SCHOLAR Day Presentations-Formal

Chandler Aldridge (History)

Dr. John Recchiuti

3:50 p.m., Engineering and Business Building 206

"Ask Not What Science Can Do for You, But What You Can Do for Science: Contributions Made to The Fields of Anthropology, Zoology, and Botany During the Lewis and Clark Expedition."

I will present highlights from my senior History thesis, which engaged a close reading of elements in the journals of some of the leading figures in the famed 1804-1806 Lewis and Clark expedition of the American West. I will present fascinating material I learned through a close reading and analysis of the journals regarding the expedition's contributions to early nineteenth-century science—particularly focusing on their discoveries and observations in anthropology, zoology, and botany. I will also describe important contributions Sacagawea, the celebrated Native American woman who accompanied and guided the expedition, made—allowing the audience to compare fact to legend. (She is truly an American icon in women's history.) I will offer an overview of Meriwether Lewis and William Clark's observations in regards to the expedition members' journal entries regarding what they ate—they ate (and enjoyed) beaver tails. I will also provide remarks on their reflections and observations regarding their trek through portions of what is today Yellowstone National Park; and their observations of Native American's cultural and dietary practices (they found that the Sioux would leave their elderly to die if they were too feeble to continue on with the tribe's nomadic journeys, for example). Through the information provided the audience will get a clear picture of what it was like for the men of the expedition and their discoveries along the way.

Angelica Bartholomew (Nursing)

Dr. Betty Allen

3:30 p.m., Tolerton and Hood 101

"The Psychological Impact of Epilepsy"

Epilepsy is often viewed as a seizure disorder with solely physical outcomes. Yet modern research and epilepsy organizations, such as Epilepsy Newfoundland and Labrador, the Epilepsy Society, and the Epilepsy Foundation, report a high incidence and commonality of psychological effects. With epilepsy being a disease of the brain, it is no wonder that there are psychological consequences. Mood instability and personality disorders are two of the many illnesses that this presentation will encompass. There will be explanation of some of the misconceptions of epilepsy and the discussion of potential behavior problems and mental health diagnoses associated with epilepsy.

Colleen Bentler (Psychology)

Zach Metz (Psychology)

Nick Thomas (Psychology)

Dr. Kristine Turko

1:50 p.m., Tolerton and Hood 101

"The Cost of Connection: Effects of Mobile Phones on Social Anxiety"

How much is your cell phone really costing you? Our study aims to find out by monitoring the difference in stress level of college students with or without a cell phone during a conversation with a stranger. Stress response will be monitored through heart rate and galvanic skin response using epidermal electrodes. It is predicted that participants in the phone-present group will exhibit lower levels of social anxiety, supporting previous research suggesting cell phones alleviate social anxiety.

Brianna Boehlke (History)

Dr. Theresa Davis

10 a.m., Tolerton and Hood 101

"The History of Agricultural Economies of the Brumbaugh Nature Center"

From patriotic war veterans to farmers, throughout the generations the Huston family of Washington Township, Ohio has led interesting lives. The family contributed both economically and socially to the community of Washington Township. Though the members of the Huston household led fairly quiet lives, the family had a significant impact upon its surrounding community. The history and economies of the family enriched the community of Washington Township and provided employment to the town. The Huston farm was a crucial pillar of the local economy. Through the familial history, frontier beginnings, economic fluctuations, agricultural practices and profits, and traditions of the household, the Huston family history, albeit initially appearing simple, was a complex and important component of Washington Township.

Brianna Boehlke (History)

Dr. Jennifer Martin

1:50 p.m., Engineering and Business Building 203

"A Feminist Approach to Service Learning Pedagogy"

The combination of service learning and feminism pedagogies is often a successful technique in mobilizing activism. Topics can be covered within the walls of a classroom, but it is often experiences that truly change individuals. It is one thing to learn about the injustices of the world, but a completely different thing to step up and fight against them. Service learning projects create an environment of confidence and empowerment. This is apparent in the study, Girls Talk Back: Changing School Culture through Feminist and Service Learning Pedagogies, by Jane A. Beese and Jennifer L. Martin, and throughout the Gender Studies class at the University of Mount Union, taught by Martin. Through further research and analysis of the class at Mount Union, it is apparent that the combination of service learning and feminism in the classroom creates a truly meaningful course.

Rachel Brumenschenkel (Marketing/Management)

Mike Sovak (Marketing)

Jordan Carr (Marketing/Management/English)

Hannah Richard (Marketing)

Emily Bryan (Marketing/Management)

Brad Hagerich (Marketing)

Professor Joel Evans

1:30 p.m., Tolerton and Hood 101

"A Deeper Understanding of Honors Program

Satisfaction: Why Do Students Stay or Leave the Program?"

What do students find valuable in the University Honors Program? To gain insights on this question, a group of eight students conducted marketing research for the Honors Program at the University of Mount Union during November and December 2017. The two research problems examined are (1) Honors Program satisfaction levels among Honors students and (2) why students stay or leave the Honors Program. The primary data collection process includes a focus group and a census questionnaire sent to all members of the Honors Program. Key findings include that there is a moderate, positive correlation between the understanding of Honors Program requirements and the level of satisfaction of the program. The current level of overall satisfaction of the Honors Program among Honors students is relatively neutral. The purpose of the marketing research is to provide the directors of the Honors Program at Mount Union insights on what student's value in the program and ways to improve retention and participation in the program.

Rachel Brumenschenkel (Marketing/Management)

Dr. Andrea Ferraro

3:30 p.m., Engineering and Business Building 203

"It's Time to Listen. It's Time to Hire: A Public Relations Program to Increase the Successful Employment of Adults with Autism"

According to the Autism Society, 35 percent of adults with autism between the ages of 19 and 23 have not had a job or received a college education after high school. This research project attempts to answer why employable individuals with autism have trouble finding employment and how a public relations program can help. Primary and secondary research was conducted to determine the program stakeholders (employers), the concerns of employers and which media and persuasive elements can reach employers with salient information. A public relations program was created to target employers in the distribution industry. Informational and attitudinal objectives, strategies, tactics and evaluation methods were established, based on the research. By utilizing salient information, group influence and by leveraging partnerships, the program effectively addresses the employers' concerns, which are how employees with autism affect business, the availability of support services and safety. The program was created for Autism Speaks to use to educate employers and provide resources for hiring employable individuals with autism so that businesses are encouraged to hire more employees on the autism spectrum.

McKenzie Caldwell (Writing/French)

Dr. Rodney Dick

10 a.m., Engineering and Business Building 203

"The Girl on the Swing"

While there have been many analyses of Pride and Prejudice and its adaptations, there's never quite been an analysis that looks in-depth at the symptoms of mental illness within the text and consequent adaptations. My project analyzes Joe Wright's Pride and Prejudice (2005), comparing scenes to antidepressant commercials of the early 2000s. I also look at the way the text affected these scenes, especially how it affected Keira Knightley's portrayal of Elizabeth Bennet.

Natalie Cerciello (Biology)

Erica Mascio (Biology)

Dr. Spiro Mavroidis

10 a.m., Engineering and Business Building 206

"Climate Change and Butterflies: Are Important Pollinators at Risk?"

The last 150 years have seen the extinction of five species of butterflies, and many species face extinction by 2050. Environmental temperature is crucial in determining the rate of a butterfly's life cycle, and climate change has the potential to increase their rate of development with detrimental effects. The purpose of this study was to determine how rearing temperature affects the development of the Painted Lady Butterfly, Vanessa cardui. This species is widespread in Ohio as well as most of the United States, serving as a vital pollinator and indicator of healthy ecosystems.

Leah Conaway (Psychology)

Danielle Trippett (Psychology)

Danielle Sloan (Psychology)

Dr. Tamara Daily

10 a.m., Tolerton and Hood 201

"The Effects of Communication Media, Time Spent on Communication Media, Gender, and Online Behaviors on Jealousy and Satisfaction in Romantic Relationships"

Communication media plays a huge role in today's society. Clearly, social media and texting have changed the way we communicate and interact with each other. The purpose of our study is to explore how communication media affects romantic relationships. Specifically, we are interested in how time spent on communication media, type of communication media, gender, and online behaviors affect jealousy and overall satisfaction in romantic relationships. Roughly, 51 participants completed a questionnaire assessing use of communication medias, jealousy, and relationship satisfaction. We predicted that females would report more jealousy than males, and that individuals who primarily used Facebook over other communication medias would report more jealousy. Although our hypotheses were not confirmed, which could be due to a lack of participants and an uneven distribution of male and female participants, we were able to find several significant correlations based upon other factors in the study. Our results and findings, as well as future research will be discussed.

Rebecca Cooper (Mathematics)

Dr. Gerald Wuchter

2:10 p.m., Tolerton and Hood 100

"Market Trends in Campus Coffee Consumption"

My research project is the culmination of four years of cross-departmental studies, which represents the quintessential liberal arts experience. In this project, I take a hands-on approach to studying the connections between mathematics and marketing, utilizing my mathematics background to predict brand loyalty and future market shares of coffee on our campus. This presentation brings mathematics out of theory and into practical application. Markov Chains are mathematical modelling tools that determine the probability of achieving a future state based on our current situation. Through the use of Markov Chains, we are able to answer questions such as: Can small coffee shops around our campus compete with established international brands? How many coffee shops can the Mount Union community sustain? What will the market share of these shops be in 5 years? 10 years? 20?

