected with estrogen will have many more mature olfactory neurons.

* * * * * * * *

Presenters: Shannon Gray (Senior), Alaina Bisch
Faculty Mentor: Jeanette Andrade, Family and Consume Sciences - Dietetics

Poster number 28 2-2:50 Grand Ballroom

Title: Poatmeal

Abstract: The increasing popularity of creative oatmeal recipes as well as the health benefits oatmeal provides interested us in creating an oatmeal product. Oatmeal is a versatile product because it can be served hot or cold and can be made with an array of ingredients to alter the flavor. In our product, we manipulated the use of real sugar and Apriva sweetener to make the oatmeal. We had a semi-trained panel rank the texture of the oats in the product and also conducted a preference test between flavors and variations of sugar to determine which product was the most favorable.

Our product is called Proatmeal due to the nutrient composition it contains. Vanilla soy protein, flaxseed, slivered almonds, and PB2 are all excellent protein sources. Proatmeal is made with whole grain oats which contain soluble fiber and contributes as a heart-healthy ingredient. Numerous populations would benefit from the nutritional value of this product including diabetics, individuals in weight management or have a gluten-intolerance, and those looking for heart healthy options.

Proatmeal has a competitive edge over other oatmeal products because it has a high protein content. Each serving will come in an individual paper packet like Quaker Oatmeal ® that only contains dry ingredients which reduces the risk of microbial development and prolongs shelf life. There will be two flavors consumers can choose from: a chocolate/peanut butter blend that contains soy protein powder or a dried strawberry/blueberry and slivered almond blend. The individual serving packets make this product convenient for consumers to grab on-the-go and only require addition of liquid to make the desired product.

* * * * * * * *

Presenters: Brittany Griffith (Senior), Josie Clark
, Brian Anzures**Faculty Mentor:** Daniele Nardi, Psychology

Poster number 30 2-2:50 Grand Ballroom

Title: Spatial Cognition with Non-visual Stimuli

Abstract: Spatial reorientation is the process in which environmental stimuli are used to understand which direction one is facing. Studies show that humans use visual cues to represent spatial information when reorienting in an environment (Wang & Spelke, 2002). Due to a lack of research regarding non-visual stimuli and spatial cognition, we wanted to examine if individuals are able to reorient when only auditory cues are available. In this experiment participants were blindfolded and asked to locate and remember an object in a circular search space on a platform. Participants were then spun in a swivel chair to lose their sense of orientation, and then they would have to replace the object where it used to be. During the task, soft music was playing from a stationary location. This auditory cue was the only source of information useful to accurately replace the object. We hypothesized that participants would be able to solve the task; we expected them to perform significantly above chance (error of less than 90°). Due to previous studies indicating there is often a difference in spatial cognition between genders, we also examined if there is a gender difference with non-visual stimuli.

* * * * * * * *

Presenter: Astoria Griggs-Burns (Junior)
Faculty Mentor: Nikki Hillier, Health Studies

Poster number 31 1-1:50 Grand Ballroom

Title: HPV Vaccination in College Students

Abstract: The purpose of this study was to explore college students' experiences with the HPV vaccine. The sample included 25 college students from a small Midwestern university. The survey included 20 questions that asked about knowledge towards the HPV vaccine, attitude towards vaccinations in general, and number of HPV vaccine received. SPSS was used to

analyze the data. The results showed college students need more education on the HPV vaccine because many did not know of the vaccine until this study.

* * * * * * * *

Presenter: Natalie Gulliford (Senior)
Faculty Mentor: James Barkley, Recreation Administration

Poster number 32 2-2:50 Grand Ballroom

Title: Pokémon Go as a catalyst for physical activity: mission accomplished

Abstract: Leisure scholars have focused on a lack of leisure time physical activity (LTPA) as a means of impacting change by providing information to help recreation agencies promote physical activity. In this vein, we assume that promoting physical activity among a population that is not inclined to be physically active in their leisure - vis-à-vis their leisure motivations - would be reaching the target population. . As such, the aim of this research is to examine the potential impact of Pokémon Go on leisure time physical activity (LTPA) by addressing the following, primary research question: are players of Pokémon Go more or less motivated to be physically active in their leisure time than non-players?

* * * * * * * *

Presenter: Apiphani Hall (Senior)
Faculty Mentor: Anabela Maia, Biological Sciences

Poster number 33 1-1:50 Grand Ballroom

Title: Longear Sunfish Response to Sensory and Motor Control

Abstract: This study investigates how longear sunfishes react to and respond to the removal of sensory information and motor control of the tail muscles when swimming in a flow tank under horizontal turbulence. Understanding how fish respond to turbulence can help us choose the best way to protect species and minimize anthropogenic pressures. In this experiment, I used saline as a control, lidocaine (1%), which numbs the sensory neurons providing afferent information to the tail, and flaxedil (0.04 mg/mL) which is a muscle blocker and removes muscle control. I expect that the control treatment will produce no notable deficits in swimming, followed by lidocaine since even though the fish may not feel as much due to the sensory information being removed, it can still swim effectively. The flaxedil is expected to be the treatment that will cause the most deficits since the fish is able to feel the flow of water, but it will be unable to swim efficiently due to the muscle blockers. In order to test the effects of removing motor control and afferent information of the tail, I injected 0.2 mL of each of the solutions at four sites on the tail:

left upper lobe (LU), left lower lobe (LD), right upper lobe (RU), and right lower lobe (RL). I have collected data for flaxedil for three different fishes. So far, flaxedil seems to remove the active movement of the fin, although the fin still moves passively in the flow. In turbulent conditions, fish injected with flaxedil had a harder time keeping with the flow.

* * * * * * * *

Presenter: Heather Hallberg (Grad Student)
Faculty Mentor: Jeanette Andrade, Family and Consumer Sciences

Poster number 79 1-1:50 Grand Ballroom

Title: Fruit & Vegetable Leather

Abstract: Fruit and vegetable leathers are a snack food made from pureed, ripe, fresh fruit/vegetables that are dehydrated, laid out and rolled. Strawbeety Roll Ups contain strawberries and beets to follow current purple food trends and to address sustainability within the market place by incorporating over ripe fruits and vegetables to limit waste. Therefore marketing a more sustainable product will decrease the overall cost of manufacture leading to a more affordable healthy snack option for consumers. The incorporation of purple beets into this product includes anthocyanins, an antioxidant that has been linked to lower the risk of heart disease and some cancers and purple food products have gained notice and popularity in the public eye. This product is marketed towards on the go adults ages 18-45 to increase their consumption of fruit and vegetables. Seventy-six percent of U.S. adults do not meet the fruit recommendation and eighty-seven percent does not meet the vegetable intake recommendations. The development of the strawberry beet leather will manipulate agave and honey as natural sweeteners to achieve desired sweetness and textures. The texture from the beet will add more firmness to the final product and these sweeteners are sweeter than table sugar and therefore less can be used to reduce calorie content. The lower calorie content of this leather will provide a nutritious snack and with the prevalence of overweight and obese adults on the rise in the U.S. this is an important factor to take into consideration. The product will be taste tested by students and faculty at Eastern Illinois University in which they will survey aspects on the sweetness, texture and overall likeability and the results will be used to market and evaluate the final product prior to selling. A pH meter objective test will be completed to determine if the product meets the standards of current products already in production. A moisture test will also be conducted to determine the percentage of moisture in the final product to help establish the shelf stability.

* * * * * * * *

Presenter: Emily Halliday (Junior)
Faculty Mentor: Naomi Gurevich, Communication Disorders and SciencesDanielle Osmelak drosmelak@eiu.edu

Poster number 35 1-1:50 Grand Ballroom

Title: The Effectiveness for Dysphagia Education for Nursing Students

Abstract: For patients with impaired swallowing, known as dysphagia, safe intake of fluids is a concern. In order to ensure safe swallowing, a speech-language pathologist (SLP) may recommend a modified diet consistency. Diet modification may involve softening solid food to make chewing easier, and thickening liquids to reduce risk of aspiration. Aspiration is when food or drink gets past the vocal folds, entering the airway. While thicker liquid can be safer for some patients, this is not the case for everyone. SLPs are trained in dysphagia management and make patient-specific recommendations with respect to diet modification. Nurses are often the first to see medical status changes in patients, including difficulty with swallowing. In situations that pose an immediate threat to the safety of the patient, nurses are advised to modify the diet to a safer consistency until a new order is obtained (Directors of Health Services, 2013). Diet modification is a complex medical decision, and involves the expertise of an SLP. Nursing does not have the necessary training to make these decisions. The current study is exploring the efficacy of a dysphagia in-service with nursing students to educate them on the possible risks associated with swallowing thickened liquids.

* * * * * * * *

Presenter: Kaitlyn Hammock (Senior), Austin Parrish
Faculty Mentor: Anabela Maia, Biological Sciences

Poster number 36 2-2:50 Grand Ballroom

Title: Median fin patterning in bony fish: caspase-3 role in fin fold reabsorption

Abstract: Fish larvae develop a fin fold that will later be replaced by the median fins. We hypothesize that the fin fold reabsorption is part of the initial patterning of the median fins and that caspase-3, an apoptosis marker, will be expressed in the fin fold during reabsorption. We analyzed time series of larvae in the first 20-days post hatch (dph) to determine timing of median fin development in a basal bony fish - sturgeon- and in zebrafish, a derived bony fish. We are expecting the general activation pathway to be conserved in both fishes but the timing and location of cell death to differ. Dorsal fin fold is the first to be reabsorbed starting at 2dph and rays formed at 6dph, closely followed by the anal fin at 3dph, rays at 9dph and only later, at 6dph, does the caudal fin start forming and rays at 14dph. In zebrafish reabsorption of the anal fin fold began to occur around 6 dph but the dorsal fin did not begin until around 12dph, while in the caudal fin it did not occur until 18 dph. Contrary to the sturgeon larvae, there were no rays formed by day 19, but all fins had started forming and reabsorption of the fin fold was underway. In both species the timing of fin folding reabsorption is distinct and could be one of

the drivers of differences in median fin shape. Zebrafish larvae were incubated with caspase-3 mouse antibody and then with a secondary antibody - fluorescent reporter. Caspase-3 activity was seen at the edges of what would later become the anal fin at 6dpf, in the same regions of the dorsal fin at 10dph, and in the caudal fin edge at 6dph. Caspase-3 and thus cell death can clearly be linked to fin patterning in fish.

* * * * * * * *

Presenter: Alexandra Hammond (Grad Student)
Faculty Mentor: Daniele Nardi, Psychology

Poster number 37 1-1:50 Grand Ballroom

Title: Physical Effort Not Found to Be a Sufficient Context Cue for Object Location Memory

Abstract: While many types of stimuli have been addressed, there is only scarce literature on whether physical activity can act as a cue for context dependent memory. This study aimed to investigate whether matching physical activity at test and at encoding leads to improved object location memory. Results did not support the hypothesis: evidence of a context effect of physical activity on object location memory as not found.

* * * * * * * *

Presenter: Korey Handler (Senior)
Faculty Mentor: Isaac Slaven, School of Technology

Poster number 38 2-2:50 Grand Ballroom

Title: Comparing long - term light intensity of incandescent and LED lighting sources

Abstract: This study investigates the light intensity over the life of batteries for both incandescent and LED flashlights. This study was done by turning on both flashlights for two hour increments and measuring the intensity of the light. The data recordings are used to see if using an LED or an incandescent will save battery life and in turn save the user money.

* * * * * * * *

Presenter: Thaddeus Harlan (Senior)
Faculty Mentor: Nikki Hillier, Health Studies

Poster number 39 1-1:50 Grand Ballroom

Title: Peer pressure in college students to drink

Abstract: The purpose of this study was to examine why college students are peer pressured into drinking. Surveys were collected from 25 students to assess their knowledge, attitudes, and

behaviors regarding drinking. The survey had 23 questions that assessed peer pressure and drinking frequency. SPSS was used to analyze the data. Differences in demographics and greek membership were explored.

* * * * * * * *

Presenter: Brandi Havard (Junior)
Faculty Mentor: Steven Daniels, Physics

1:05 pm Greenup Room

Title: Polarization: Efficiency Dependence on Incidence Angle

Abstract: Polarizers are used in many areas from photography to medicine. They reduce glare and can be used to understand material stresses. In general their efficiency depends on rotation angle but the angle of incidence can also play a role. We investigate the efficiency of polarizers as a function of angle of incidence. Because perpendicular polarizers are designed to block all light we expect zero signal however, with specialized detection systems we are able to detect small amounts of light passing through. We map this light leaking through as a function of incidence angle to determine optimal efficiency for polarizers.

* * * * * * * *

Presenter: Shae Hoffman (Grad Student)
Faculty Mentor: Jeanette Andrade, Family and Consumer Sciences

Poster number 41 1-1:50 Grand Ballroom

Title: Social Cognitive Theory Applications to Type 2 Diabetes Management in Adults

Abstract: Type 2 diabetes is a multifaceted disease that can lead to other health complications. Self-management as a constituent of type 2 diabetes care and has been widely accepted as a central factor of influencing healthy behaviors. The evidenced-based science of health behavior change has influenced the application of theory to successful type 2 diabetes management practices. The implementation of the Social Cognitive Theory in diabetes education practice has proven effective in improving health and wellness among this population by working through barriers to behavioral change by increasing self-efficacy skills. Individual self-management is a critical component of managing this disease. These theory-based interventions can be implemented in various institutional, medical or public health care centers by certified diabetes educators and registered dietitians with continuous support. Therefore, the purpose of this poster presentation is to educate future dietetic professionals on the current research regarding the utilization of the Social Cognitive Theory in diabetes education to improve nutritional status, physical activity, biophysiologic measures, and self-efficacy among type 2 diabetic adults.

* * * * * * * *

Presenter: Shae Hoffman (Grad Student)
Faculty Mentor: Janette Andrade, Family and Consumer Sciences

Poster number 40 2-2:50 Grand Ballroom

Title: VegaTruffle: The Nourishing Plant-Based Dessert and How Bean-base Ingredients Effect Appearance, Texture, and Overall Acceptability

Abstract: VegaTruffle is a plant-based truffle dessert that encompasses a low carbohydrate, high antioxidant formula in order to best serve plant-based eaters. This dessert product concept was created through a sequence of defining how to produce a nutrient-dense truffle out of plant-based ingredients of which each include their own nourishing properties while maintaining the favorable properties of a standard truffle dessert. The VegaTruffle name was chosen due to its marketing potential of catching the eye of the vegan or health-conscious consumer. This food product formula was created to be gluten, dairy, egg, and soy-free. With only 8 grams of carbohydrates per serving, this chewy treat can even be enjoyed by diabetics strictly monitoring their carbohydrate intake. A plant-based product angle was chosen due to this it's nutritional benefits of reducing certain cancers, supporting weight management, and decreasing the incidence of severe chronic diseases. Two variations including black and garbanzo beans were chosen as base ingredient comparisons due to their fiber, protein, and phytonutrient content. This varied the appearance, texture, and overall acceptability of the two products. Variation 1 was made with black beans and was deemed as the standard recipe for VegaTruffle while Variation 2 with garbanzo beans was created to determine the differences between the two products. Dark chocolate and cacao nibs were included in this formula due to their high concentration of antioxidants while full fat coconut milk and oil were both selected due to their dairy-free properties. Stevia, a safe artificial sweetening option for diabetics, acts as a sweetening agent in this food product. Lastly, soaked cashews make this food product appealing in texture. Therefore, the purpose of this poster presentation is to introduce VegaTruffle and display how two variations of bean base ingredients change the appearance, texture and overall acceptability of this food product.

* * * * * * * *

Presenter: Kyrsten Holderby (Sophomore)
Faculty Mentor: Gopal Peiryannan, Chemistry

Poster number 42 2-2:50 Grand Ballroom

Title: Applications of Lipid Membrane Nanodiscs

Abstract: Proteins and lipids are two major classes of biomolecules. The 3-D structures of proteins are much more complicated than lipids and involve extensive non-covalent forces such as hydrogen bonding and hydrophobic interactions. Intramolecular interactions within the protein is essential for the structure and functions. Some of the most fascinating functions of proteins observed in the biological world, such as vision and cellular energy production, involve close intermolecular interactions between proteins and lipids. In the absence of lipids, most membrane-bound proteins will lose their functions. Our laboratory aims to study the Protein-Lipid interactions to (i) understand the significance of lipids in the tissues-specific functions of Glutamate Carboxypeptidase II family of proteins, (ii) generate molecular tools for renewable energy production, and (iii) recognize bacterial surfaces for medical diagnosis. We use lipid membrane-based nanodiscs technology to achieve our goals.

* * * * * * * *

Presenter: Katie Horrell (Grad Student)
Faculty Mentor: Jeanette Andrade, Family and Consumer Sciences

Poster number 43 1-1:50 Grand Ballroom

Title: P3 Vegan Protein Bar - Plant, Protein, Power!

Abstract: Concept

The product being created is a vegan protein bar to meet individuals choosing to follow a vegan or dairy-free lifestyle. The unique factor of this vegan protein bar is the inclusion of garbanzo beans as a high protein, high fiber ingredient. The variable ingredients in this recipe are coconut and almond flour. The purpose of this study is to evaluate which flour, almond or coconut, creates a more palatable vegan protein bar.

Brainstorming Process

The concept was developed from observing customers in a health food store over time, whom frequently asked for vegan, dairy-free, and high-protein bars. Additionally, with much experience trying protein bars on the market and either being dissatisfied with taste, texture, or unwanted added ingredients. These factors drove the ideation of a protein bar that met these basic needs.

Market Justification

The target population for vegan bars was identified as plant-based eaters who want a convenient, wholesome, high-protein snack for mid-day energy or a post-workout snack. Vegetarianism, veganism, and plant-based eating are among the trending lifestyle changes to prevent diet related

conditions including cardiovascular disease obesity, diabetes, and metabolic syndrome. Vegans generally exclude dairy, eggs, and meat. Convenience is a great determining factor of the types of foods individuals eat. Protein bars are among several popular portable snacks, and often rely on whey protein to increase protein content, leaving non-dairy eaters with few options. With plant-proteins rising in popularity for both vegan and non-vegan eaters alike, a plant based protein bar is predicted to be well accepted in the food market.

Product Description

The vegan protein bar includes the following ingredients: dates, pumpkin, banana, almond butter, garbanzo beans, vegan protein powder, ground flaxseed, vanilla and maple extract, and salt. The manipulated variable in the bars is the flour used, either coconut flour or almond flour. Each ingredient included serves a specific function; for example, oat flour, brown rice flour, pumpkin and banana give healthy carbohydrates and naturally sweeten the bars. The almond butter includes healthy fat, and garbanzo beans and protein powder provide the bars with protein and fiber.

Product Development Plan

The bars require combining of ingredients into a food processor, baked in the oven at 375 degrees Fahrenheit for 12-15 minutes. After product is cooled and cut into rectangles, it will be packaged. Several rounds of testing the protein bars will occur before a panel tests the final two products. Panelists will taste test final two products and the product favored will be the bar packaged and sold to the market. A nutrition facts panel will be developed for the back of package, and will display "vegan" on the front label in biodegradable packaging. The bars will be marketed to local health food stores in Illinois, and to online distributors such as VitaCost, Thrive Market, and Amazon.com.

* * * * * * * *

Presenter: Jada Huddlestun (Junior)
Faculty Mentor: Eunseong Kim, Journalism

1:30 pm Oakland Room

Title: Does Athleticism Matter?: Media Portrayal of Female Olympians

Abstract: Female athletes and female Olympic athletes receive far less coverage than male athletes in today's media. The coverage they do receive is often more focused on their appearances and emotions rather than their athletic performances. The paper analyzed news and feature articles from print and broadcast media to examine the coverage female athletes, and the language used in those articles. The findings indicate that even with the successes of these

athletes, the media tends to downplay their achievements. They also engage in comparing the females to men in their successes.

* * * * * * * *

Presenter: Israt Jahan (Grad Student)
Faculty Mentor: Anabela Maia, Biological Sciences

Poster number 44 2-2:50 Grand Ballroom

Title: Effect of increase in temperature in fish muscle mechanics

Abstract: Anthropogenic pressures that are driving rapid climate change, forces fish to either adapt physiological or migrate to other areas where temperatures are more suitable. This study investigates how changes in water temperature affect the swimming muscle mechanics in largemouth bass (Micropterus salmoides) and bluegill sunfish (Lepomis macrochirus). We focus on the impact of temperature change at the muscle level in these two species and the capacity to adapt to rapid changes in the environment. Fish were housed at different temperatures (15°C and 20°C) and then tested in a recirculating flow tank at two swimming speeds (0.5 body lengths (BL)/s and 1.5 BL/s) at the opposite temperature. Fish implanted with bipolar electrodes to record muscle activity using electromyography (EMG) standard techniques. To perform intramuscular EMG, electrodes are inserted into the muscle tissue. EMG recordings were analyzed for magnitude, frequency, onset, offset, duration and duty cycle. In most fishes, slow steady swimming is characterized by activation of the red musculature on alternate sides of the body. The red muscle is more superficial and runs along the horizontal septum with 5mm width and 2mm depth in most of the areas. The white muscle occupies most the body. Red muscles also found in fins.

* * * * * * * *

Presenter: Vantasia Joe (Grad Student)
Faculty Mentor: Anabela Maia, Biological Sciences

Poster number 45 1-1:50 Grand Ballroom

Title: Oxygen Consumption of Longear Sunfish in Turbulent Flows

Abstract: In-stream restorations help to recover streams, creeks, and lakes which have been impacted by anthropological pressures. In-stream restoration works to improve fish abundance and habitat at Kickapoo Creek located in Charleston, Illinois. Few studies have been conducted examining the correlation of altered flows, stream habitats and energy cost of fish under various flow systems. In order to examine this relationship we measured metabolic oxygen consumption of Longear Sunfish, Lepomis megalotis swimming in turbulent flow. The Longear Sunfish swam in a sealed flow tank under no turbulence and turbulence created by three vertical

cylinders to produce horizontal streets of vortices. The fish swam for two hours where temperature and dissolve oxygen levels were recorded every second. A regression line was fitted to the data to obtain the rate of depletion of oxygen in the tank which corresponds to the oxygen being consumed by the fish. Our data indicates an increase in oxygen consumption in fish under turbulence when compared to fish in no turbulence. We also observed high individual variability and we are increasing our sample size to address this. Understanding the cost of transport under different turbulence conditions is important to guide effective habitat restoration. One of our recommendations is that restoration efforts should monitor turbulence and other flow parameters and should provide turbulence refugia by alternating run, riffle and pool areas.

* * * * * * * *

Presenters: Kristen Alberty, flute; Kayla Krapf, oboe; Courtland Walters, clarinet; Belle Moushon, bassoon; Joseph Goldstein, horn
Faculty Mentor: Rebecca Johnson, Music

12:50-1:20 Location TBA

Title: Woodwind quintet

Abstract: Performance of Malcolm Arnold's 3 shanties

* * * * * * * *

Presenter: Holly Jones (Senior)
Faculty Mentor: Radu Semeniuc, Chemistry

Poster number 47 1-1:50 Grand Ballroom

Title: Click it and use it: Modular synthesis of structurally adaptive ligands

Abstract: The design of ligands that are able to accommodate a metallic center in a specific coordination environment is an important research topic. In addition, regulating the secondary coordination sphere of the metal through hydrogen bonds is paramount to improve the function of these metal-based compounds. Our ultimate goal is to construct a series of synthetic complexes having constant primary spheres but structurally tunable secondary spheres. We present here our efforts toward the synthesis and characterization of such ligands and some of their metal complexes.

* * * * * * * *

Presenter: Brittany Jones (Senior)
Faculty Mentor: Anabela Resende de Maia, Biological Sciences

Poster number 46 2-2:50 Grand Ballroom

Title: Sensory and Motor Function in the Spiny Dorsal Fin of Longear Sunfish

Abstract: The dorsal fin of Longear Sunfish is composed of two lobes. An anterior lobe, which consists of 10 spines and a posterior lobe, which contains 10-20 fin rays. The back portion is soft while the front portion is spiny. There is little research addressing the functionality of this fin within Longear Sunfish. Therefore, to better understand its role in mobility, we looked at the effects of injecting a nerve blocker and a muscle relaxant into the spiny portion of the dorsal fin. To do this, we placed Longear Sunfish into a flow tank under different conditions. To test the effect of turbulence the fish was exposed to either laminar flow or horizontal turbulence generated by vertical cylinders. To test sensory and motor function, fish were injected with a saline solution, flaxedil (muscle relaxant) and lidocaine (nerve blocker). We injected 0.1ml of a saline, flaxedil (0.04mg/ml) or lidocaine (1%) into six areas of the dorsal fin (three on each side). The flow tank was set for 1.5BL.s-1. The results revealed that injecting flaxedil or lidocaine solution yields a change in swimming pattern, especially under turbulence conditions. Overall this suggests that the dorsal fin is important for propulsion and stability.

* * * * * * * *

Presenter: Ashley Jordan (Senior)
Faculty Mentor: Rodney Marshall, Communications Studies

12:50 pm Effingham Room

Title: The Effects on College Relationships: A Study on the Different Ways a Relationship Can Harm or Benefit

Abstract: This study investigates the multiple effects on a college relationship. Such topics discussed are: social media involvement, mental, psychological, emotional, and sexual effects, behaviors, and sexual and relationship satisfaction. A romantic relationship in college is dissected to comprehend the benefits, downfalls, effects, and causes the romantic partners can endure. Twenty college students were asked to take a survey with 36 questions regarding elements of a relationship.

* * * * * * * *

Presenters: Brown Justin (Junior), Lauren Barry, Jada Huddleston,

AJ Fournier,

Michae Proffitt,

Jack White**Faculty Mentor:** Sally Renaud, Journalism

Poster number 48 2-2:50 Grand Ballroom

Title: Media History Engagement Week Instagram Project

Abstract: Media History Engagement Week, April 3-7, 2017, raises awareness about the importance of media history and exposes researchers to the messiness and containing relevance of history to the present. It is sponsored by the History Division of the Association of Education in Journalism and Mass Communication.