Emily Define (Psychology)

Mirhanda Henneman (Psychology)

Brianna Schultz (Psychology)

Dr. Tamara Daily

4:10 p.m., Tolerton and Hood 201

"The Effect of Interaction with Therapy Dogs on Stress, Anxiety, and Test Performance in Undergraduate Nursing Students"

In the proposed study, we will study the effect of interacting with therapy dogs on stress and anxiety in undergraduate nursing students. The participant pool will consist of undergraduate nursing students at the University of Mount Union recruited in the spring of 2018. Participants will report to an assigned classroom where they will complete two inventories measuring stress and anxiety levels. After completing these measures, one group will listen to meditative music and the second group will interact with the therapy dogs for 1 hour. After the intervention is completed, all participants will then take the stress and anxiety inventories again. It is hypothesized that the participants who interact with therapy dogs will have greater reductions in stress and anxiety than those who listened to music.

Victoria Ginty (Japanese/Music)

Dr. Hamako Furuhata-Turner

1:30 p.m., Engineering and Business Building 203

"The Shinto Religion and Its Influence in Hayao Miyazaki's Films."

Multimedia can help us understand diverse cultures, such as the Japanese religion, Shinto. Shinto is the indigenous religion in Japan, and can be seen throughout Hayao Miyazaki's films. I will be discussing the history of the development of Shinto and its beliefs incorporated into Miyazaki's films. I will be analyzing three films of Hayao Miyazaki that contain Shinto themes. These

films are “Spirited Away”, “Princess Mononoke”, and “My Neighbor Totoro”. This analysis will provide significant aspects of diverse culture through media.

Ashley Haas (Writing)

Professor Frank Tascone

10:40 a.m., Engineering and Business Building 203

“Lyme on My Mind”

In May of 2016, my fiancé’s struggle with Chronic Lyme Disease began with a string of emergency room visits, however, at the time we were just as unaware of what to call this disease as his doctors. Lyme Disease is typically considered a tick-borne illness, but research shows it can also be transferred from other insects and even from person to person. My research has led me to many different controversies, conspiracy theories, and explanations, but most importantly inspiring people who have suffered and overcome the many obstacles of Lyme to become their own advocates in a fight against a disease that is not completely understood by even Lyme Disease specialists. The purpose of my research was to share their stories, to emphasize the importance of Lyme Disease awareness, and to show that Lyme Disease does exist in Ohio. After being asked by many people, including doctors, if Lyme Disease exists in Ohio, I knew that these stories needed to be shared. The idea that the Ohio-Pennsylvania border, or any state line for that matter, could prevent a disease from spreading is a naïve view. I have disputed this idea by sharing stories of Ohioans I’ve interviewed who have been diagnosed with Chronic Lyme Disease. Through these stories I was also able to delve into the controversies that surround Lyme Disease such as the role of the CDC, or Center for Disease Control, and the Plum Island Conspiracy Theory.

Christopher Harris (Educational Leadership)

Dr. Melissa Askren-Edgehouse

3:30 p.m., Tolerton and Hood 201

“Teacher Retention in an Urban Midwestern School District”

Research and studies that have been conducted in the last two decades show that there is a clear and definitive link between that of teacher retention and student achievement (Hirsch, Emerick, Church, & Fuller 2006). An urban school district in the Midwest has had a significant increase in teachers who transfer out to different school districts within their first 3 years of teaching, and has had a difficult time sustaining highly qualified teachers within the district. In this research project, I examined ten schools within the large urban school district aforementioned. The respondents were a diverse group that came from different grades levels, content areas, and had different time periods in the teaching field. Research was conducted through voluntarily completing a confidential survey, which was then analyzed and results were provided to the school district leadership for further analyzation and recommendation. I identified several Ohio Standards for the Teaching Profession that are directly related to my research, including: • Standard 1: Students – Teachers understand student learning and development and respect the diversity of the students they teach. • Standard 6: Collaboration and Communication – Teachers collaborate and communicate with students, parents, other educators, administrators, and the community to support student learning. • Standard 7: Professional Responsibility and Growth – Teachers assume responsibility for professional growth, performance and involvement as individuals and as members of a learning community.

Kristina Hass (Early Childhood Education/Music)

Dr. Ernest Pratt

1:50 p.m., Engineering and Business Building 206

“Affirmative Action: Encouraging Diversity in America”

This presentation seeks to educate the audience on affirmative action, or “positive discrimination.” It will explain the origins of the concept, its evolution over time and its use today. Affirmative action can be described as having both advantages and disadvantages, which will also be addressed. After researching the history, goals, and results of affirmative action, it was concluded that this topic can have both positive and negative outcomes depending on the individual’s perspective.

Kristina Hass (Music /Early Childhood Education)

Dr. Maira Liliestedt

10:20 a.m., Kolenbrander-Harter Information Center 013

"Music in Movies: Harry Potter and the Prisoner of Azkaban"

This presentation discusses the music of a scene in the third Harry Potter movie and delves into the historical functions for various instruments to explain their use in the scene. The musical choices made by the movie's composer assist in projecting certain emotions to the audience, promoting connections to character experiences, and linking separate scenes in the movie. After researching the original uses of the instruments used in the scene, it was found that similar purposes exist today.

Joseph Householder (Economics)

Dr. Michael R. Myler

4:10 p.m., Tolerton and Hood 101

"The North American Optimum Currency Area"

Since 1904, Panama has used the US dollar as legal currency along with its own currency, the balboa. The US dollar is the only paper money in circulation. Ecuador has adopted the US dollar as its official currency. Seventeen members of the European Union adopted the euro as their official currency on January 1, 1999. The euro is used daily by 338 million people. Another 175 million people use a currency that is pegged to the euro. If a currency is pegged to another, the two of them are essentially the same currency. We use the term "currency area" to refer to two or more countries using the same currency. The question in economics is whether it is desirable for countries to form a currency area. Robert Mundell (1961) presented a list of criteria for a currency area to be successful. An area that satisfies these criteria is labelled an optimum currency area. The purpose of this paper is to examine whether Canada, Mexico, and the United States would form an optimum currency area. I consider the stage of economic development, the importance of trade between the three countries, and the correlation of their business cycles. The variables I considered were GDP, GDP growth rates, inflation rate, unemployment rates, GDP per capita, bilateral trade, and bilateral trade as a percent of GDP. The optimality of a potential currency was tested using correlation matrices created in EViews. The results suggest that a currency area between Canada and the United States would satisfy the criteria for being optimal. The evidence provides support for adding Mexico to the area, but this evidence is not quite as strong.

Hope Kadlecek (Psychology)

Keenan Young (Psychology)

Carolyn Balzano (Psychology)

Dr. Tamara Daily

3:30 p.m., Tolerton and Hood 100

"Effect of Embedded Humor on Recall and

Recognition of Educational Material"

We examined whether humor embedded in educational material aids students' retention of information. We compared three groups exposed to different combinations of historical information and humorous content (humorous history lesson, non-humorous history lesson, and humorous video plus non-humorous history lesson). We hypothesized that participants in the embedded humor group will outperform other groups, and that the no-humor control group will have the lowest recall and recognition score.

Daniel Kirk (Political Science/Peacebuilding and Social Justice)

Dr. Nicole Johnson

10:20 a.m., Engineering and Business Building 206

"Voter Suppression: Past, Present, and Future"

Voting is considered a basic civil right in America. This presentation explains how this civil right has been violated through voter suppression. In the recent presidential election, voter suppression was viewed as a problem that disadvantaged Democrats. But is voter suppression a single-party issue? To answer this question, I present documented cases of suppression in U.S. history and recent examples to show that both major parties have suppressed voters. I then discuss several ways to combat this problem moving forward, so that all Americans feel that their voice is heard and counted. Voting in a democratic country is a basic civil right, instituted as part of the notion of equality in the United States. This presentation argues that voter suppression is a serious threat to democracy and that as concerned citizens, we can change voting for the better moving forward.

Jessica Kulas (Psychology)

Lily Cola (Psychology)

Anthony Bucci (Psychology)

Allison Chelski (Psychology)

Dr. Tamara Daily

1:30 p.m., Engineering and Business Building 206

"Effect of gratitude journaling on perceived stress, school stress, and overall happiness"

The purpose of this study is to determine whether daily prompted gratitude journaling has a positive effect on happiness, perceived stress, and college student stress. In order to do this, students will complete questionnaires assessing baseline levels of general perceived stress, stress related to college life, and happiness. After completing baseline measures, participants will be sent a gratitude-based prompt to respond to each day for two weeks. After the two-week gratitude intervention is complete, participants will complete the same three questionnaires again. The change in the dependent variables from pre- to post-intervention will be used to test the effectiveness of daily gratitude journaling. We expect to find that participating in the intervention will have positive effects on stress and happiness.

Stacy Laskowski (Mathematics)

Dr. Gerald Wuchter

3:50 p.m., Engineering and Business Building 203

"WINdians?"

Will the 2018 Cleveland Indians win the World Series? The purpose of this research is to use various baseball statistics available at the beginning of each baseball season to create a model that predicts the number of wins that a Major League Baseball team will have during their upcoming season. These statistics are based off Billy Beane's formula which gives a total of the teams runs and the Pythagorean formula which estimates a team's expected winning percentage. This presentation will explore these two formulas along with other mathematical calculations to predict how well the 2018 Cleveland Indians will do.

Josh Leiter (Physics/Mathematics)

Dr. Steve Cederbloom

10:40 a.m., Tolerton and Hood 201

"Visualizing Gravity"

What is the Nature of Spacetime? We began looking at the universe through the lens of a 4D cosmic doughnut; could our universe be shaped like a doughnut? By utilizing Einstein's Theory of General Relativity, we were able to investigate the metric of doughnut allowing us to visualize the effects of the complex geometry. We also investigated equations elaborating on the history of such a universe.

Gaston Marian (French/Computer Science)

Dr. Bertrand Landry

4:10 p.m., Engineering and Business Building 206

"The Struggles of a Changing World: From French Farmers to Rural Americans"

News reports talk of suicide of many French farmers as well as America's opioid epidemic disproportionately affecting rural communities. Making use of news published in France as well as in America, along with academic articles, this study draws a comparison between the two tragedies. The two suffering groups are both experiencing a change to their way of life due to the shifting nature of society at large, they lose purpose and economic viability. Complex problems have no simple solutions.

LeeAnn Maruna (Exercise Science)

Dr. Ron Mendel

1:30 p.m., Tolerton and Hood 201

"Does Monster (16oz-original) produce pre-mature atrial contractions (PACs) at rest within 3 hours after consumption? Does the drink increase cognitive function and alertness?"

Energy drinks containing high amounts of caffeine are being consumed worldwide now more than ever. Larsen et al. (2016) and Conen et al. (2012) examined cardiovascular variables and found that caffeine and energy drinks increased blood pressure, heart rate, and more. Methods: Thirty healthy individuals age 18 to 26 years old maintained their daily intake routine and were connected to a 3-lead ECG for three hours to test for pre-mature atrial contractions after drinking an energy drink in 15 minutes. Participants stated how alert and focused they felt based on a Likert scale, performed a modified Stroop word-color test, and had their blood pressure taken every hour post consumption in addition to before starting. Purpose: The purpose of this study is to determine how often pre-mature atrial contractions (PAC) occur and how much cognitive markers improve after drinking a 16-oz can of an energy drink. Results: Data collection was not complete at the time of abstract submission. Discussion: Data analysis will take place upon completion of study.

Tyler Neff (Mechanical Engineering)

Kyle Hicken (Mechanical Engineering)

Nick Latchford (Mechanical Engineering)

Megan Loetz (Mechanical Engineering)

Ryan Studer (Mechanical Engineering)

Dr. Joshua Gargac

1:30 p.m., Tolerton and Hood 100

"Robotic Football Quarterback"

The Intercollegiate Robotic Football Competition consists of 8-on-8 games and a skills combine. This year, a quarterback robot (QB) was designed to pass a football over 18 feet to a receiving robot. The robot uses an infrared tracking system to locate the receiver robot, and two spinning-wheels accurately throw the ball to the receiver. These robots compete in the speed, agility, and strength tests, and the QB accuracy events at the skills combine on April 21st, 2018 at Ohio Northern University.

Kristopher Nottingham (Asian Studies)

Dr. Liangwu Yin

2:10 p.m., Kolenbrander-Harter Information Center 013

"Treatment of Koreans Under Imperial Japan"

The mistreatment of ethnic Koreans under the Empire of Japan during the rise in ultra-nationalism and militarism in Japan, primarily during the 1920s and 1930s, is the focus behind this research project. The purpose of such a project is to discover the link between militarism and racism in pre-World War II Japan, as well as attempting to find whether Koreans could ever have hoped to be equal to the Japanese during this time. Many issues which occured during this period remain unresolved even to this day, making the study of such a topic important to reconciliation between South Korea and Japan.

Megan Okuda (Physician Assistant Studies)

Professor Vanessa Worley

10:20 a.m., Engineering and Business Building 203

"Sparking Hope for People with Parkinson's Disease: A Comparison of Subthalamic Nucleus and Globus Pallidus Interna Deep Brain Stimulation Treatments"

Electrical stimulation of the brain with an implanted device… What initially sounds like something from a horror film, is actually an effective treatment for a debilitating neuromuscular disorder called Parkinson's disease. In this condition, dopamine receptors in the central nervous system malfunction, resulting in problems with motor function, cognition, behavior, and more. Deep brain stimulation (DBS) involves sending electrical currents through the brain to correct these deficits. DBS is implanted in one of two locations: the subthalamic nucleus (STN) or the globus pallidus interna (GPi). This research attempts to answer the question: Which target location results in the best outcomes for patients? Through a systematic review, the effects of STN and GPi DBS units are analyzed. The results show specific patient factors should be considered when making this decision. Come hear the 'shocking' truth about a revolutionary treatment that gives hope and improves quality of life for so many.

Layn Palmer (Writing)

Professor Frank Tascone

4:10 p.m., Tolerton and Hood 100

"Roads Less Traveled: Poetry Inspired by Alliance, Ohio"

Writers have traveled around the world to find inspiration, but there is interesting material all around us no matter where we are. My research involved writing poetry inspired by Alliance and other nearby towns. By "walking the ground" and exploring the city I live in, I was able to write poetry that was unique in subject matter and relevant to a broader subset of American life that is largely overlooked. During my presentation, members of the Mount Union and Alliance communities might find something new to appreciate about their city.

Parker Peterson (Public Relations/French)

Dr. Andrea Ferraro

2:10 p.m., Tolerton and Hood 101

"Around the World in 8 Months: A Comprehensive Public Relations Campaign for the Integration of International Students on Mount Union's Campus"

This project discusses a potential public relations campaign developed to help increase international student inclusion on the University of Mount Union's campus. Primary research conducted found that a majority of Mount Union's domestic student population is aware that there are international students on Mount Union's campus. This primary research included conducting an interview with the head of the Center for Global Education and distributing a campus-wide survey. However, the subsequent interaction with international students is rather shallow and many international students reported that they do not feel fully integrated into Mount Union's student community. This means that multiple output objectives, strategies and tactics should be employed in order to help reach the behavioral impact objective that would be set in place. Group influence, audience participation, opinion leadership and mass media endorsements would be utilized in order to help increase international student inclusion within the domestic student target audience. To change this behavior within the domestic student target audience, many different tactics would be utilized. These tactics would fall under the overlying theme of "Around the World in 8 Months". The timeline of this campaign would include a single academic year, with an estimated budget of approximately $750. Evaluation methods would include exit interviews for international students similar to the exit interviews given to graduating seniors, as well as surveys given to domestic students throughout the year to gain feedback concerning events.

Brooke Powell (English)

Dr. David Thiele

10:40 a.m., Kolenbrander-Harter Information Center 013

"A Truth Universally Acknowledged: The Marriage Market in Jane Austen's Novels and Film Adaptations"

During the Regency era, a time in which women were largely viewed as inferior to men, Jane Austen took a firm stance against the social practices which subjugated women like herself—particularly the institution of marriage. Though her works contain complex social critiques, Hollywood's film adaptations tend to focus on the novels' romantic plots instead. In closely examining Pride and Prejudice, Joe Wright's film adaptation (Pride & Prejudice), and scholarly research, I analyze how Austen's original message has been altered to appeal to today's audience and to modern ideas of feminism.

Kacie Prologo (Writing)

Dr. Gwen Schwartz

3:50 p.m., Tolerton and Hood 101

"Buried!"

Everyone dies. This is one of the unfortunate laws of humanity, though very few people are comfortable talking about regardless of death's immediate consequences and far-reaching influence. As a research project and subsequent book, Buried! compares the traditional trappings of funeral services to the up-and-coming phenomenon of green – or natural – burial which does not include the chemical process of bodily preservation – embalming – and is usually much cheaper than its classic counterpart. By conducting a series interviews with traditional and green burial specialists around Ohio, Buried! uses personal stories to draw back the curtain, exposing the complicated nature of death, the rising cost of grief, and the long term environmental impact of interring the dead.

Royal Rose (Political Science)

Dr. Lori Kumler and Dr. Francis Schortgen

10:40 a.m., Tolerton and Hood 101

"Media Representation and Young Adults: Does it Really "Get Better" for LGBT+ People?"