The objective of our Media History Engagement Week Instagram Project is grabbing a snapshot of Eastern Illinois University's history as originally reported in its traditional media (newspaper, yearbook, radio and television broadcasts) and bringing it into the Modern era. As a class, we have picked EIU points of history that we are passionate about and interested in. Each member is responsible for researching the history of his or her topic using the University Archives and demonstrating how those events or issues were covered at that time. We then showcase our findings in a contemporary social media platform using Instagram.

* * * * * * * *

Presenter: Martina Karmakar (Grad Student)
Faculty Mentor: Isaac Slaven, School of Technology

Poster number 49 1-1:50 Grand Ballroom

Title: Performance testing of mobile device protective cases for impact reduction efficacy

Abstract: Mobile phone covers act as a cushion that protect the device from shock damage in case of an accidental drop. This study will test a variety of mobile covers for their effectiveness in protecting a mobile phone from damage when subjected to a drop test. Instead of a phone, a block of metal with the same weight and size of I-phone 6s is used for the test. An accelerometer is attached to the device, and the block is dropped onto a concrete floor to observe the level of shock damage caused. Pairwise comparisons of the various covers to no covers will be used to determine the efficacy of the individual covers.

* * * * * * * *

Presenter: Kaitlynn Kessinger (Grad Student)
Faculty Mentor: Jeanette Andrade, Family and Consumer Sciences

Poster number 50 2-2:50 Grand Ballroom

Title: Consumer Friendly Gluten-Free Bread

Abstract: Celiac disease is an increasingly prevalent autoimmune disorder in which the small intestine negatively reacts to gluten. The only treatment for celiac disease is a lifelong gluten free

diet. As a greater percentage of the population becomes diagnosed with celiac disease, so increases the demand for gluten free products. Some people with celiac disease report they still consume gluten, however, with complaints that gluten free products are difficult to find, there are few alternatives, information is lacking, cost is high, and they want to feel "normal." These participants are only moderately satisfied with taste and texture as well. Dining out, traveling, and temptation are also identified barriers.

Hodgson Mill is a milling facility in Effingham, Illinois that produces dry food products such as pasta, bread mixes, and breading. It is a goal of the company to formulate a satisfactory gluten free bread. The purpose of "Consumer Friendly Gluten-Free Bread" is to develop a palatable gluten free bread product for consumers that also meet the standards of Hodgson Mill.

Gluten contributes to the elasticity and cohesion properties in dough, which helps yield a soft, springy bread after baking. Flours derived from non gluten-containing foods possess different properties, which may increase or decrease moisture, firmness, density, volume, flavor, and texture. A blend of millet, rice, and sorghum flours will be used in the Hodgson Mill bread product. As most gluten free breads are small and dense, leavening agents such as yeast and baking soda will be used in this product to increase volume. Other ingredients will include tapioca starch, xantham gum, salt, cane sugar, milk, agave, apple cider vinegar, olive oil, and eggs. This bread will be compared to another gluten free bread formula. Volume and crumb count will be recorded, and a taste panel will score each bread on appearance, color, aroma, flavor, and texture, and select the most desirable product. Data will be analyzed and the most acceptable bread will be determined.

* * * * * * * *

Presenter: Delaney Killian (Senior)
Faculty Mentor: Trina Becker, Communication Disorders and Sciences

Poster number 51 1-1:50 Grand Ballroom

Title: A Comparison of Human Video Modeling and Animated Video Modeling on the Social Skills of a Child with Autism

Abstract: Children with autism spectrum disorder have multiple deficit areas, the most prominent being social skills. Research shows that children with ASD respond well to visual stimuli. Video modeling is a research-based intervention that provides visual models in order to target deficit areas such as language and social skills. Intervention with video modeling can include human subjects such as peers, adults and self-models. However, there is little research on the effectiveness of animated video models on improving social skills. Specifically, there is no research that investigates the use of animated video models to decrease an undesired behavior or

research that compares the effectiveness of animated video models to human models. The purpose of this study is to determine whether animated video models will be effective at decreasing instances of interruptions in a child with ASD. A secondary purpose of this study will be to compare the effectiveness of human video models versus animated video models.

* * * * * * * *

Presenter: Tak Kim (Junior)
Faculty Mentor: Lee Ann Price, Kinesiology and Sports Studies

Poster number 107 1-1:50 Grand Ballroom

Title: Knee rehab helper and ankle rehab helper

Abstract: It is a knee brace, but it can be used as a squat helper, knee extension, knee flexion, and terminal knee extension exercise tool.

The other tool is four-way ankle helper for ankle rehab. We do not need to have a partner for ankle rehabilitation. With this tool, everybody can do rehab in their home.

* * * * * * * *

Presenter: Nicole Kimutis (Senior)
Faculty Mentor: Angela Anthony, Communication Disorders and Sciences

Poster number 52 2-2:50 Grand Ballroom

Title: Assessment of Auditory Comprehension in English Language Learners and Native English-Speakers

Abstract: The purpose of this study was to compare the auditory comprehension skills of preschool native English-speakers and English language learners (ELLs) identified as at-risk for language difficulties based on scores from the Pre-Kindergarten Language Benchmark Assessment (Pre-KLBA; Anthony, Preschern, & Konikoff, 2015). Ninety students who attended a preschool located in a Chicago suburb completed the Pre-KLBA in the fall, winter, and spring. In this study, ten ELLs and ten native English-speakers that scored in the bottom 25% of the sample population according to their total Pre-KLBA scores were selected as participants. Scores obtained from the Auditory Comprehension and Following Directions subtests from the fall and spring were independently analyzed for both groups and compared between the groups to determine any significant differences in auditory comprehension. Additionally, scores obtained on both subtests were compared to identify discrepancies in verbal versus nonverbal responses. Both groups demonstrated increased auditory comprehension scores between the spring and fall, however, there were no significant differences between the auditory comprehension scores of ELLs and native English-speakers at either time point. The findings of this study contribute to

the understanding of language growth for ELLs and native English speaking children who may be at-risk for language difficulties

* * * * * * * *

Presenter: Kelsey Kniepmann (Grad Student)
Faculty Mentor: Jeanette Andrade, Family and Consumer Sciences

Poster number 53 1-1:50 Grand Ballroom

Title: Vibrant Noodles for a Brilliant Mind; Nutrient Concerns In Youth Population

Abstract: It is clear that some children can be very picky eaters therefore it is difficult for the average, busy mom to create foods that are not only healthy for their child but also widely accepted by them. Health professionals need to consider the actual target audience which is the mother and consider the mothers' own consumption of fruits and vegetables when developing strategies to increase toddler consumption of fruits and vegetable (Horodynski, 2010) Undernutrition and deficiencies of iodine, iron, and folate are all important for the development of the brain and the emergent cognitive functions, and there is some evidence to suggest that zinc, vitamin B12, and omega-3 polyunsaturated fatty acids may also be important (Bryan, 2014). When considering foods that are commonly accepted by children and mothers alike, the first thing that comes to mind is pasta. Based on this idea, my food product development project is to develop alternative pasta that have a fruit/vegetable base to create a product that is full of vitamins, minerals, and lots of fiber but is also pleasing to the pallet. I envisioned having a pink/ red noodle (beets), a blue/purple noodle (blueberry), an orange version (carrot), and a green version (spinach). All of which were going to be cut into geometric shapes to reach out to my specified target audience of mothers with a picky eater. However, for the purposes of the class based on time and resource restraints I am going to focus on a green (spinach) noodle and an orange (carrot) noodle as these two vegetables encompass many of the vitamins and minerals that are lacking in the average child's diet. I will create purees of these vegetables to act as a dye within the pasta but also bring forth the nutrients needed from this product. The ultimate goal is to create a product that is both nourishing and pleasing to the target audience of mothers to the picky eater.

* * * * * * * *

Presenter: Prasanna Koonireddy (Grad Student)
Faculty Mentor: Isaac Slaven, School of Technology

Poster number 54 2-2:50 Grand Ballroom

Title: Plastic Usage in the United States

Abstract: Topic Name: Plastic usage in United States.

Method Name: Regression analysis

Description: I will get the information on plastic usage in united states per state and capital income from internet. Regression analysis will be suitable for this project. After getting information I draw a chart and graph so that I will come to know which state is consuming more plastic and which state is getting more revenue on plastic. It helps to know whether the usage is increasing or decreasing day by day. In my daily life, I have been observing that usage of plastic has been increased rapidly by me and my neighbors which let me to take this topic.

* * * * * * * *

Presenter: Owura Kuffuor (Grad Student)
Faculty Mentor: David Carwell, Political Science

1:05 pm Oakland Room

Title: Arab Spring in Sub Saharan Africa: A Close Shave or a Beckoning Crisis

Abstract: Africa has been a continent marked with political violence during the post-independence era. The Arab Spring marks a unique upsurge of violence because of the time frame within which the uprisings occurred and the communicable nature of the violence. Many scholars have gone at great length in trying to explain the reasons for these uprisings. Reasons that have been given span from political, economical to socio cultural reasons. However, a little effort has been put in explaining why the uprising did not spread to sub Saharan Africa. This paper examines the reasons given by scholars for the uprising in North Africa and the Middle East and tries extrapolate it onto sub Saharan Africa in determining why the Sub Saharan region did not experience the same fate. The paper uses quantitative method of data analysis. The paper finds that, fractionalization and state disengagement play a huge role in explaining why sub Saharan Africa did not have its version of the Arab Spring. The paper finds that countries with high levels of fractionalization are less likely to experience an uprising. Therefore since a lot of sub Saharan African countries are highly fractionalized, the Arab Spring did not have the spread effect on it.

* * * * * * * *

Presenter: Bret Lacey (Grad Student)
Faculty Mentor: Isaac Slaven, School of Technology

Poster number 55 1-1:50 Grand Ballroom

Title: Analyzing Recent Trends In Wind Energy Industry Trade Publications

Abstract: This research examines six years of article the monthly trade magazine Wind Systems. This periodical's audience is the wind energy industry, and it contains articles related to various aspects of the wind energy industry. Articles were reviewed and topically categorized to determine what patterns or trends can be found within the industry. This trend assessment can aid renewable energy education and the wind industry to better visualize the recent history and direction of the industry.

* * * * * * * *

Presenter: Megan Laughton (Senior)
Faculty Mentor: Kathryn Havercroft, Special Education

Poster number 56 2-2:50 Grand Ballroom

Title: Using Fidgets in the Classroom: Increasing the Frequency of Maintaining a Seated Position of a Student with Attention Deficit Hyperactivity Disorder

Abstract: A second grade, female student with Attention Deficit Hyperactivity Disorder (ADHD) participated in a study that evaluated the effectiveness of using a fidget, stimulation toy to increase the maintenance of remaining in a seated position through focus. An A-B-A single subject design was utilized during this study. It was hypothesized that using a fidget toy would increase the student's focus, thus allowing the student more success in maintaining a seated position and furthering her success in school. Direct small-group instruction occurred during bi-weekly 50-minute tutoring sessions. Bi-weekly duration data was recorded to determine if the student's maintenance of remaining in a seated position increased. Duration was taken to determine how long the student remains seated within a ten-minute duration period. This data was recorded and then compared with data taken during baseline and data taken during intervention-implemented sessions. Baseline results indicated that the student maintained a seated position an average of a minute and 15 seconds within a ten-minute duration period. During the intervention, the student maintained a seated position an average of 2 minutes and 56 seconds within a ten-minute duration period. In the return to baseline phase, the student maintained a seated position an average of 56 seconds within a ten-minute duration period, clearly demonstrating that the fidget intervention was beneficial to her maintaining in a seated position. A discussion of results and suggestions for future research are provided, including issues regarding generalization within the study conducted.

* * * * * * * *

Presenters: Jamel Lawson (Grad Student) Mohammad Mohsen
, Nagamalleswararao Boddu,

Sandhya Kandi**Faculty Mentor:** Odai Khasawneh, School of Technology

2:30-3:20 Casey Room

Title: Leadership and Acceptance

Abstract: Our research conducts a qualitative study on how transformational leadership effects technological acceptance. There exists several schools of thought about different styles of leadership and how they effect collaborators in an organization. The main leadership styles are transformational leadership, transactional Leadership, and passive-avoidance leadership. There also exists a model named the Technological Acceptance Model that has been used to describe the variables the depend on one another for a technology to succeed and ultimately accepted and used.

* * * * * * * *

Presenter: Trey Leasher (Senior)
Faculty Mentor: Isaac Slaven, School of Technology

Poster number 57 1-1:50 Grand Ballroom

Title: Utilization of Drone Technology to Improve Tower Worker Safety and Productivity

Abstract: Tower workers frequently climb hundreds of feet for their work. They also have one of the statistically most dangerous jobs in the United State; many years frequently exceed the nation's most dangerous jobs' fatality rates. Many climbs are made for a visual inspection. Drone technology can be employed so that a tower worker can reasonably determine if a climb is necessary. In doing this, multiple exposures to fall hazards can be avoided.