"It gets better." Countless young LGBT+ (lesbian, gay, bisexual, transgender, and others) people have heard the phrase in response to intolerance, bullying, and even violence. LGBT+ teens have been assured that eventually they will be able to live their truth openly, if only they hold on a little longer - but is it true that "it gets better?" By conducting interviews with members of PRIDE, an on-campus LGBT+ organization, I investigated whether it truly "got better" for LGBT+ young adults and how media played a role in either improving or complicating their lives. Using media as a proxy, I also designed a survey for the student body at large, allowing me to compare the responses of the PRIDE members to non-PRIDE members, both LGBT+ and not. While other LGBT+ media research has followed similar methods, I aimed to include a wider array of media categories - television, film, print, news, and social/online media - by allowing respondents to provide their own unique example of LGBT+ media they have consumed.

Nick Schlabach (Nursing)

Professor Monica Andreski

10 a.m., Kolenbrander-Harter Information Center 013

"Preventing Pediatric Falls of the Hospitalized Child: A Quality Improvement Project"

This is a student-directed quality improvement (QI) project, completed within a metropolitan children's hospital in the acute care setting. The initial objective was the identification an area of performance deficiency. Subsequent objectives included pinpointing the root cause(s) of the performance deficiency and implementing interventions to resolve the performance deficiency. After reviewing falls data reports, it was identified that increasing compliance with the hospital's falls prevention bundle did not correlate with a decrease in patient falls. A fall occurring while hospitalized can lead to significant injury, increased length of stay, and specifically in the pediatric population, lower levels of trust in health care providers during future encounters. A comprehensive literature review was completed that encompassed: current best pediatric falls risk assessments, factors influencing pediatric falls in the inpatient setting, current best measures to prevent falls in the pediatric population as well as appropriate education for health care providers, patients and families. Implementation methods will address: what is changing, why change is being made, how the change will affect the staff's work, and ultimately how the change will positively

affect the patients. The incidence of falls for the 12-month period after interventions will be compared to previous data recording the incidence of falls. A positive outcome for this QI project is defined as a reduction in the total number of patient falls in the post-implementation period. This QI project reinforces and promotes the fact that quality and safety should be the at the forefront of our healthcare practices.

Abbey Schlanz (English/Writing)

Dr. David Thiele

1:50 p.m., Tolerton and Hood 100

"Old Lacerations That We Love: Navigating Identity in Native American Poetry."

Although Native American literature spans several centuries, only recently has it been studied in academia. My senior research project examines the works of four Native American poets to examine the intersection of colonization and Native identity. During this presentation, I focus specifically on analyzing Linda Hogan's poem "Partings," discussing identity in regards to motherhood, while providing insights into Native American poetry and other contemporary issues.

Abbey Schlanz (Writing/English)

Professor Frank Tascone

3:30 p.m., Engineering and Business Building 206

"The Lives of Heroes"

We've all heard heroic war stories, but what about stories of daily life at war? My senior writing project shows what life was like for soldiers during World War II. I interviewed four veterans and used my grandpa's journal to create an hour-long podcast showing the grittier sides of the war. With less than 600,000 WWII veterans still alive today, the podcast captures important firsthand accounts of one of the most impactful wars in American history. In this presentation I share some clips from the podcast and talk about the writing experience.

Katherine Seidel (Educational Studies)

Dr. Melissa Askren-Edgehouse

1:30 p.m., Kolenbrander-Harter Information Center 013

"The Recruiting Process and Factors Impacting College Choice of Potential Student Athletes"

I conducted a research study, which explored student athlete recruitment and the various factors that influence college choice. The purpose behind my study was to explore a topic that would help both the women's lacrosse program and the University of Mount Union. Recruitment is a vital component for any college or university as winning teams can provide an effective means of advertising and funding. Winning teams have a substantial impact because athletic record is identified with the prestige of the institution and to ensure the cycle of championship caliber teams coaches must recruit the most athletically talented and academically student-athletes possible. I conducted interviews with coaches from various sports and surveyed first year athletes as to their rationale for attending Mount Union. I believed it would be helpful to interview various coaches to gain insight into general recruiting practices and potentially improve our recruiting efforts as an athletic department. Upon interviewing the first-year athletes I gained greater insight into the needs and wants of potential Student Athletes. After collecting my survey data, I researched more about college choice among potential student athletes. I discovered that societal factors, institutional factors, and personal demographics have the most meaningful impact on college choice. As recruiters and coaches, it is important for us understand these factors and make these factors attractive for prospective student athletes. Based on my survey responses it appears that overall environment of the institution and coaching staff style and personality were the biggest deciding factors.

Brianna Slemons (Athletic Training)

Dr. Morgan Cooper Bagley

10 a.m., Tolerton and Hood 100

"Achilles Tendon Ruptures— Why they should concern you"

What is an Achilles tendon rupture and how could it affect you? An Achilles tendon rupture is a complete tear of the tendon located at the back of the heel. The Achilles tendon is a connection of two calf muscles into the calcaneus (heel bone). According to the National Center for Biotechnology Information, a ratio of 2:1 males and 19:1 females will tear their Achilles between thirty and forty years old. 76% of Achilles tears occur in recreational athletes while 20% account for the competitive athletes. So what does this actually mean? This means that the weekend warrior activities are more likely to cause someone to tear their Achilles as compared to a professional athlete. Knowing the signs and symptoms of potential Achilles tendon injury could potentially help someone from rupturing his or her Achilles.

Erin Tamulonis (Chemistry)

Dr. Keith Miller

3:50 p.m., Tolerton and Hood 100

"KATP channels regulate ductus arteriosus tone by acting as biomechanical sensors"

The ductus arteriosus (DA) is a vascular shunt that connects the pulmonary and systematic circulations during fetal life. Lack of DA closure after birth is a significant cardiovascular disorder affecting 1 out of every 500-2000 term infants and 30-40% of the most critically ill neonates. The current treatment options for a patent ductus arteriosus (PDA) are not only limited, but are also associated with several side effects. Therefore, there is a need to explore new treatment options for PDA. The DA experiences a unique pattern of hemodynamic forces and to this point, biomechanical factors have not been studied in the context of regulating DA patency or closure. Ion channels are part of the "druggable genome" and act as mechanosensors in the vasculature. ATP-sensitive K+ (KATP) channels are promising drug targets as they are enriched in the DA and act to regulate DA patency. We hypothesize that KATP channels regulate DA tone by acting as biomechanical sensors. We will test this using human DA smooth muscle cells cultured under various flow conditions. An Ibidi pump system will expose the DA cells to various rates of laminar flow and the expression of several genes including KATP channel genes will be examined using quantitative Real Time RT-PCR. In addition, changes in cell proliferation and cell morphology will be evaluated in static and flow cultures. Overall, the results of this study will give us insight into the role that biomechanical forces play in regulating DA tone and will offer data to support whether KATP channels are a viable drug targets for future treatment of PDA.

Kayla Taylor (Physician Assistant Studies)

Professor Vanessa Worley

1:50 p.m., Kolenbrander-Harter Information Center 013

"Ultraviolet Dosimeters: An Appropriate Way to Decrease the Risk of Skin Cancer?"

Have you ever wondered if sunscreen is really protecting you from the sun? What if you knew exactly when you reached unsafe ultraviolet (UV) levels? Every year 3.5 million people in the U.S. are diagnosed with skin cancer - the most preventable cancer. Currently, sunscreen is the most commonly used prevention method, but its efficacy is being debated, so new prevention methods need to be investigated. UV dosimeters, often a patch that goes on the skin to measure UV levels, can be connected to a smartphone, giving you real-time data on your individual UV exposure. An application shows how much time you can safely be in the sun and helps you make smarter decisions about your skin. This research was conducted using a systematic review of peer-reviewed articles published within the last 10 years. Findings show great promise for these devices though more research is needed to determine if they will ultimately lower the risk of skin cancer. With the proper education, individuals could begin using them, and may benefit from and enjoy receiving the important information they can provide.

Komla Tessou (Psychology)

Morgan Hambrick (Psychology)

Martin Zapata (Psychology)

Dr. Kristine Turko

3:50 p.m., Tolerton and Hood 201

"The Effects of Competition and Sport Type on
Athletic Performance in NCAA Division III Athletes"

The relationship between anxiety and performance has been a highly researched topic in recent years (Wilson, 2017). Anxiety affects memory, concentration, performance and the physiological responses of an individual, and can negatively affect academic performance. Sports anxiety can cause athletes to either perform poorly or can enhance athletic performance. A specific variable of interest related to anxiety is the type of sport in which an athlete competes (team sport or individual sport). Our research investigates the relationship between sport type and performance anxiety.

Samantha Thompson (Physician Assistant Studies)

Professor Vanessa Worley

4:10 p.m., Engineering and Business Building 203

"Are Healthcare Workers' Mobile Devices Sources of Hospital-Acquired Infections and Are Cleaning Protocols Needed to Reduce Risks?"