* * * * * * * *

Presenter: Hunter Levingston (Sophomore)
Faculty Mentor: Barbara Carlsward, Biological Sciences

Poster number 58 2-2:50 Grand Ballroom

Title: Comparative leaf anatomy of Aeridiinae (Orchidaceae)

Abstract: Comparative anatomical analyses of leaves will be performed on the Asian subtribe Aeridinae (Orchidaceae). Of the 103 total genera in this subtribe, nine species from nine genera were used in this study. These species come from four different alliances (monophyletic groups within Aeridinae) including the Pelatantheria, Trichoglottis, Acampe, and Aerides alliances. The primary purpose of this study is to find structural differences among these alliances. The structure of the adaxial and abaxial leaf epidermises will be the focus of this study. Leaf scrapings, where the mesophyll is removed from the epidermis will be stained using a 1% safranin solution in 50% ethanol. Permanent slides will be made using Permount. I expect that species from the same alliance will, for the most part, have similar anatomical features, since

they are members of a small monophyletic group. All nine species, however, should not be as similar in structure, since they comprise a larger monophyletic group, and there should be more differences between alliances. The monophyly of these alliances was previously determined using molecular phylogenetics. A secondary purpose of this study is to use anatomy to find diagnostic features that might define some of these monophyletic groups found using molecular techniques.

* * * * * * * *

Presenter: Rachel Lindhart (Grad Student)
Faculty Mentor: Dianne Timm, Counseling and Student Development

Poster number 59 1-1:50 Grand Ballroom

Title: Motivation behind Male Study Abroad Participation

Abstract: There are many factors that play into a student's decision to pursue an international experience during college. This study sought to explore the motivating factors behind a male students' decision to study abroad during their undergraduate career at a mid-sized Midwestern university. A phenomenological qualitative approach was used understand the factors that influenced their decision to participate in a study abroad program. Five male undergraduate students in their third year or higher that had participated in a semester-long or summer independent study abroad program were interviewed one-on-one. The participants were asked a series of questions about their commitment to study abroad, the factors that influenced their decision, the obstacles they faced during this process and the strategies they used to overcome those obstacles, as well as their perceived benefits to studying abroad. The results demonstrated that the participants committed to study abroad during their sophomore year of college. The students' decisions were influenced by a variety of factors, including academics, people, their personal background, the office of study abroad, and their own personal desire and determination. Identified obstacles included study abroad not being a topic that is discussed in their environment, finances, academics, unknowns, and application paperwork, which the shared they overcame through support, being informed, and persevering. The students shared their greatest perceived benefits were gaining a new global perspective as well as adopting a stronger sense of self.

* * * * * * * *

Presenter: Alex Love (Junior)
Faculty Mentor: Nikki Hillier, Health Promotion

Poster number 60 2-2:50 Grand Ballroom

Title: Student Perceptions of Campus Police

Abstract: The purpose of this study was to investigate how safe college students feel on campus and how students perceive law enforcement. A 20-question survey was used to understand how students feel about police on campus, how media has affected the views of police on campus, and whether or not students feel comfortable reaching out to police if in trouble. Differences in rural and urban communities were examined. Studying perceptions of law enforcement is essential for campus safety.

* * * * * * * *

Presenter: Christine Madden (Grad Student)
Faculty Mentor: Jeannette Andrade, Family and Consumer Sciences

Poster number 61 1-1:50 Grand Ballroom

Title: Protein Intake and Lean Muscle Tissue in Older Adults, 50+

Abstract: Older adults, age 50+, will represent over 35% of the population by 2020, and their numbers are projected to more than double in the next 35 years. As the aging population rises, potential complications may also ensue such as sarcopenia and muscle wasting. Sarcopenia may be caused by several factors such as osteoporosis, diabetes, lower energy intake, and inefficiency metabolizing protein, which in turn leads to older adults being more susceptible to chronic illness and fall-related injuries or death. Currently, the adult RDA for protein is 0.8g/kg body mass per day. However, evidence suggests that increasing protein intake or supplementing protein along with habitual eating can increase muscle protein synthesis and preserve lean muscle tissue among older adults. The purpose of this presentation is to educate future dietetics professionals on a possible relationship that exists between increasing protein consumption and synthesis of lean tissue mass in older adults, 50 years and older.

(Word Count: 152)

* * * * * * * *

Presenter: Divya Manchireddy (Grad Student)
Faculty Mentor: Toqeer Israr, Computer Technology

Poster number 62 2-2:50 Grand Ballroom

Title: Peapod Grocery Delivery

Abstract: Indian students who are living in Charleston can't get the Indian grocery right in Charleston. If they want any Indian grocery they should have a plan to travel Champaign which is almost 50 miles away from Charleston which is a bit time taking process. So to overcome that process I have designed a plan where Indian grocery stores are able deliver their products online.

Customers can select the products online and make a payment to the products. Grocery will find a delivery person or an organization who can deliver it to desired person. By this way once in a week the delivery person will be Charleston to deliver the products.

* * * * * * * *

Presenter: Andrew Mathis (Senior)
Faculty Mentor: Nikki Hillier, Health Studies

Poster number 63 1-1:50 Grand Ballroom

Title: Agriculture and GMO Perceptions in Rural Communities

Abstract: The purpose of the study was to gain knowledge and understanding for agriculture and GMOs in rural communities. Data was collected relating to the knowledge, attitudes and behaviors of professionals in the agriculture community in relation to GMOs. The sample included 25 agricultural professionals who responded to a 20 question survey that related to their knowledge, attitudes, behaviors and their personal experiences in relationship to technology used in agriculture. I used SPSS data analysis to interpret the data.

* * * * * * * *

Presenter: Elizabeth McPherson (Senior)
Faculty Mentor: Kathryn Havercroft, Special Education

Poster number 64 2-2:50 Grand Ballroom

Title: Teacher Attention Delivered on a Fixed-Time Schedule: Increasing On-Task Behavior

Abstract: A 4th grade student participated in a study that evaluated the effectiveness of using teacher attention delivered on a fixed-time schedule to increase on-task behavior. On-task behavior was defined as looking at the current activity with eyes, using materials appropriately and keeping hands to self. An A-B single subject design was utilized. It was hypothesized that teacher attention delivered on a fixed-time schedule would increase the student's use of on-task behavior. Direct small-group instruction occurred during weekly 50-minute tutoring sessions. A duration record was used during the baseline period to measure the amount of time the student spent engaging in on-task behavior. Baseline results indicated that the student engaged in on-task behavior less than 50% of the time during 30-minute intervals. For day one, he was on-task for 34% of the time, day two he was on task for 27% and day three he was on-task for 31% of the time. During intervention data, results indicated he was now on-task for more than 50% of the time over 4 days. On day one, he was on-task for 66% of the time, day two 54%, day three 72% and day four 69%. Due to time constraints, a return to baseline data was not possible.

* * * * * * * *

Presenter: Clay Meyer (Senior)
Faculty Mentor: Jeanette Andrade, Dietetics

Poster number 65 1-1:50 Grand Ballroom

Title: Food Insecurity of College Athletes

Abstract: An estimated 21% of college students were considered food insecure in 2014. Although, this statistic does not include the number of food insecurity among college athletes. Food insecurity can negatively impact college athletes as the lack of proper nutrition affects one's cognitive, academic, psychosocial development, and performance on and off the field. Thus, it is imperative to understand if an athlete is food insecure and their method to cope with their food insecurity. The purpose of the study is to examine food availability and accessibility of foods among collegiate athletes that attend a Division I Mid-West University. Food availability and accessibility was assessed using a nine question survey. The survey was constructed referencing the USDA U.S. Adult Food Security Questionnaire. The survey was distributed to 472 athletes from various sports. To qualify as an athlete for this survey one must have participated in a sport for at least one semester. Results of the study are still pending. Currently, 50 student athletes have completed the survey. More complete results and implications will be available for presentation at the EIU research and creative arts fair.

* * * * * * * *

Presenters: Bailey Mitchell, Josie Alcantar, Jessica Bayles, Danielle Beamon, Hannah Blevins , Gretchen Butterfield, Lucia Castro, Sarah Douglas, Skyler Harford, Priscilla Heredia, Gladys Valentin
Faculty Mentor: Christiane Eydt-Beebe, Foreign Languages

Poster number 66 2-2:50 Grand Ballroom

Title: Foreign Languages for Young Learners

Abstract: Teacher education candidates in foreign languages and advanced foreign language students develop and teach an after-school enrichment program in area elementary schools. Each EIU student teaches a group of 8-12 learners (1st through 4th grade). Approach is proficiency oriented and reflects the cultural framework for foreign language learning (Products, Practices, Perspectives). EIU students plan their lessons, design materials, and engage their learners in interactive activities that promote direct binding of word and meaning. Vocabulary is presented in thematic groups. Through TPR (Total Physical Response) activities, visuals, realia, games, authentic materials, and experiences with music and art, young learners acquire basic communicative skills and develop their cultural awareness and understanding.

* * * * * * * *

Presenter: Jarrett Moore (Senior)
Faculty Mentor: isaac slaven, School of Technology

Poster number 67 1-1:50 Grand Ballroom

Title: Employing thermal imaging to vet product claims

Abstract: The Yeti cup experiment will be a test of quality between the name brand Yeti cups and the generic version from your everyday retail store. The Yeti cup a brand of stainless steel cups that claims to "keep your drink as cold (or hot) as science allows." The reason behind this claim is the use of 18/8 stainless steel and vacuum insulation technology. These two things are also supposed to guarantee no condensation build up on the outside of the bottle.

In order to test this theory, I will use thermographers to measure the peak temperature for cold beverages that contain four ice cubes each of the same size and the water used will start at room temperature. Once the peak temperature is established and documented, I will monitor the temperature of the containers to observe temperature decline over a span of time. The temperature of the Yeti cup and generic brand will be recorded in ten minute increments for changes. Once the data is compared, the results will determine if the Yeti cup is truly worth the extra money.

* * * * * * * *

Presenter: Stephanie Mumby (Grad Student)
Faculty Mentor: Jeanette Andrade, Family and Consumer Sciences

Poster number 68 2-2:50 Grand Ballroom

Title: Nut Your Average Breakfast Muffin

Abstract: Nut Your Average Breakfast Muffins (Gluten, Dairy, and Peanut-Free)

Brainstorming

The prevalence of food allergies has increased by nearly 50%, with unknown causes. This medical driven trend increases the need for safe products, and after browsing several grocery stores, the lack of on-the-go breakfast products became apparent.

Concept

The product is a breakfast muffin safe for consumption by those following a gluten and/or wheat-free, peanut-free and dairy-free diet. The purpose of this study is to evaluate which gluten-free flour will produce the most desirable product.

Market Justification

The target population for the product is children (2 to 18 years old). Recently, it has been found that 20% of young children skip breakfast, which may result in decreased consumption of essential nutrients. An elimination diet, the cure for food allergies and celiac disease, can put individuals at risk for deficiencies in calcium, vitamin A, iron, and fiber which are nutrients commonly found in wheat and dairy products.

Product Description

The recipe developed will include several beneficial ingredients: flaxseed meal, unsweetened applesauce, carrots, bananas, raisins, almond butter, honey, cinnamon and almonds. The manipulated ingredient in the batter will be different gluten-free flours: almond flour versus brown rice flour.

Product Development Plan

Several base recipes and the quality characteristics of muffins will be researched. During production, wet ingredients will be blended in a food processor, combined with dry ingredients using the muffin method and baked for approximately 25 minutes at 375°F. Several rounds of testing will occur before two variations of the product will be sensory evaluated by a panel. The muffin reflecting the most preferred scores will be further developed. A packaging design ensuring a one week shelf-life will be created. A nutrition facts label and allergen statement, certifying all ingredients used in formulation were not produced on the same line as milk, wheat, or peanut products, and the processing included properly sanitized equipment and surfaces, will appear on the package. The product will be marketed to grocery stores selling specialized foods, as well as local convenience stores to make the healthier and safer choice an easier one to find.

* * * * * * * *

Presenters: Erin Murphy (Sophomore), Brian Silverman
Faculty Mentor: Dan Nardi, School of Technology

Poster number 69 1-1:50 Grand Ballroom

Title: Physical Activity as an Influence on Spatial Location Memory

Abstract: Context dependence of memory refers to the phenomenon of improved performance in a cognitive task when encoding and recalling occur in the same situation. However, research has not addressed whether the physical activity can act as a context cue. The goal of our study is to see if physical effort can be used as a context cue for spatial location memory. We will test 40 participants on their ability to remember the spatial location of objects while engaging in

differing levels of physical effort on a health walker. Participants will be assigned to one of four conditions, given by a factorial combination of the physical activity they will be doing when encoding the objects' location and the physical activity at recall. To start, participants are given a minute and half to memorize the location of 28 objects on a grid poster while walking or standing. Next, participants will perform a distractor task. Finally, participants will recall the objects location on an empty grid while walking or standing on the health walker. Our hypothesis is that participants who encode and recall while in the same physical activity context will remember more object locations than those in the different activity contexts.

* * * * * * * *

Presenter: Myles Murphy (Senior)
Faculty Mentor: Issac Slaven, Psychology

Poster number 70 2-2:50 Grand Ballroom

Title: Evaluation of disposable plate durability under various stresses

Abstract: This research tests the load bearing properties of different brands and styles of paper plates. The tests consist of 12 samples from each type, and a wet and dry test. Pairwise comparisons will be used to determine statistical significance. This research will help restaurateurs, caterers, and other event hosting to select the best type of plate for their event.