Today mobile phones are with people practically everywhere they go. We wash our hands to reduce the spread of infection, but does anyone ever wash their phone? In the course of caring for hospitalized patients, healthcare workers and their phones are exposed to numerous dangerous, even deadly, organisms. According to the CDC, on any given day, 1 in 25 hospital patients acquire a healthcare-associated infection. Could some of these infections be coming from the mobile devices of hospital staff? A systematic review of literature was conducted to address this question and to provide potential solutions to be implemented in healthcare facilities. The review concluded that healthcare workers' mobile devices house numerous pathogens known to cause harm, including methicillin-resistant Staphylococcus aureus (MRSA) and Clostridium difficile. Come learn whose phones are most concerning and learn how to effectively remove microorganisms from mobile devices without voiding warranties or causing damage to the device.

Joshua Thorne (Sociology)

Dr. Lori Kumler

10:20 a.m., Tolerton and Hood 101

"Location, Location, Location? The Geography of Nature and Green Spaces in predominantly low-income and minority neighborhoods of Alliance"

Previous research recognizes the disparities that low-income and communities of color face in terms of access to nature and green spaces (Jennings et al. 2012). Topics in environmental justice would suggest that communities of color and low-income neighborhoods have unequal access to positive environmental externalities. In this study, disparities of green space access and park use were measured in Alliance, Ohio by self-reported questionnaires and proximity of outdoor recreational spaces. Surveys of residents from Census Tract 7104 and 7107 were analyzed to measure mental and physical health, and overall perceived access to nature. Proximity was measured by calculating the distance between the center of each census tract to major parks in the City of Alliance. The two census tracts were selected based on their differing socioeconomic profiles and racial composition. Information beneficial to the Huston-Brumbaugh Nature Center showed that there were major differences in familiarity to the center among the two census tracts.

Nicholas Tkacik (Mechanical Engineering)

Cole Harvey (Mechanical Engineering)

Marcus Kinnard (Mechanical Engineering)

Jacob Michaud (Mechanical Engineering)

Dr. Joshua Gargac

2:10 p.m., Engineering and Business Building 206

"MK Morse Dynamometer"

A significant factor in increasing the lifespan of a hole saw involves reducing the forces acting on each cutting tooth. These forces can be measured by a special device called a dynamometer. Following the engineering design process, a dynamometer was developed to measure the resultant forces during the testing of drill-press-mounted hole saws while cutting stainless steel. This dynamometer will be used by MK Morse to evaluate new saw geometries aimed at improving overall tool effectiveness.

Heather Tomlinson (Psychology)
Seav Mey Y (Psychology)
Monique Vinson (Psychology)
Kyle Mathis (Psychology)
Dr. Kristine Turko
2:10 p.m., Tolerton and Hood 201
"The Effects of Chewing Gum on Test Anxiety"

Many college students are affected by anxiety (Lotz & Spardfelt, 2017). More specifically students are affected by test anxiety which is ultimately affecting their academic performance (Lotz & Spardfelt, 2017). Several studies have shown the effects of distractions, such as chewing gum and breathing techniques, on reducing stress and anxiety (Cho et. al, 2016; Coneely & Hughes, 2010). The implications of the study could introduce a method of reducing physiological markers of test anxiety (heart rate). In the case of our experiment, we are looking at self-report measures of anxiety and also looking at physiological effects that coincide with anxiety. Currently, an anxiety assessment is being administered that differentiates three levels of anxiety: low, medium, and high. This assessment is the pre-test. Half of the participants in each anxiety group is assigned to a control condition, while the other half is assigned to the experimental condition. The experimental group is instructed to chew gum throughout the exam. The control group does not chew gum during the exam. Post-test that measure heart rate of each individual are administered and an anxiety questionnaire is completed by each participant. We expect to find that when participants are chewing gum it will reduce their test anxiety and heart rate.

Shannon Vecchio (Exercise Science)
Colleen Bentler (Exercise Science)
Cyrena Cooper (Exercise Science)
Dr. Ronald Mendel
10:20 a.m., Tolerton and Hood 100
"The Effects of a Two-Week Stimulant Intake on Metabolic Rate"

Metabolic rate indicates the rate at which our body utilizes energy. Previous conflicting research argues the effectiveness of metabolic stimulants, such as caffeine or green tea, and whether together these stimulants create a long term effect. One particularly interesting debate surrounding this topic is a deficit in metabolic rate, where stimulating an increase in metabolism results in a following homeostatic decrease upon stimulus removal. Our research investigates both of these topics.

Brian Walker (Mechanical Engineering)
Adam Sopchak (Mechanical Engineering)
Tristan Begue (Mechanical Engineering)
John Dietrich (Mechanical Engineering)
Dr. Joshua Gargac
10:40 a.m., Engineering and Business Building 206
"Hops Harvester"

The craft brewing industry has increased the demand for hops, motivating smaller farms to enter the hops-growing market. However, these hop yards cannot afford hops-harvesting equipment, harvesting by hand instead. Therefore, a harvester was designed to increase the harvesting rate for small farms. The harvester is electrically powered and hops are separated from the bines by a set of spinning fingers before falling onto a separating conveyor. Our client will use this device during the fall harvest.

Meghan Wells (Physician Assistant Studies)

Professor Vanessa Worley

10:40 a.m., Tolerton and Hood 100

"Oral Antiretroviral Pre-Exposure Prophylaxis (PrEP): How to PrEPare Clinicians to Maximize Effectiveness in Lowering HIV Incidence"

A person traveling to South Africa receives an antimalarial medication. A nurse receives an influenza vaccination. What do these two scenarios have in common? The answer is simple: people deemed to be at-risk for exposure to illness receive something that lowers the risk of them contracting the illness. What if there was something to lower the risk of contracting human immunodeficiency virus (HIV)? In 2012, the US Food and Drug Administration approved a treatment termed pre-exposure prophylaxis (PrEP), a pill for once daily use in those who are at-risk for contracting HIV. It is 75-92% effective. Unfortunately, despite its introduction, rates of HIV infection remain steady at 45,000 new diagnoses annually. This begs the question: what is hindering the success of PrEP? This systematic review investigates best practices for clinicians to implement in order to maximize effectiveness of PrEP. Key insights include improved guidelines from the Centers for Disease Control and Prevention regarding PrEP, augmentation of clinician self-study, improved patient selection/education and implementation of population-specific applications of PreP.

Kristin Werstler (Writing/English)

Dr. Frank Tascone

10:20 a.m., Tolerton and Hood 201

"The Poetry Podcast: Exploring the Performance Art of Poetry"

The tradition of oral poetic performance dates back thousands of years. Entire cultures used poetry as a means to document their traditions, to tell their stories. Now, in the modern world of podcasts and audio editing, poets can take their oral performances to a whole new level. Writers can share videos and recordings of their performances across social media, which then garner millions of views. After experiencing this revival of spoken word poetry, I wanted to explore the genre more. Combining the oral tradition of poetry with modern audio editing techniques, I created The Poetry Podcast. I used an iCE microphone to record myself performing original poems. Then using Audacity, an audio editing software, I layered in meaningful sound effects and music to create an immersive experience for listeners. My goal is to present a new medium of spoken word poetry. One that stimulates all the senses and tells a story beyond the page.

Kristin Werstler (English/Writing)

Dr. David Thiele

2:10 p.m., Engineering and Business Building 203

"Reclaiming Her Narrative: A Postcolonial Reading of Persepolis by Marjane Satrapi"

After the 1979 Islamic Revolution in Iran, the lives of Iranian woman were drastically restricted. Women were forced to wear a veil, and faced up to 60 lashes and 70 days' imprisonment for disobedience. Women's voices, it seemed, were extinguished entirely. However, once Iranian women escaped the oppressive Islamic Regime, their voices found homes in Western bookstores across the world. Memoirs detailing the lives of Iranian women exploded on the western book market, and provided insight to a world different from our own. Marjane Satrapi, author of the memoir Persepolis, grew up during the Islamic Revolution and Iran-Iraq war, and depicts an inner struggle between her western and eastern identity. In order to further understand Satrapi's symbolic juxtaposition of her identities, I will use a literary

postcolonial lense to examine how western imperialism on an eastern country results in a national and individual hybrid identity. Further, I will use close textual analysis to explore how Satrapi ultimately reclaimed her identity and used her hybridness as a tool to convey her Iranian story to her western readers.

Joseph Winiecki (Physics)

Nick Thomas (Neuroscience)

Dr. Steve Cederbloom

1:50 p.m., Tolerton and Hood 201

"Modeling the Characteristics of the Binary Star System XY Leo"

We look up at the sky on a beautiful, clear night and what do we see? Thousands of stars that each look like they have their own individual space in the cosmos. However, looks can be deceiving. Some of them that we see are actually two stars that orbit and eclipse each other in what is called an eclipsing binary star system. They emit light similar to other individual stars, but since they regularly eclipse each other, the light we observe can change in a periodical fashion. This alteration can be modeled using a light data acquisition technique called photometry. The characteristics of the binary can be compared to other nearby star systems of known magnitudes to develop a model of the dynamics of the star system. In this experiment, a program called iTelescope is used to set observing plans for a selected set of available telescopes worldwide to obtain images of various exposure times to analyze and attempt to understand the binary star system XY Leo. Further research can then expand to more binary systems.