* * * * * * * *

Presenter: Erika Murray (Grad Student)
Faculty Mentor: John Cabage, School of Technology

Poster number 71 1-1:50 Grand Ballroom

Title: Harvesting Electromagnetic Radiation as a Renewable Energy Source

Abstract: Most energy consumed today comes from nonrenewable resources, which puts us at risk of running out of consumable energy, causing environmental damage, and encountering energy security issues. In an effort to reduce those risks, we are attempting to harvest excess electromagnetic radiant energy, which consists of all radiation on the electromagnetic spectrum.There are many sources of this excess energy, including space, radio stations, TV transmitters, etc. We plan to use an antenna to pick up those electromagnetic waves in the atmosphere and convert that radiation into usable energy that will be stored in a battery. This stored energy will ideally be able to power the lights of a residential home in order to reduce the consumption of nonrenewable resources. The incorporation of renewable energy resources into our energy consumption practices is important to maintain our ability to consume energy as well as reduce greenhouse gas emissions, climate change, the melting of the ice caps, amongst other environmental harm consuming fossil fuels cause. The excess electromagnetic radiation in the

atmosphere poses great potential to reduce our use of nonrenewable sources, and in turn the risks society encounters due to our consumption practices.

* * * * * * * *

Presenter: Jaelen Myers (Senior)
Faculty Mentor: Anabela Maia, Biological Sciences

Poster number 72 2-2:50 Grand Ballroom

Title: Oxygen Consumption of Green Sunfish Pre and Post-Exercise in Response to Swimming Velocity

Abstract: Respiration rate in fish during exercising depends on swimming duration and how strenuous it is, among other factors. As exercise increases in difficulty more oxygen is consumed by red muscles (aerobic), as more muscle fibers are recruited to propel body undulations. This higher oxygen demand is compensated by increasing gill ventilation frequency. However, sometimes recruitment of red muscle is not sufficient to power swimming and fish also recruit white muscle (anaerobic). This leads to an oxygen deficit, and after exercise there is an increase in oxygen uptake to replenish reserves and to get rid of glycolysis byproducts, which is referred to as Excessive Post-exercise Oxygen Consumption (EPOC).

This study looks at respiration rates of Green Sunfish (Lepomis cyanellus) after strenuous swimming. Seven fish were sampled during a resting period with no prior swimming exercise (basal metabolism), and after three exercise periods in which the fish swam for 15 minutes at a speed of 1.5, 2, and 2.5 body lengths per second in a flow tank. Fish were placed in an enclosed 3500 mL chamber with an oxygen probe for a half hour to measure oxygen uptake. ANOVA and t-test analysis showed that the EPOC increased in correspondence to increased swimming velocity, indicating that the respiration rate changes not just with exercise time but also the level of exertion as different muscles are recruited for swimming.

* * * * * * * *

Presenter: Ryan Naples (Senior)
Faculty Mentor: John Cabage, School of Technology

Poster number 73 1-1:50 Grand Ballroom

Title: Harvesting Earths Magnetic Field

Abstract: Energy comes from all over the world in many different forms. Unfortunately, a lot of energy comes from non-renewable sources such as fossil fuels which also pollute the environment as well. What this research consists of is trying to harvest the earth's magnetic field

to create energy in a clean way. When studying the effects of earth's magnetic field on a compass we can see that the magnet in the tip of the needle points north. We are trying to get the same effect with an electromagnet that can become de-magnetized and complete a full circle around a spindle. This will only be possible by putting the electromagnet in a near frictionless environment. With putting low amperage and volts into our machine we are hoping to yield greater voltage that we can store in batteries. This process would be a much cleaner alternative to how we currently access our energy.

* * * * * * * *

Presenter: Melissa Nathan (Freshman)
Faculty Mentor: Gary Bulla, Biological Sciences

Poster number 74 2-2:50 Grand Ballroom

Title: The Role of HNF4 in Activating Liver Function

Abstract: Mammalian development involves a complex system of regulatory signals and reactions resulting in highly differentiated cell types with specific structure and function. Whole genome microarray analysis of hepatocyte cell lines have revealed candidate genes that may serve as regulators or master regulators of liver specificity. Recently, we examined the impact of hepatocyte nuclear factor 4 (Hnf4) in inducing H11 variant cells (which do not express liver genes) to express hepatocyte-specific genes. An Hnf4-expression plasmid was transfected into H11 cells using a standard transfection technique. After RNA extraction and synthesis of cDNA, all cell samples were processed through use of quantitative real-time polymerase chain reaction (qPCR) using specific primer pairs. GAPDH levels were used to normalize signals obtained. qPCR revealed that HNF4 expression (in pooled transfectants) was increased 16-fold in the Hnf4-transfected H11 cells (H11- Hnf4) as compared to non-transfected H11 cells. We used qPCR to compare liver-specific gene expression in H11- Hnf4, H11 cells (negative control), and Fg14 hepatoma cells (positive control). The results suggest that HNF4 partially rescued the liver phenotype. Specifically, the Serpina1 gene (a marker for liver function) was strongly activated (64-fold) by the presence of HNF4 to a level that was within 4-fold of hepatoma levels. Additional liver-specific genes were also activated in the H11-Hnf4 cells. These results suggest that HNF4 has ability to remodel chromatin and restore expression of silenced hepatic genes. Understanding more about liver gene activation and which genes aid in liver function can provide insight as to the causes of liver diseases.

* * * * * * * *

Presenter: Gabrielle Orr (Senior)
Faculty Mentor: Nikki Hillier, Department of Health Promotion

Poster number 75 1-1:50 Grand Ballroom

Title: What are coping strategies for stressed college students at a midsize, Midwestern University

Abstract: The purpose of this study was to explore was the effects of stress on students and their coping mechanisms. Surveys were distributed to 30 students. The 22 question survey assessed the knowledge, attitudes, and behaviors regarding college students and their stress. The data was analyzed using SPSS. Most students reported levels of stress and a variety of coping mechanisms were explored.

* * * * * * * *

Presenter: Chirag Pansuriya (Grad Student)
Faculty Mentor: Isaac Slaven, School of Technology

Poster number 76 2-2:50 Grand Ballroom

Title: Assessment of Syngas Production from Various Biomass Feedstocks

Abstract: The analysis of the syngas will be performed by elemental analysis and ultimate analysis in downdraft gasifier using laser chromatography while using different biomass feedstocks such as wood chips, wood pellets, miscanthus, and switchgrass in order to obtain the syngas. The present work allows estimating the better possibilities of the gasification of the different biomass feedstocks studied. The effect of the operating parameters such as various type of biomass fuels and the performance of the gasification system while using the different mixture of biomass feedstocks will be discussed.

* * * * * * * *

Presenter: Tanmay Pant (Grad Student)
Faculty Mentor: Peter Ping Liu, School of Technology

Poster number 77 1-1:50 Grand Ballroom

Title: Solar Go-Kart

Abstract:

Ever-increasing pollution around the globe is one of the biggest challenges being faced by the mankind currently. It then becomes a necessity to look for alternate sources of energy that fulfil demands by causing lesser impact on the environment. Transportation contributes to about 28%

of the total energy demand, majority of which is met by fossil fuels that are nonrenewable and polluting.

There have been developments in the transport industry in making vehicles more fuel efficient and reduce pollution. One such technology is using solar energy to run cars. There are cars which run on batteries these days and require electrical charging as fuel. There are various places where the charging station make use of solar energy to charge up the car. For my research, I am want to construct a go-kart from scratch which would entirely run on solar energy. As the research progresses I would also examine the economics and efficiencies of the system I am using.

* * * * * * * *

Presenter: Neeta Parajulee Karki (Grad Student)
Faculty Mentor: Anabela Maia, Biological Sciences

Poster number 78 2-2:50 Grand Ballroom

Title: Effects of 17β estradiol on Bluegill Sunfish metabolism and body shape

Abstract: Fish natural habitats are increasingly contaminated with various estrogenic compounds, including 17β estradiol (E2). E2 causes adverse effects on the reproductive system of male fish; however, the effects of E2 on other aspects of fish metabolism, morphology and histopathological changes in internal organs are less understood. The objective of this study is to evaluate the effects of E2 exposure on the basal and stressed metabolic rate, morphological changes in body shapes, and histological changes in the liver tissues of Bluegill Sunfish species. Fish were held individually in ten gallon tanks under two treatments with varying estradiol concentrations (40 and 80 ng/l) and one control treatment (no E2). The duration of E2 exposure was 21 days, with E2 being replenished every week based on its half-life. Basal and maximum aerobic scopes were measured using close respirometry and a chase protocol at the beginning and at the end of the experiment. Lateral pictures of the fish were also taken at these two time points. Our results show that in the control group the basal metabolic rate decreased after 21 days; whereas in the estradiol exposed groups, it did not. In terms of morphological changes, we observed the reduction in operculum size and decrease in head size in exposed individuals but not in the control. E2 exposure caused some morphological changes in male related characters in sunfish which eroded male dimorphic characters. Histological examination of liver tissues showed that there was a disintegration of hepatocytes in the E2 exposed liver tissues. Our research highlights negative effects of estradiol that are more widespread than simple gonadal alterations.

* * * * * * * *

Presenters: Austin Parrish (Senior), Kaitlyn Hammock
Faculty Mentor: Anabela Maia, Biological Sciences

Poster number 34 2-2:50 Grand Ballroom

Title: Geometric Morphometrics of Median Fins in Basal Bony Fishes

Abstract: Fish species have an incredible array of fin shapes. What drives this diversity and how can we explore the different phenotypes to predict developmental triggers? Median fins – dorsal, anal and caudal – were the first fins to appear in fish and are important for propulsion. We focused on basal bony fishes – bowfin, shovelnose sturgeon, shortnose gar, spotted gar and longnose gar. We hypothesize the three main drivers of fin diversity in basal bony fishes are: body and fin elongation, acquired asymmetry and median fin placement. Specimens were obtained from Illinois water basins and analyzed through geometric morphometric techniques. Fifteen landmarks representing body and median fin shape were digitized using TpsDig. In MorphoJ, Procrustes Fits, Principal Component Analysis (PCA) and Discriminant Analysis were used to compare fin and body changes. Analyses were run on: all the specimens combined, adult specimens only, all gar species and sturgeon larvae and adults. Discriminant Analysis showed that all groups could be distinguished in the morphospace, except for the gar species. Analysis of all fish combined showed that 64.1% of the variance was explained by PC1. Along PC1 we observed a shift from anterior to posterior dorsal and anal fin placement corresponding to body elongation. Less variability was explained by PC2 19.9% which showed a shift from a short to an elongated dorsal fin and changes in symmetry of the caudal fin. Larvae and adult sturgeon differed in the final position of the dorsal and anal fin that is more cranial in the larvae, product of a not fully completed reabsorbed fin fold in earlier development stages. Geometric morphometrics is an efficient tool to describe shape changes that are size independent. We are seeing that as predicted the main drivers for fin shape diversity are body and fin elongation and acquired asymmetry.

* * * * * * * *

Presenters: Aditya Patel (Grad Student), Max Naseri
Faculty Mentor: Wutthigrai Boonsuk, School of Technology

Poster number 80 2-2:50 Grand Ballroom

Title: Performance analysis for Time-of-Flight Ranging Sensor

Abstract: In robotic field, identifying distance between a robot and surrounding objects in the environment is a challenging task. Many types of sensors can be used to perform this task including ultrasonic sensor, infrared (IR) sensor, and traditional laser sensor. Recently, time-of-flight (ToF) ranging technology sensor which measures the distance based on the time that is taken by the light to travel has become popular in robotic range finder applications. However, the effectiveness of this raging sensor in different scenarios should be tested as the accuracy of this

sensor varies when the light collides with different material surfaces. In this study, we will evaluate the performance of VL53L0X, one of the ToF range finder sensors in the market. The analysis will be conducted by using different types of materials to simulate obstacles that can be found in different environments. The results will show the performance of this ranging sensor and help determine level of confidence in using this sensor in various scenarios.

* * * * * * * *

Presenter: Gavin Peterson (Sophomore)
Faculty Mentor: Issac Slaven, School of Technology

Poster number 81 1-1:50 Grand Ballroom

Title: The importance of maintaining safe amperage through residential cords

Abstract: This research will test the quality of extension cords when exposed to low to high amperage to determine their safety. This will be judged by the temperature of the cord while applying varying amounts of amperage through the cords. We will measure the temperature using a digital thermographer. That information will then be compared using correlation analysis to determine a safe operating amperage for the cords.

* * * * * * * *

Presenter: Emily Pinter (Senior)
Faculty Mentor: Kraig Wheeler, Chemistry

Poster number 82 2-2:50 Grand Ballroom

Title: Pasteur's Quasiracemates: A New Look at an Old Story

Abstract: L. Pasteur in 1853 reported the formation of an unusual 'combination compound' between (2R,3R)-tartaramide and (2S)-malamide. These materials are now commonly known as quasiracemates; equimolar pairs of chemically unique molecules that differ in handedness. The unique recognition profile of quasienantiomeric components to assemble in predictable motifs stems from the complementary shapes of the components that has attracted considerable interest over the last several years. When co-crystallized, quasiracemates, without exception, arrange in crystals with approximate inversion symmetry similar to their racemic counterparts with a driving force related to close packing in the crystal. By revisiting Pasteur's seminal work, this investigation offers important opportunities to gain a deeper insight into the formation of quasiracemates, while paving the way for new emergent technologies. The focus of this study targets the crystallographic assessment of Pasteur's early work on (2R,3R)-tartaramide and (2S)-malamide, and extends the structural principals obtained to other amide derivatives. A series of N,N'-disubstituted tartaric and malic diamides has been synthesized. The crystal structures of these quasiracemates, as well as the racemic and enantiopure components, provide critical insight

about the packing tendencies of these materials. Results from our investigations of the primary amide quasiracemate indicated the molecules organized with approximate inversion symmetry and crystal packing resembling that of racemic tartaramide. Derivatives prepared with pendant dialkyl groups offer an important extension of this work. At least in one case, a quasiracemic phase was found lacking the prescribed approximate inversion symmetry and indicates an unprecedented recognition profile for quasiracemic materials. These studies highlight the structural trends from co-crystallization of quasienantiomers and the importance of complementary molecular topologies to molecular assemblies.

* * * * * * * *

Presenter: Noah Przygoda (Grad Student)
Faculty Mentor: Wutthigrai Boonsuk, School of Technology

Poster number 83 1-1:50 Grand Ballroom

Title: RFID Application within 3D Printed, Functional Prosthesis

Abstract: Conventional and commercial prosthesis become more complex and intricate as continually improving technologies become more available, such as: motor functionality, tactile triggers, and nerve impulse recognition. However, those that could utilize these technologies do not have access or the ability to acquired them. Alongside this recognition, many of those in need of prosthesis tend to grow out of them and have to obtain a new version and this may occur several times until they finally finish growing and can have couple dedicated prosthesis.

So we propose that we can construct a prototype of an environment interactive, functioning prosthetic hand to through the process of 3D printing. This prosthetic hand will be durable, functional, and cheaper than conventional prosthesis. We recognize that children can have difficulty find more complex prosthesis and chose this method of manufacturing to accommodate them easily and effectively, especially as they grow, as well as adults. We intend to use RFID technology to allow the prosthesis to interact with common tasks and everyday objects without the operator's instruction. We intend for RFID to allow the operators to perform tasks more easily, quickly, and efficiently. It is also the intention that the prosthesis can be programmable to the operator's desire of tasks and can continually acquire new processes.

* * * * * * * *

Presenter: Melissa Quick (Senior)
Faculty Mentor: Naomi Gurevich, Communication Disorders and Sciences

Poster number 84 2-2:50 Grand Ballroom

Title: Comparison of Rehabilitative Dysphagia Exercises: Chin Tuck Against Resistance (CTAR) and the head-lift exercise

Abstract: Abstract

Swallowing is a vital function, needed to sustain safe and adequate nutrition and hydration. A swallow is executed in three stages: oral, stage, and esophageal. Deficits in any of these three stages leads to a condition known as dysphagia. Deficits in the pharyngeal stage of a swallow often occur due to weakened muscles necessary for hyolaryngeal excursion. Hyolaryngeal excursion is essential for proper closure of the airway and bolus transfer into the esophagus. Pharyngeal dysphagia puts individuals are at risk of malnutrition, dehydration, choking, and pneumonia. One way to strengthen muscles involved in hyolaryngeal excursion is through exercises. The head-lift exercise has been shown to improve pharyngeal-level swallow (Shaker et al., 1997). However, it is difficult to complete due to the supine position required in its protocol, leading to reduced compliance with this exercise (Yoon et al, 2013). A new exercise, known as the chin tuck against resistance (CTAR), has shown evidence of increased muscle activation of suprahyoid muscles compared to the head-lift (Yoon et al., 2013; Watts, 2013; Sze et al., 2016; Hughes & Watts, 2016). Researchers have yet to compare the activation of both suprahyoid (sub-mental) and strap muscle groups across both exercises. The current study compares maximum voluntary contraction of two muscle groups, sub-mental and strap muscles, in a healthy adult participant performing the two rehabilitative exercises targeting increased hyolaryngeal excursion.

References

Hughes, T. & Watts, C. R. (2016). Effects of 2 resistive exercises on electrophysiological measure of submandibular muscle activity. Archives of Physical Medicine and Rehabilitation.

Shaker, R., Kern, M., Bardan, E., Tayor, A., Stewart, E. T., Hoffman, R. G., et al. (1997). Augmentation of deglutitive upper esophageal sphincter opening in the elderly by exercise. The American Journal of Physiology- Gastrointestinal and Liver Physiology, 6, Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/9227489.

Sze, W. P., Yoon, W. L., Escoffier, N. & Liow, S. J. R. (2016). Evaluating the training effects of two swallowing rehabilitation therapies using surface electromyography—chin tuck against resistance (CTAR) exercise and the shaker exercise. Dysphagia., 3, 195–205. doi: 10.1007/s00455-015-9678-2.

Watts, C. (2013). Measurement of hyolaryngeal muscle activation using surface electromyography for comparison of two rehabilitative dysphagia exercises. Archives of Physical Medicine and Rehabilitation.

Yoon, W., Khoo, J., & Liow, S. (2013). Chin tuck against resistance (CTAR): new method for enhancing suprahyoid muscle activity using a Shaker-type exercise. Dysphagia, 19, 243-248. doi: 10.2007/s00444-013-9502-9.

* * * * * * * *

Presenter: Dylan Rardin (Senior)
Faculty Mentor: Rodney Marshall, Communication Studies

1:05 pm Effingham Room

Title: How Should Disagreements be Handled in the Workplace

Abstract: Workplace disagreements have been a part of people's careers ever since we started working. Sometimes they can be avoidable, while other times the disagreements have been so severe that it has broken up friendships and personal relationships with co-workers. But why do a study on a topic that can be so easily defined, and has had plenty of research performed already? You have to look at this with a different attitude, yes research has been done on why disagreements and conflicts happen in the workforce. The purpose of this paper is looking into how we should conduct ourselves if put into the position of a disagreement. Hitting right in the very middle of the disagreement starting and how the disagreement ends, is something that we should greatly look into.

A survey was distributed to a communication research at Eastern Illinois University. The purpose of the study was see if these participants had been in a workplace disagreement, and if they were how did they conduct themselves. Once the surveys were collected, the data concluded that a majority of the seventeen participants conducted themselves in an appropriate way, and that also majority wanted to the conflict resolved quickly. There are still many different aspects of this topic that could be researched, the reason being is that disagreements in the workplace is a never ending ordeal.

* * * * * * * *

Presenter: Shannon Regan (Grad Student)
Faculty Mentor: Eric Bollinger, Biological Sciences

Poster number 85 1-1:50 Grand Ballroom

Title: Comparison of chickadee gargle calls and genetic analyses within a contact zone

Abstract: Black-capped and Carolina chickadees are distributed parapatrically from New Jersey to Kansas, forming narrow hybrid zones in areas of sympatry. Genetic studies in Pennsylvania and Ohio have concluded that these contact zones are slowly moving north, presumably due to

climate change. The ranges of these species have been relatively stable based on vocalizations, but within Illinois, long-standing contact zones have never been genetically tested. We recorded and analyzed vocalizations produced by birds within this contact zone to compare with our genetic findings and to results from previous studies. Group size and agonistic calls are positively correlated along with rates of vocalization and temperature increase. This study will clarify the underlying mechanisms for genetic and vocal variations to aid in further research surrounding the possible disconnect between cultural and genetic findings and also the effects of climate change on bird populations throughout North America.

* * * * * * * *

Presenter: Adriana Reppell (Senior)
Faculty Mentor: Antony Oluoch, Biological Sciences

Poster number 86 2-2:50 Grand Ballroom

Title: Histologic Classification of Canine Mammary Tumors

Abstract: Mammary tumors occur almost exclusively in female dogs, and are the most common types of neoplasms found in canines. Using specimens of tumors sourced from a wide geographical location, this study sought to confirm trends previously reported in the literature about the disease. A second objective was to examine the distribution of grades of canine mammary tumors using established clinical rubrics. Finally, we looked for correlations between the severity of neoplasia and patient attributes such as species, age, and the removal of reproductive parts.

Hyperplastic or neoplastic changes were observed in all 39 breeds encountered, through all ages, sizes; and in both intact and spayed dogs. Statistical examination of the data did not reveal significant correlations between the prevalence of neoplasia and canine breed, age, weight, or removal of reproductive parts. This is in sharp contrast with previous and current reports that clearly show a positive correlation between such host attributes and neoplasia. However, in agreement with published reports, this study found the highest number of cases to be epithelial, followed by complex adenomas and benign mixed tumors. Multiple tumor classifications were not found in the biopsies in our study, including simple carcinomas such as cribriform or anaplastic, and sarcomas such as osteosarcoma or carcinosarcoma.

* * * * * * * *

Presenters: Audrey Rex (Sophomore), Katelynn Fuller
Faculty Mentor: Mary Konkle, Chemistry

12:50 pm Greenup Room

Title: Spectroscopy of CISD Proteins

Abstract: MitoNEET was the first member of the CDGSH iron-sulfur domain (CISD) protein family discovered in 2004. Two additional family members, CISD2 and CISD3, were later discovered. While the structures of mitoNEET and CISD2 are strikingly similar, 74% sequence conserved, the functional impact of knock-out models is quite different. A plasmid with the mitoNEET or CISD2 gene and an antibiotic resistance gene was obtained for transformation into the Escherichia coli strain of C43(DE3) competent cells. C43(DE3) cells are a derivative of BL21(DE3) strain that was developed to handle the overexpression of toxic proteins. Interestingly, consistent differences in the isolation and purification of CISD2 were noted relative to mitoNEET. Because the pH environment has significant impact on iron-sulfur protein structure/function, the pKox of CISD2 was determined by spectroscopic methods within the pH range between 6 and 11. This technique could not be used for mitoNEET due to protein instability. Fluorescence spectroscopy was employed to further characterize the binding of mitoNEET and CISD2 to the redox cofactors NADH and NADPH. Preliminary data indicates that both proteins bind NADPH, but not NADH. The results presented here contribute to the larger trend of how small chemical changes can have large functional impacts on biomolecules.

* * * * * * * *

Presenter: Allison Ridey (Senior)
Faculty Mentor: Gopal Periyannan, Chemistry

Poster number 87 1-1:50 Grand Ballroom

Title: Aromatic Hydrocarbon Metabolism of Caulobacter crescentus

Abstract: Conversion of aromatics into environmentally benign compounds attracts greater interest due to the environmental persistence, bioaccumulation, and carcinogenicity of aromatics. C. crescentus is capable of metabolizing a variety of toxic organic compounds as the sole carbon source. However, There is a significant research gap in the investigation of the metabolism of aromatic hydrocarbons. Exploration of the unique metabolic and membrane transport properties of C. crescentus may shed light on the molecular adaptations enabling survival in extreme-nutrient conditions

* * * * * * * *

Presenter: Vincent Roberson (Junior)
Faculty Mentor: Isaac Slaven, School of Technology

Poster number 88 2-2:50 Grand Ballroom

Title: The relative effectiveness of household lubricants for increasing drill battery life

Abstract: This research examines the effectiveness of using a common lubricant to increase the longevity of a cordless drill's battery life. To measure this, 2-inch drywall screws will be screwed into SPF 2 by 4 boards. The number of screws that can be done on one battery charge will be counted. This will be repeated with screws that have one drop of dish soap on the tip. Means from these will be compared, and recommendations will be made based upon this pairwise comparison.

* * * * * * * *

Presenters: Scott Runyan (Senior), Danielle Kappel
, Jenna Burke**Faculty Mentor:** James Barkley, Recreation Administration

Poster number 89 1-1:50 Grand Ballroom

Title: Risk and Pokémon Go: the player or the game?

Abstract: Pokémon Go is seen as potentially risky as it has caused a number of accidents with players and others being hurt and/or killed. Are the risks involved in the game simply a byproduct of the game itself, or do players of the game get involved because they prefer to engage in risk? In this case, we explore this broader question by examining the relationship between motivation to experience leisure time risk and basic level of involvement with the game Pokémon Go.

This project begins to explore the game's potential to change peoples behavior by comparing the Recreation Experience Preferences (REPs) of people that play the game Pokémon Go with with those of non-players. It is thought that if players were already more likely to engage in risk taking according to their recreation preferences, then perhaps the game is less a catalyst for behavior change [that ends badly for the player], and more a new tool to satisfy a preference for risk taking. In other words, is it the player-as-seeker or the game-as-provider of risk?

* * * * * * * *

Presenter: Ibrahim Sangi (Grad Student)

Faculty Mentor: Peter Liu,. Rendong Bai, Wutthigrai Boonsuk, School of Technology

Poster number 90 2-2:50 Grand Ballroom

Title: Maximizing Involvement of Electric Consumer in Smart Grid and Smart Home.