Poster Session I: Giese Center for the Performing Arts

Celia Barrett (Exercise Science) **Mathew Fitchet** (Exercise Science)

Nominating Professor: Dr. Ron Mendel

Title: The Effects of Water Immersion Therapy on Recovery and Performance

This campus is filled with many athletes who are looking for ways to decrease recovery time and maintain their athletic performance. The purpose of this research was to determine which type of water immersion therapy will best help athletes recover quickly and overcome delayed onset muscle soreness. The three water immersion types that were researched are ice, hot, and contrast (ice and hot). Division III college-aged male and female athletes completed a simulation of a week of training, including athletic assessments. They were placed in one of four groups (one of the three water immersion groups or a control). The athletes began with a familiarization session and completed baseline testing the next. The baseline testing included strength assessments, vertical jump test, 20-yd shuttle run, YMCA bench press, and blood lactate measurements. After two days of rest the athletes then completed their first damage-inducing workout followed by their first treatment session. Twenty-four hours later they completed the first assessment day again followed by treatments. The next day, they completed the second damage-inducing workout and had their last treatment session. Finally, the athletes were assessed for the final time twenty-four hours later. The research was being conducted at the time of submission and results will be shared on the day of the presentation.

Francesca Carra (Physician Assistant Studies)

Nominating Professor: Professor Vanessa Worley

Title: Identifying and Addressing Risk Factors for Dangerous Hypoglycemia in Children with Type 1 Diabetes Mellitus

According to the Juvenile Diabetes Research Foundation, 1.25 million people are living with type 1 diabetes mellitus (T1DM). Among the multitude of burdens faced, low blood glucose, termed hypoglycemia, is common in children with T1DM and contributes to poor control of diabetes, fear and anxiety, and even death. To decrease the occurrence of hypoglycemia in T1DM, it is important to understand risk factors that may influence patient susceptibility. This systematic review has compiled research identifying risk factors such as exercise, medication regimen, anti-insulin antibodies, age of diagnosis, recurring hypoglycemic episodes and more. Research also reveals that various technologies including continuous glucose monitoring are proven to decrease the occurrence of and mortality associated with severe hypoglycemia. These patients and their family members do not deserve to live in fear; identification and reduction of risk factors for hypoglycemic events will improve their care and their lives.

Kristin Fouts (Physical Therapy)

Nominating Professor: Dr. Megan Salvatore

Title: Relationship between falls and turn duration in the older adult population

With the growing baby boomer population, there is specific interest in factors correlating with falls. In this study, medical history, self-reported fall history and physical activity level, as well as vitals, were obtained from participants. Using the 400-meter-walk test, which was performed with the subject walking back and forth in the hallway, data was collected looking specifically at the time it takes to complete a turn. We developed a cell phone application that feasibly and validly assesses turn time at each end of the course. Data between falls and turn time was then compared.

Nicole Franchino (Art)

Nominating Professor: Professor Margo Miller

Professional Softball is a struggling business compared to other professional sports around the country, due to the lack of advertisement and fan base. For my SCE, I have chosen to create a hypothetical National Professional Fastpitch team and build it from the ground up, creating designs, branding, marketing, and advertising tools to construct a successful depiction for a professional team. I have also chosen three, already existing minor league teams in Ohio who are struggling reaching out to fans and that have issues within their business, fixing these issues to create dynamic designs for each in order to better promote each team.

Tyler Galosi (Exercise Science) **Chandler Samargia** (Exercise Science)

Nominating professor: Dr. Ron Mendel

Title: The Functional Movement Screen as a Valid Injury Prediction Tool for Division III Lacrosse Athletes

Most of the movement assessments done by coaches today are performance based, rather than being used for injury prediction. The Functional Movement Screen, or FMS, is a multi-joint/muscle, functionality based assessment that is used to detect deficiencies in a person's movement. This assessment utilizes 7 different tasks, each scored from 0-3 (0-pain during movement, 3-task performed perfectly). The scores for each movement are then totaled out of 21. Previous studies have examined the FMS and its ability to predict injury for different types of athletes, including basketball and football players. A gap in the literature exists for the FMS being used as an injury prediction tool for lacrosse athletes, both men and women. Twenty Division III lacrosse athletes (men and women) aged 18 to 23 will take part in this study, being evaluated through the FMS and then observed throughout the regular season for non-contact, musculoskeletal injury prevalence. A correlation between score on the FMS and injury prevalence will be determined to evaluate the validity of the FMS as an injury prediction tool for Division III lacrosse athletes.

Joshua Kempf (Civil Engineering) **Robert Steffen** (Civil Engineering) **Andrew Rieman** (Civil Engineering) **Brett Radabaugh** (Civil Engineering)

Nominating Professor: Dr. Yan Liu

Title: Bridge Replacement and Design

Project covers replacement of a deficient bridge in Columbiana County, Ohio. The bridge replacement requires analyzing various structure types to determine the most viable replacement structure. The project includes structural analysis, hydraulic analysis, environmental assessment, maintenance of traffic and constructability concerns.

Kristin Kenny (Physician Assistant Studies)

Nominating Professor: Professor Vanessa Worley

Title: Exercise to Improve the Metabolic Symptoms of Polycystic Ovarian Syndrome: A Systematic Review

Are you or someone in your life 1 of the 5 million women in the United States who struggle with polycystic ovarian syndrome (PCOS)? PCOS is an imbalance of hormones that leads to chronic diseases such as diabetes, high cholesterol, and heart disease. This puts women with PCOS at a 7 times higher risk of heart attack than women without PCOS. It is well known that physical activity can reduce symptoms and prevent these associated diseases. However, it is not well understood which type of exercise provides the most benefit in this population. This systematic review aims to compare

cardiovascular endurance training, strength training, and high intensity interval training on how well they reduce lab values associated with diabetes and heart disease in women with PCOS. This information will help clinicians counsel patients on how to get the most out of their physical activity and develop a sustainable, improved quality of life.

Anelise Kollias (Physician Assistant Studies)

Nominating Professor: Professor Vanessa Worley

Title: Let's Talk About Vaccines: Improving Conversations Between Clinicians and Parents Who Are Hesitant About Vaccinations

What would happen if we stopped vaccinating children against diseases? The 2014 measles outbreak is a frightening glimpse of the potential harm in not vaccinating; 644 cases of measles were recorded with 23 outbreaks affecting 27 different states. Parental refusal of childhood vaccines is a major contributor to outbreaks of vaccine-preventable diseases, thus it is important to understand how clinicians should address vaccine hesitancy. This systematic review investigated the efficacy of different approaches to vaccine conversations, focusing on strategies to initiate vaccine discussion in parents, interventions to increase acceptance, and the factors prevalent in the decision-making process for immunizations among parents. Results show that vaccine decision-making begins prenatally, further emphasizing the need for effective conversations to begin very early. The results of this study can guide healthcare providers in better addressing the parental concerns regarding childhood immunizations, and thereby help to avoid scary and potentially deadly outbreaks in the future.

Mark Mishak (Physician Assistant Studies)

Nominating Professor: Professor Vanessa Worley

Title: What Type of Nipple Areolar Reconstruction Results in the Highest Patient Satisfaction for Breast Cancer Survivors?

When a mastectomy is performed to treat breast cancer, often the nipple areolar complex (NAC) must be removed with the breast. Many women elect to undergo reconstruction of the breast which involves recreating the NAC. Breast cancer survivors deserve the best possible surgical outcomes that medicine can offer. This systematic review seeks to determine which type of NAC reconstruction (nonsurgical NAC tattooing alone, reconstruction using local tissue flaps, or composite nipple sharing from the contralateral nipple) results in the highest patient satisfaction. It turns out that there is not one true "winner." Rather, careful consideration of individual patient factors, on a case-by-case basis, is necessary in order to make a patient-centered recommendation. The specific procedural techniques can have detrimental impacts on a patients' wellbeing and self-confidence, but successful reconstruction of the entire breast can restore normality in their lives and help women regain a sense of wholeness and healing.

Elsie Nickoli (Public Health)

Nominating Professor: Dr. Beth Canfield-Simbro

Title: The Physical and Psychological Effects of Opiate Drug Abuse for Pregnant Women and Newborn Babies in Stark County

An opiate drug is prescribed to people who are looking to reduce the amount of pain they are having. This drug may be used for surgery, bone break, fracture, etc. Pregnant women who are involved with opiate drugs put themselves at risk for harming their baby. For this project, physical and psychological data was gathered on opiate drug abuse in pregnant women and newborn babies. The main purpose of the research project was to figure out the specific short and long term issues pregnant women and their newborn babies face in the act of opiate drug abuse. In order to locate this data I first, located academic journals and articles regarding studies that have been done on the medical and emotional side of opiate drug abuse during pregnancy as well as the effects drug abuse has on the newborn baby. Studies showed there were many issues that both women and newborn babies go through during pregnancy as well as after the birth. These issues include withdrawal and major health problems for woman whereas children may have low birth weight, birth defects, small head size, infant death syndrome, neonatal absence syndrome (NAS), and withdrawal, etc. After researching secondary sources on opiate drug abuse, records and articles from Stark County were examined and linked to the research that were found. The Stark County data was compared to the data found from the secondary sources. Results showed that there was a comparison, and many of the articles and data found in Stark County showed how pregnant women and newborn babies face different physical and physiological problems. These medical issues ranged from both short term and long term as well. In conclusion, opiate drug abuse is very detrimental to both pregnant women and newborn babies. Stark County has high rates of opiate drug abuse, which continues to rise in pregnant women, which in result affects the birth of their child. In order to reduce this problem, more education on opiate drug abuse needs to occur within the county. Public Health professionals are working hard to find ways to lower the amount of drug abuse among all ages.