Abstract: The smart grid is an infrastructure that enables consumers to reduce energy waste hence help us to reduce the carbon footprint of our society. In this research, we will explore possible ways to improve home energy management devices and promote the adoption of electric consumers towards smart grid and smart home applications. There will be tremendous consumer benefits to adopt the smart grid by knowing their consumption pattern of electricity based upon the real-time energy data. This will help consumers to best utilize their appliances or the process that consumes a lot of energy for them to save energy cost. In the research, we will also explore multiple available equipment options that would enhance consumer's knowledge with the smart gird in most affordable and efficient method.

* * * * * * * *

Presenter: Meghan Sennhenn Senior
Faculty Mentor: Lyndsay Jenkins, Psychology

Poster number 91 1-1:50 Grand Ballroom

Title: Methods to determine aggression, prosocial behavior and victimization

Abstract: The purpose of this review is to determine the best methods for researching acts of aggression, prosocial behaviors and victimization. We aim to show the strengths and weakness of several methods including; peer nomination, self-nomination, teacher rating, laboratory observation, and natural observation with audio and/or visual. The studies in review has participants varying from 3 to 12 years old. It is our goal to determine which method works best for particular age groups. Time is valuable, so we will also cover the time in which each of the methods require to complete. The strength of peer nomination, self-nomination and teacher rating is that the time required is only 15 to 40 minutes per child. Reliability is their weakness because nominations are the perspective of the person reporting. Laboratory and natural observation have a disadvantage with time. They can take several hours, days or weeks to complete. Laboratory and natural observation is more reliable than nominations, because the observer is unbiased. Laboratory observation may not be representative of the peer's group which is a weakness. Not only should time be a factor in choosing a method, but also the reliability, which varies between methods.

* * * * * * * *

Presenter: Marcos Serrafim (Grad Student)
Faculty Mentor: Matthew Boonstra, Art

TIME AND LOCATION TBA

Title: Gas Station/Outside

Abstract: The presentation incorporates the two following art works:

"Gas Station"

Video-installation art work consisting of video projection on object created with found materials, remaining's of a demolished gas station. The video is composed with direct observation of the landscape where the materials were found and of the extraction of materials by two recycling workers. In opposition to the documental aspect of the images, the hyper realistic sound of the work is totally composed on post-production.

Details: HD video projected on junk, 5min, 16:9, stereo, looped; junk, light, projector and speakers. Installation dimensions variable. Charleston-IL, 2016.

"Outside"

Video art work composed by shots of a small town`s landscape and informal interviews with its inhabitants. The work touches the political polarization of current times and its reverberation on public spaces and social relations.

Details: HD video, 20 min, 19:9, stereo. Charleston-IL, 2017.

* * * * * * * *

Presenter: Ashley Shamhart (Junior)
Faculty Mentor: Danelle Larson, Music

1:30 pm Greenup Room

Title: How to Alleviate Stress While in the Practice Room

Abstract: While in the practice room it is very common for musicians to get frustrated. For some it is fairly easy to overcome these frustrations, while others spend a majority of their practice time working to surmount their challenges. When musicians' frustrations are overwhelming it can cause them to become even more disgruntled and stressed, and can lead to unproductive practices. The purpose of this study is to explore different practice routines that can help relieve musicians' frustration and stress in the practice room. The primary research question investigates the effectiveness of various practice strategies on musicians' frustration while practicing. The study consists of three phases. During phase one, a survey was distributed to musicians in university performing ensembles asking the members what frustrates them while practicing, how often they feel frustrated while practicing, and how frustrated they regularly feel while practicing. Survey questions included Likert-type attitude scales and open-ended questions. The results of the phase one survey will help identify a smaller group of participants for phase two. During phase two the participants will incorporate various practice strategies in

twenty different sessions. Every other practice session will use a different routine, and the participants will be asked to practice as usual during the alternating practice sessions. In phase three the researcher will collect information from participants using a post survey, asking if the participations felt less frustrated when doing the practice routines, how often they felt frustrated while practicing, and which practice routines worked the best and worst overall for each individual participant. Survey questions include Likert-type attitude scales and open-ended questions. This presentation will include results from phase one of this study and the timeline for phase two and three will be outlined.

* * * * * * * *

Presenter: Maddalyn Smith (Senior)
Faculty Mentor: Gabriel Grant, School of Technology

Poster number 93 1-1:50 Grand Ballroom

Title: A Comparison of the 3D Modeling Programs Maya and Blender

Abstract: This research project demonstrates the advantages and limitations between two 3-D modeling programs, Maya and Blender. Content covered includes time spent modeling fundamental objects, assessment of difficulty in modeling fundamental objects, and further discussion of future modeling of characters such as Billy the Panther. The objective of this research is to determine the best 3D modeling program for character creation in undergraduate 3D modeling courses.

* * * * * * * *

Presenter: Maddalyn Smith (Senior)
Faculty Mentor: Gabe Grant, School of Technology

Poster number 92 2-2:50 Grand Ballroom

Title: Gamut Volume of Inkjet Printers and Correlation to their Media

Abstract: Four inkjet printers were researched in regards to their color gamut volume and their ink levels. The four printers that were researched were the, Epson 9600 C, Epson 9600 B, the Epson 11880, and the Epson R2880. It was concluded that the age of a printer does not affect the color gamut volume enough to make the printer unusable. It was also proven that although some ink levels may be low in the printer, it will not fully affect the gamut volume of the printers. It was proven that the Epson 9600C, made in 2005, had the highest gamut volume for matte paper. For glossy paper, it was proven that the Epson 11880 made in 2013, had the highest gamut volume. There were only slight differences in the gamut volumes of the printers with lower ink levels.

* * * * * * * *

Presenter: Jennings Soccorso-McCoy (Junior)
Faculty Mentor: Issac Slaven, School of Technology

Poster number 94 2-2:50 Grand Ballroom

Title: Determination of joint strength with combination glue and mechanical fasteners

Abstract: This study examines the effectiveness of wood glue with mechanical fasteners in improving joint strength. There will be two separated categories separating the glues, then each glue will have wood sample made with finish nails, drywall screws, and finally dowels. These piece will be butted together with the fasteners always being installed as similarly as possible as the others. Each sample with each fastener will be tested 5 times, and with 6 total different sample types this will call for 30 total samples. By applying pressure to either end of the L shaped connection the pieces will eventually snap. Recording how many pounds each held up will give an accurate representation of the real strength dried construction glue gives to a connection.

* * * * * * * *

Presenters: Ian Stanley (Junior). Allison Rodgers, Keara O'Connor
Faculty Mentor: James Barkley, Recreation Administration

Poster number 95 1-1:50 Grand Ballroom

Title: Plugged in outside: Pokémon Go and outdoor experience

Abstract: Pokémon Go is a gps-based augmented reality game application for mobile devices. The game's reward system for players requires going outside to more and less specific gps locations/coordinates. Several popular media reports tell a story of an increase in outdoor activity among players during the first six months of the game's release. This project begins to explore the game's potential to change peoples behavior by comparing the Recreation Experience Preferences (REPs) of people that play the game with those of non-players. It is thought that if players were already more likely to have an outdoor experience according to their recreation preferences, then the game may not be as much a catalyst for behavior change. As such, this inquiry focuses on the following question: do players of Pokémon Go generally prefer outdoor experience in their leisure more or less than non-players?

* * * * * * * *

Presenter: Emily Strattman (Grad Student)
Faculty Mentor: Jeanette Andrade, Family and Consumer Sciences

Poster number 96 2-2:50 Grand Ballroom

Title: Rheumatoid Arthritis and Polyunsaturated Fattyacids: What's the Relationship?

Abstract: Forty-one in 100,000 people are diagnosed with Rheumatoid Arthritis (RA) per year in the United States. RA is an autoimmune disease that attacks the synovial tissue surrounding the joints of the body. Several factors such as heredity, the environment, and lifestyle can contribute to the onset of RA. While genetics don't actually cause RA, they can increase susceptibility to environmental factors such as viruses and bacterial infections that can trigger the onset of RA. Smoking and obesity are associated with a high risk of developing RA. Symptoms of RA include symmetrical inflammation and joint pain that encompasses the entire body, fatigue, weight loss, stiffness, and anemia. Many individuals with RA have been advised to consume polyunsaturated fatty acids (PUFAS) to reduce inflammation and joint pain. As studies have shown, PUFAS can decrease the amount of inflammation inflicted on the joints of patients with RA. The purpose of this presentation is to educate future dietetic professionals on the impact that PUFAS may have on RA symptoms.

* * * * * * * *

Presenter: Jay Tamburrino (Senior)
Faculty Mentor: Don Pakey, Physics

Poster number 97 1-1:50 Grand Ballroom

Title: The Road Surface Mirage

Abstract: Many people have observed what appears to be a pool of water on a road surface on a sunny day, but what is actually a mirage, formed when light from the sky refracts (bends) when it interacts with a layer of hot air just above the road surface. The hypothesis of this research is that the temperature profile within a few millimeters of the road surface may be inferred from angular measurements made on photographs of the mirage. The mirage is simulated by a new computer code which propagates rays of light by using Snell's law of refraction.

* * * * * * * *

Presenter: Alexandra Teal (Junior)
Faculty Mentor: Naomi Gurevich, Communication Disorders and Sciences

Poster number 98 2-2:50 Grand Ballroom

Title: Metalinguistic Awareness in Chronic Aphasia

Abstract: Treatment methods that may be effective for individuals with chronic aphasia, at stages where recovery has slowed and much of the progress has plateaued, are welcome. Aphasia is an acquired neurological communication disorder. The current study examines a new approach

to affecting functional improvement through increased metalinguistic awareness. The subject is a forty year old client with chronic moderate to severe non-fluent aphasia, five years post stroke. The subject's participation in social and vocational activities is limited by his ability to communicate. He has been receiving regular speech therapy for the past 5 years to address his speech disorder characterized by reduced grammar, short mean length of utterances (MLU), and frequent omission of verbs. Despite continued therapy, subject's progress has mostly plateaued with respect to MLU to 1-2 word utterances. A treatment activity focused on increasing metalinguistic awareness was implemented for one semester (Fall 2016). The subject's MLU, sentence complexity, and initiation are tracked throughout the Fall 2016 semester to document improvement.

* * * * * * * *

Presenter: Hailey Tellier (Senior)
Faculty Mentor: Courtney Scott, Communication Disorders and Sciences

Poster number 99 1-1:50 Grand Ballroom

Title: The Effect of Real-Time Feedback Using a Smartwatch on the Behavior of Student Clinicians - Qualitative Results

Abstract: The presentation will include the qualitative results on research of the effect of clinician behavior while getting real-time feedback on a smart watch. I was a research assistant for the initial research and identifying qualitative results was included as one of my duties.

* * * * * * * *

Presenters: Read Thomas (Senior)
Faculty Mentor: Isaac Slaven, School of Technology

Poster number 100 2-2:50 Grand Ballroom

Title: Determining Ill-effects of Window Cleaning Solutions on Life-safety Ropes used in High-rise Cleaning Operations

Abstract: This research studies the effects of window cleaning solution on life-safety rope and the effects the solution may have on the rope. The reason for doing this is to determine whether the solution is harmful to the rope. Also, it is important to see if the rope will remain in a good operating condition (within manufacturers' specifications) once treated with the solution. This type of study will have implications for window cleaning companies as well as workers in similar fields. Initially, new rope samples that are clean and untested will be used to determine the amount of tension each sample will sustain before breakage occurs. After finding the breaking strength of untreated ropes, other rope samples will be submerged and sprayed down with the window cleaning solution to determine wear due to the solution. Once the treated

samples are tested, the rope samples will be broken to conclude whether the rope has been compromised due to the solution. Pairwise comparisons will be used to determine statistical significance.

* * * * * * * *

Presenters: Ian Tinsley (Grad Student), Ben Wagner
Faculty Mentor: Kraig Wheeler, Chemistry

Poster number 101 1-1:50 Grand Ballroom

Title: Molecular recognition boundaries of diarylamide quasiracemate

Abstract: The cocrystallization of active pharmaceutical ingredients (APIs) is a classic example of molecular recognition between two or more compounds. Studies that seek to design these materials and others often focus on strong non-bonded contacts (e.g. hydrogen bonds) as a means to generate desired supramolecular architectures. Less well studied, but no less important to the overall molecular recognition process, are chemical features that produce less manageable motifs via ill-defined or weak contacts. Molecular shape is one such feature. This investigation exploits quasiracemates – i.e., near racemic materials – to probe the role molecular topology plays in the recognition process. A diverse set of diarylamide quasienantiomers that differ incrementally in substituent size and molecular framework has been prepared. Mixing of pairs of these quasienantiomers in the melt using video-assisted hot stage microscopy provided a robust diagnostic tool for detecting new quasiracemic crystalline phases. Data retrieved using this virtual melting-point phase method not only draws considerable attention to the role of topological features to supramolecular assemblies, but also the structural boundaries of these co-crystalline systems. This investigation synthetically explores the broad structure space towards the identification of new isostructural building blocks and highlights important molecular relationships responsible for molecular recognition that may serve in the design of new functional materials.

* * * * * * * *

Presenter: Venkata Vamsi Vankayalapati (Grad Student)
Faculty Mentor: Isaac Slaven, School of Technology

Poster number 102 2-2:50 Grand Ballroom

Title: The effect of heat treatment time on the ultimate tensile strength of mild steel.

Abstract: This research examines the effect heat treatment time has on the ultimate tensile strength of mild steel. The samples are divided into groups being heat treated for 5 min, 10 min, 15 min, and 20 min, and then allowing the samples to air cool. The samples are broken on an

tensile testing machine. Regression analysis will be used to determine the effect heat treatment time will have on tensile strength.

* * * * * * * *

Presenter: Hashni Epa Vidana Gamage (Grad Student)
Faculty Mentor: Barbara Carlsward, Biological Sciences

Poster number 103 1-1:50 Grand Ballroom

Title: Morphology of different Lactic acid bacterial species

Abstract: Lactic acid bacteria (LAB) are gram positive, constant inhabitants of mammalian gastrointestinal tract, urogenital tract and also found in fermented plants and meat materials. These bacteria produce lactic acid as a byproduct of digesting carbohydrates. Cell morphology is the cell shape and arrangement. This is a genetically encoded property that increases the ability of an organism to successfully survive in its habitat. Yet it is not clear why bacteria find it is useful to evolve a wide range of cellular morphologies. Hence, it is essential to understand the morphologies of different bacteria before identifying the underling driving force. The same genus can have a number of different morphologies. This project explores the morphology of five different species within the group commonly referred to as LAB: Lactobacillus helveticus LH138, Lactococcus lactis LL23, Bifidobacterium lactis BL04, Pediococcus acidilactici P751 and Streptococcus thermophilus ST21. These bacteria will be individually cultured in MRS agar at room temperature and observed with a phase contrast microscope. Different species should exhibit different shapes such as bacillus and coccus. Furthermore, the species with the same shape should show different arrangements. Therefore, different species of LAB genus should tend to exhibit different shapes and arrangements.

* * * * * * * *

Presenter: Rebecca Warfel (Senior)
Faculty Mentor: Danelle Larson, Music

2:45 pm Oakland Room

Title: Selecting Instruments Based on Physical Facial Characteristics: Illinois Band Directors' Beliefs

Abstract: When learning to play any wind instrument, forming a functional embouchure is one of a student's first and most important tasks. Embouchure is a term that refers to the shape that is formed by a musician's lips in order to create sound with an instrument. Each person's embouchure will vary due to differences in facial formation, but students who have highly divergent facial formations can experience a higher level of difficulty when learning to form a functional embouchure. Because of this, a teacher may choose to move the student to an

instrument that will be easier for them to play. The primary research question is: do band directors in Illinois influence a student's instrument choice based on physical facial characteristics? This independent undergraduate research study investigated Illinois band directors' beliefs regarding the importance of matching 'appropriate' facial characteristics to instruments. This study also explored the relationship between physical facial characteristics and ideal embouchure for each instrument. A professor of each wind instrument has been interviewed to gather information about embouchure development and how common issues can be overcome. Musicians in collegiate ensembles were surveyed about their embouchures and if they fit the ideal physical formation for their instrument. They were also asked if switching instruments was recommended because of their facial formation and how that affected their motivation as a beginner. An electronic survey was sent to band directors who teach in Illinois to gather information about their beliefs regarding how physical features should influence instrument selection. Results of this study show that many Illinois band directors believe physical facial characteristics do have an influence on what instrument a student learns to play.

* * * * * * * *

Presenter: Abbie Watton (Junior)
Faculty Mentor: Rodney Marshall, Communications Studies

1:30 pm Effingham Room

Title: Make Believe or Real: "Slacktivism" and its Role Offline

Abstract: Activism has been present and relevant for decades. Until recently, almost all activism was done on-the-ground, spread by word-of-mouth, and has been demonstrated by gatherings of people. However, with technology and social media, activism has had the opportunity to completely change.

This study is looking at how social media outlets, such as Facebook, Twitter, and Tumblr, contribute to activism in the real world. The researcher is looking to see if there is a correlation between online activism, now coined as "slacktivism," and real-world activism. Few studies have been conducted in this area due to "slacktivism's" recent appearance with the rise in social media. Sixteen students were surveyed about how they use social media in accordance with activism and promoting social change. The researcher hopes there is a correlation between "slacktivism" and real-world activism. This information could prove that people can do more than traditional activism from the comfort of their laptops, computers, tablets or smartphones.

* * * * * * * *

Presenter: Cassidy Webb (Senior)
Faculty Mentor: Shane Soboroff, Sociology

2:00 pm Greenup Room

Title: Status's Effect on Group Member's Reactions to New Members

Abstract: Project Summary: How does a person's rank in the status hierarchy of a group affect their attitudes towards potential members? Status Characteristics Theory explains that expectations based on socially-valued characteristics lead to the development of stable status hierarchies. Jasso's Social Comparison Theory explains that expectations for tangible or intangible rewards may be based on the relative status of group members, which affects people's likely sense of wellbeing in the group. When faced with the addition of new group members, preference is likely to be given to higher status applicants, but group members are likely to feel threatened if new members pose a threat to their own rewards and influence. We hypothesized that lower status group members would feel more competitive and therefore be less welcoming to potential new group members than those with higher status. We used theories of status and social comparison processes to develop hypotheses regarding prejudice based on the perceived costs and rewards of adding new members to a group. Based on status characteristics theory, we predicted that higher status applicants to a group will be expected to possess greater technical skill and general competency, and to be assigned higher social value. We designed a vignette experiments to test these predictions, placing participants in the role of a student organization member evaluating an applicant to the group. The vignette varied both the status of the participant in the study as a leader or new member of their group, and the status of the potential new group member they were evaluating. Participants were given demographic and status information about the potential new group member varied by age, grade level, level of experience in student organizations, and GPA. The participants were then asked to evaluate the applicant in terms of trustworthy the applicant seemed, how instrumental the participant thought the applicant would be to the group, the applicant's expected performance, how welcoming the participant would be to the applicant as a new group member, and how competitive the participant felt towards the applicant. Our dependent measures were the applicants' rated levels of perceived trustworthiness, performance expectations, perceived usefulness for the group, and perceived levels of competitiveness with the participant. Higher status applicants were rated higher on measures of expected performance regardless of the status rank of the participant. Participants assigned lower status rated a low status applicant as less trustworthy and group motivated than participants assigned higher status.

* * * * * * * *

Presenter: Benjamin West (Senior)
Faculty Mentor: Andrew Cheetham, Music

Poster number 104 2-2:50 Grand Ballroom

Title: Understanding the Civilian Soldier Musician

Abstract: The goal of the project is to gain insight into the lives of civilian soldier musicians, in order to help civilians better understand the neighbors among them who live and serve, and to aid Guard unit commanders in developing the most efficient Army general wellness tests/counseling personnel.

* * * * * * * *

Presenter: Malina White (Junior)
Faculty Mentor: Anabela Maia, Biological Sciences

Poster number 105 1-1:50 Grand Ballroom

Title: Color Biases and Their Social Impacts on Lepomis megalotis

Abstract: Coloration is the dominating factor for fish when choosing a mate. When present, coloration ranks higher than size and mating displays for mate choice. This study is on the bias of Longear Sunfish (Lepomis megalotis) toward the specific colors found of their own species. Since conspecific coloration is such a key importance, the goal of this research is to give more information on how varying colors impact the interaction of L. megalotis with other individuals of their species. As an example of color bias, carotenoids often produce an attractive red, yellow, or orange color, and are also correlated with better immune health and antioxidants. Since the healthier the mate, the higher chances the offspring have to survive, there is an evolutionary advantage in choosing the right mate. The biases (rather positive or negative) that a species has toward a specific color can be also influenced by environmental variables such as water turbidity and luminosity. It is hypothesize that in brightly colored fish such as the Longear Sunfish, where females choose colorful males and males compete amongst each other for females, specific cues and patterns of color will elicit different biases when involved in conspecific interaction. We photographed a brightly colored Longear Sunfish male and manipulated the image to filter different color channels: red, blue and yellow. We tested the fish in a tank where the conspecific image was shown randomly on the left or right side of the tank and the distance of the fish to the image was recorded. Control experiments were performed with a full color printed photograph of the brightly colored male. In the control males reacted by moving away from it. Our data shows that there are differences between the trials with the image of the original conspecific coloration (control) and with the filtered images for red, blue, and yellow. The males tend to create more space between them and the control conspecific image than with the filtered images.

* * * * * * * *

Presenter: Chelsey Wilson (Senior)
Faculty Mentor: Angela Glaros, Anthropology

3:00 pm Greenup Room

Title: Crafting the Divine Feminine: An Artistic Field Journal

Abstract: This art project uses the form of the anthropological field journal in order to explore the connections between craft, femininity, and the divine. Women have long been associated with "craft," in fibers, ceramics, brewing, and herbalism as well as "Craft," in rituals that connect to the goddess within through spiritual healing and nature. This journal is a look into my research and experiences involving the magic of these manifestations of craft.

* * * * * * * *

Presenter: Joseph Winkler (Junior)
Faculty Mentor: Angela Glaros, Sociology

2:30 pm Effingham Room

Title: The Hidden Gem: A deeper look into meanings of fitness and gym culture

Abstract: Abstract

The gym has long been a site for not only the cultivation of the body, but also for culturally specific ideas of health, fitness, and even moral qualities symbolized in bodily transformations.

In this paper, I will discuss my ongoing ethnographic exploration of fitness and gym culture in an era of internet-fueled visibility, with a local focus on Infinity Fitness Gym in Charleston, IL. I discuss my own experiences as a member of this particular culture in relation to my ongoing research into of what the gym and fitness means to the people who use it. Using ethnographic techniques of participant observation, Interviews, and types of informal micro-apprenticeships as methods to gather data on patterns, I discuss perceived meanings of "fitness" and what the gym is for. Though the project is emergent in its design and I am still accumulating data, it is already apparent that to the members of Infinity Fitness Gym, working out is about much more than just being “in shape.” Rather than an objective standard, “fitness” centers on gym members’ perceptions of what they think they are accomplishing when they go to the gym.

* * * * * * * *

Presenters: Derek Wunder (Senior), Catie Witt
Faculty Mentor: David Gracon, Communications Studies

2:00 pm Effingham Room

Title: Run the World Media Campaign

Abstract: Run the World was a multi-media campaign designed to promote Girls on the Run in Matton, IL. The question that focused our research was "What is your definition of the ideal society". Through our research we realized was that the ideal society could use more civic engagement, and we focused on the Girls on the Run event as an example of how it can impact the community. Our project utilized a photo story, a Humans of Illinois project, a PSA and mini-documentary all conglomerated to an online blog in an effort to humanize our campaign and promote civic engagement.

* * * * * * * *

Presenter: Delaney York (Junior)
Faculty Mentor: Julie Campbell, English

2:45 pm Effingham Room

Title: A Horse is Horse, Of Course: An Analysis of Archetypes in Mythic vs Modern Horses

Abstract: From My Little Pony to The Lone Ranger, horses can be found headlining countless stories in nearly every outlet of media for ages young and old. What qualities do these creatures possess that make them universally adored by such a diverse audience? The answer, although not always consciously noticed, has been present for centuries. The success of modern horse stories can be attributed to archetypal patterns which were first demonstrated by mythical horses and the ancient world. These relationships will be proven by comparing the cultural history and classic mythological stories of Greece and the Middle East to familiar, current horse fictions.

* * * * * * * *

Presenter: Katlyn Zirkelbach (Grad Student)
Faculty Mentor: Jeanette Andrade, Family and Consumer Sciences

Poster number 106 2-2:50 Grand Ballroom

Title: Turn up the Beet

Abstract: Brainstorming Process: Two-thirds of Americans are trying to consume more protein or as much as possible in their diets, while one-fifth of Americans view plant protein as more healthful than they did in previous years . This in combination with the projected food trend of purple and functional foods to be in hit in 2017 lead me to the idea of beet hummus.

Concept: The idea behind beet hummus is to bring the health benefits of anthocyanins, the phytochemical that gives beets their red and purple flavor, to the protein packed side dish

Americans have already grown to love. Anthocyanins serve as an antioxidant and have been linked to the decrease of cardiovascular disease, cognitive decline, and cancer.

Market Justification: A study conducted by Market Force Information, a worldwide leader in customer intelligence solutions found in 2015 that Aldi is Americas third favorite grocery store in and Trader Joe's as number one for the third year in a row. Current inventory does not carry a beet hummus in these stores and therefore I chose consumers at these grocery stores in order to avoid current competing hummus brands

Product Description: Beet hummus has a rich purple color and is creamy in texture. The ingredients in this product include: garbanzo beans, black beans, olive oil, water, tahini, lemon juice, garlic, cumin, paprika, salt, pepper, feta cheese, blue berries, and Kalamata olives. The black beans are used to give one variation, variation B, of the product a deeper purple color, whereas variation A is only made with garbanzo beans and displays a much brighter magenta hue. Product A and B also include a different garnishing. Variation A includes blueberries and feta and variation B includes Kalamata olives and feta.

Product Development Plan: The two variations of beet hummus will be evaluated in a taste testing panel to determine consumer sensory preferences such as taste and color. This will provide evidence for creating an appealing product for consumers and lead to the development of marketing and packaging strategies.

* * * * * * * *