Rebekah Parada (Biology) **Isabella Pecchia** (Biology)

Nominating Professor: Dr. Christopher Marks

Title: Epigenetics of Cold Tolerance in Fruit Flies (Drosophila melanogaster): Effect of Maternal Cold Exposure

Traits are not only influenced by genes inherited from parents, but also the environment parents experience. As organisms experience a variety of conditions, gene expression can be altered and these alterations can be inherited. In humans, maternal diet has been shown to influence everything from metabolism to disease susceptibility in offspring. In order to further elucidate the impact of maternal environment on offspring traits, we explored cold tolerance in the fruit fly Drosophila melanogaster. Drosophila can can survive freezing temperatures temporarily by entering a “chill

coma". In this study we investigated if offspring experience enhanced chill coma survival by exposing their mothers to sublethal bouts of chill comas.

Cole Parrish (Exercise Science)

Nominating Professor: Dr. Ron Mendel

Title: Effects of Vitamin D on Testosterone Levels in College Aged, Male Athletes

Worldwide roughly one billion people suffer from Vitamin D deficiency and insufficiency [13]. Studies [4,6,8,12,23] have shown there is a link between Vitamin D levels and testosterone. The purpose of this study is to examine the affect Vitamin D supplementation has on testosterone levels in college aged, male athletes. To control for any external effects this study will use male athletes from the same team. Participants will be in offseason training and will be using the same resistance-training program. These participants will be residents of Ohio for at least five years. Participants will be given Vitamin D supplements of 10,000 IU's to take daily. Participants will have their blood drawn at the beginning and end of the eight-week study to test their levels testosterone. To test the potential affects of increased testosterone, the participants will also be tested on multiple fitness assessments. Participants will be tested in one rep max bench press, one rep max squat, vertical jump, and handgrip dynamometer. Due to the length of the study results have not been finalized. Results will be available on Scholar Day.

Kelsey Phillips (Psychology) **Anastasia Smiley** (Psychology) **Carolyn Matthews** (Psychology)

Nominating Professor: Dr. Kristine Turko

Title: The Effects of Mimicry on Compatibility

Mimicry is an automatic imitation process that is nonconsciously used as a tool in social situations. The goal of this research is to support the work of Chartrand & Bargh (1999), which suggests that social actions are unconsciously mimicked in a process that increases compatibility in relationships. In addition, we are investigating the relationship between mimicry and compatibility as it relates to emotional context. The results of this study may provide insight into the unconscious actions humans use in the process of making and keeping friends.

Valerie Russell (Exercise Science) **Natasha Green** (Exercise Science), **Alyssa Braun** (Exercise Science), Brianna Gassman (Exercise Science)

Nominating Professor: Dr. Nathan Saunders

Title: Slow Motion Video VS. Cell Phone Application for the Assessment of a ¼ Mile Walk Test

Clinicians are always looking for feasible ways to test fitness. Our group developed a cell phone application to assess walking parameters during a ¼ mile walk test, which was compared to slow-motion video. Participants completed a ¼ mile walk test that allowed for walking speed, stepping

rate, and time to turn to be analyzed. Small differences between the video and cell phone suggest it is valid. Healthcare professionals may find this cell phone application to be an informative assessment tool.

Amy Seymore (Physician Assistant Studies)

Nominating Professor: Professor Vanessa Worley

Title: The Use of Clonidine as an Adjunct Therapy to Opioid Replacement for Postnatal Pharmacologic Treatment of Neonatal Abstinence Syndrome

The Use of Clonidine as an Adjunct Therapy to Opioid Replacement for Postnatal Pharmacologic Treatment of Neonatal Abstinence Syndrome Every 25 minutes, a baby is born suffering from opioid withdrawal. Neonatal abstinence syndrome (NAS) occurs when there is in-uterine opioid exposure that results in a drug withdrawal syndrome in the newborn. The rise of the recent opioid epidemic has made it difficult to treat such a large population of infants with optimal, effective treatments without a standardized protocol and lack of standardized research. Recent studies have investigated a medicine called clonidine as a possible adjunctive therapy to opioid replacement to help decrease symptoms and improve outcomes. I have conducted a systematic review of literature to see if clonidine could ultimately shorten the length of hospitalization for neonates with NAS. Searches of MEDLINE and PubMed databases and critique of the studies available reveals that the care of these vulnerable infants ultimately requires a multifactorial approach. Further research is needed to define a protocol for the best pharmacological management of NAS.

Olivia Shaw (Psychology) **Kayla Johnston** (Psychology) **Jenna Liles** (Psychology)

Nominating Professor: Dr. Tamara Daily

Title: Effect of Gender and Intuitive Eating on Body Image, Self-Esteem and Self-Compassion.

We will examine the impact of gender and level of intuitive eating on self-compassion, self-esteem, and body image. Participants will be undergraduate students completing online questionnaires. Regardless of level of intuitive eating, it is predicted that males will report higher self-esteem and self-compassion than females but will experience a similar level of body dissatisfaction. If the findings support our hypotheses, intuitive eating may ultimately lead to more positive self-perceptions.

Leanna Sullivan (Physician Assistant Studies)

Nominating Professor: Professor Vanessa Worley

Title: Multiple Sclerosis: Can Reflexology Be the Solution Patients Seek?

Multiple sclerosis (MS) is the most common neurological disorder among young adults, affecting 2-2.5 million people worldwide. Individuals with MS suffer from an array of symptoms including numbness, weakness, pain, spasms and fatigue. There is no cure for this chronic condition and traditional treatments often leave patients with unrelieved symptoms, compelling many to seek complementary alternatives such as reflexology – a massage of specific reflex points on the feet, hands and head. The goal of this systematic review is to determine if evidence supports reflexology as an adjunct therapy for MS. The analysis focuses on the effectiveness of symptoms alleviation and explores potential risks of reflexology. Many powerful studies on this population were found through database searches, including sham procedures as controls. Most studies support the use of reflexology, identifying both physical and psychological benefit, and found no associated risks. Ultimately, practitioners should support reflexology as a complementary MS treatment.

Kaitlyn Vance (Nursing)

Nominating Professor: Professor Betty Allen

Title: Does Influenza Increase the Risk for Cardiovascular Disease in Children?

Can the flu vaccine prevent children from developing cardiovascular disease? Influenza is one of the leading causes of widespread viral disease with an especially high morbidity and mortality rate in young children and older adults. Throughout my pediatric clinical experience on a cardiac unit for school-age children, I wanted to explore if influenza exposure puts children at risk for cardiovascular disease. The association between influenza and cardiovascular disease is important to examine, as vaccination can potentially prevent the occurrence of influenza. The relationship between the occurrence of influenza and cardiovascular disease in children supports nursing's increased advocacy efforts for influenza vaccination.

Julia Watko (Art)

Nominating Professor: Professor Margo Miller

Title: Improving Local Marketing Through Small Businesses

Lots of small businesses simply pick a generic logo or typeface without any design consultation or thinking outside the box. As a graphic designer, I think that even small businesses should be able to brand themselves on a more professional level. For my SCE, I selected several small businesses around the area to redesign logos, promotional materials, and websites in hopes that their materials can better represent their businesses, styles, and products.

Poster Session II: Giese Center for the Performing Arts

Madeleine Abrigg (Art)

Nominating Professor: Professor Margo Miller

Title: Nature Center Botanical Sketches

The purpose of this series of botanical sketches is to help visitors of the Huston-Brumbaugh Nature Center distinguish various plant species on the premises. The series was part of the Brumbaugh Scholar Program in which a student works with a professor to conduct research. I was selected to work with art professor Margo Miller and my primary focus was to identify various plant species and create artwork based off my findings. After researching various plants with textbooks and internet encyclopedias, I created simple botanical sketches. Each botanical sketch was painted from life. Each print includes the scientific name as well as the common household name for the various plants. My intent for this series was to give visitors a tool to identify various plant species they may see while exploring the Nature Center through my artwork.

Theo Bach (Exercise Science)

Nominating Professor: Dr. Ron Mendel

Title: The Effect of Beta-Alanine Supplementation on 800m Running Performance in Collegiate Division III Track Athletes

Recent investigations have shown that beta-alanine supplementation improves exercise performance and attenuates fatigue in short-term, high intensity exercise bouts. The purpose of this study was to determine if beta-alanine supplementation can improve 800-m running performance in collegiate division III track athletes (n=6). Participants were randomly assigned into two groups, beta alanine (n=3, 6.0g/day) and a placebo (n=3). Beta alanine or a placebo was ingested for 4 weeks with participants performing an 800m time trial before and after the supplementation period. Performance was analyzed through time trials and blood lactate levels pre and post-time trial to determine if beta-alanine supplementation improved 800-m running performance. Research is currently in progress and results are pending.

Brittany Baitt (Communications)

Nominating Professor: Dr. Andrea Ferraro

Title: Millennials and the LASIK Eye Surgery Procedure

After the recent acquisition of Abbott Medical Optics (AMO) by Johnson and Johnson (J&J), campaign strategies and marketing techniques will soon be necessary for LASIK Eye Surgery patient recruitment. Millennials, making up for a majority of the population are shown in recent studies to be the generation that benefits from this procedure the most. Today, this generation consists of a group of people at a very different time in their lives. Millennials currently consist of a wide range of college students, recent graduates, and young adults further in the life cycle. To sample an accurate representation of this group, survey and interviews have been conducted sampling people from each

Millennial category to test the hypothesis. These methods used in this study are designed to collect data that will elaborate Millennials decision-making when it comes to surgical procedures, more specifically, LASIK Eye Surgery. This research will reveal if Millennials have misconceptions of the procedure, determine steps to their research process, how they choose and find a doctor, and ways to attract this generation to the procedure.

Breanna Beltz (Physician Assistant Studies)

Nominating Professor: Professor Vanessa Worley

Title: Your Health Depends On Ours: Implementing Effective Stress Management Strategies for Physician Assistant Students

When you or a loved one needs medical care, you see a medical provider. What if the medical provider is stressed to the point where your care suffers? Though providers desire to attain overall wellness for themselves and their patients, this is not always a reality. Recent studies have revealed that more than 50% of US physicians experience burnout, a rising concern shown to start early in medical training. As for physician assistants (PAs), one study demonstrated that during their second semester of PA school, 1 in 5 students were experiencing psychiatric symptoms severe enough to be diagnosed with mental illness. This systematic review assesses the negative impacts of stress on PA students, comparing it to the data on medical students. The research also explores effective ways to address the problem and identifies successful implementation strategies. The well-being of students and clinicians demands more attention… for your sake and ours!

William Clay (Chemistry)

Nominating Professor: Dr. Robert Woodward

Title: Synthesis of LpxC Substrate Analogs for Antibiotic Development

Over the past 20 years, there have been a minimal number of new antibiotic classes introduced for disease treatment. This lack of antibiotic innovation has helped cause an increase of antibiotic resistant bacteria. Therefore, antibiotics which combat bacteria in new ways need to be explored as potential treatment options for such resistant bacteria. One area of focus is to compromise the outer membrane of Gram-negative bacteria which provide a protective barrier for the bacteria against foreign substances such as antibiotics. Specifically, the enzyme LpxC has been identified as a viable target to weaken this membrane. LpxC catalyzes the first committed step of Lipid A biosynthesis, a biomolecule which forms part of the protective membrane. If Lipid A biosynthesis could be inhibited, there would be deficiencies in the outer membrane, causing the bacteria to be more vulnerable to antibiotics. Inhibition of LpxC could thus become the gateway to a novel antibiotic class. To better understand how LpxC might be targeted, we sought to identify structural features which an antibiotic would need to interact with LpxC. Therefore, the research herein examined the first step of the chemical synthesis of several molecules, including derivatives of N-acetyl-D-galactosamine, glucose, galactose and mannose to reveal these key structural features. While glucose, galactose and

mannose derivatives were not produced in high yields, the derivative of N-acetyl-D-galactosamine gave a reasonably high yield (54%). Future research will focus on an alternative synthesis pathway for glucose, galactose and mannose derivatives while also continuing the synthesis of the N-acetyl-D-galactosamine derivative.

Kelsey Colaric (Exercise Science) **Jake Taylor** (Exercise Science)

Nominating Professor: Dr. Ron Mendel

Title: A Comparison Between the Effects of Beta-Alanine and Creatine on Repeated Sprint Performance with Collegiate Male Wrestlers

In recent years' athletes have been utilizing supplements in an attempt to increase athletic performance. The purpose of this study is to compare the effectiveness of short-term (28 day) creatine and beta-alanine supplementation on repeated sprint performance with collegiate wrestlers. Twenty 18-24-year-old male collegiate Division III wrestlers have been divided into two groups to consume either beta-alanine (3 times per day totaling 6 grams for 28 days) or creatine (3 times per day totaling 3 grams for 28 days) using a double-blind approach. The subjects performed a baseline test of twelve 50m sprints split into 3 sets of 4 sprints with 15s of rest between sprints and 90s between sets, and again 24 hours after the supplementation period ended. Sprint times have been recorded using time gates with the kinematic measurement system software. Although, testing is still being completed and therefore results and complete analysis have not yet been conducted. Results from this study can be used to determine if one supplement would be more suitable over the other for a collegiate wrestler to perform to their greatest ability.

Hannah Edwards (Biology)

Nominating Professor: Dr. Lin Wu

Title: Analysis of Indoor Air Particulates on The Campus of the University of Mount Union

Indoor air quality is often overlooked even though most Americans spend the majority of their days indoors. Particulate matter poses huge dangers to human health, as the particles can be inhaled and pass into the lungs. This study entailed sampling the air in various campus buildings, comparing it and analyzing its safety.

Macayla Gibbons (Psychology) **Destinee Green** (Psychology)

Nominating Professor: Dr. Kristine Turko

Title: The Effects of Aromatherapy and Music on Stress in College Students

College students can have high levels of stress and anxiety but do not often have an effective way to manage it. Students participated in a study comparing the effectiveness of easily accessible natural techniques – aromatherapy and music – after physiological and psychological stress. We hypothesize that music will reduce physiological stress, but aromatherapy will reduce psychological stress more. The knowledge gained may help students effectively manage stress in a cost-effective manner.

Joshua Leiter (Mathematics/Physics)

Nominating Professor: Dr. Michael Zwilling

Title: 3D Printing with Mathematica

How can 3D printing help us visualize complicated surfaces? Differential Geometry has a vast array of geometrically dazzling surfaces. We used the 3D printer (MakerBot) to print out some of these surfaces from Mathematica. Several different surfaces were created: Boy's Surface, the Klein bottle, and a Mobius Strip to name a few. The geometric properties of these surfaces are particularly interesting: curvature, orientability, the metric, etc. I will also have several examples printed out.

Isabella Pecchia (Biology)

Nominating Professor: Dr. Christopher Marks

Title: Epigenetics of cold tolerance in the fruit fly Drosophila melanogaster

Epigenetics is the study of changes in organismal traits caused by modifications of gene expression rather than changes to the actual genes. Current studies indicate that these modifications to gene expression can be inherited. While most studies focus on maternal inheritance, there is increasing evidence paternal inheritance is equally important. This study explores the potential impact of paternal inheritance of cold tolerance in the fruit fly Drosophila melanogaster. Drosophila can typically survive temperatures of 0 °C for up to 24 hours by entering a "chill coma". Using this model organism, we explore if offspring from males exposed to sublethal cold temperatures have increased survival when challenged with cold temperatures.

Mikayla Scherry (Exercise Science) **Brenna Kelly** (Exercise Science)

Nominating Professor: Dr. Ron Mendel

Title: The effect of music on heart rate, blood pressure, rate of perceived exertion, and performance during aerobic exercise

Music has the ability to increase overall emotional state, therefore reducing stress levels and overcoming the psychological barrier associated with exercise. This experiment will explore the effect of music vs. no music on one's physical performance and psychological exertion during aerobic

exercise. The purpose of this study is to determine whether or not music will increase an individual's physical capacity during exercise. Participants who are aerobically untrained, aged 18-25 will be asked to run on a track for two sessions at a maximum of 25 minutes, one with music of their choice and one without music. Physiological responses including heart rate, blood pressure, rate of perceived exertion, and distance traveled will be measured and compared to responses found both with music and in the absence of music to determine if there is a relationship. In addition, there are psychological aspects of exercise that will be taken into account including motivation and distraction. Future research should continue to focus on personal music preferences in genre and tempo to further investigate how music affects the body physiologically. There are no final results at this time.

Cameron Senhauser (Mechanical Engineering) **Roman Selby** (Mechanical Engineering)

Benjamin Kelley (Mechanical Engineering)

James Shaffer II (Mechanical Engineering)

Nominating Professor: Dr. Joshua Gargac

Title: Baja SAE Senior Design Project

Baja SAE is an intercollegiate competition where students design, build, and race off-road vehicles. This year, a braking system was developed to reduce the vehicle's stopping distance. The system uses smaller brake calipers and master cylinders to reduce weight. Vented brake rotors were also designed to improve heat dissipation within the braking system. The team competed in a 4-hour endurance race in Maryland on April 22nd.

Hadil Shakhta (Physician Assistant Studies)

Nominating Professor: Professor Vanessa Worley

Title: Nurse Home Visiting Programs and Child Maltreatment

All too often we hear stories recounting horrific details of child abuse that has occurred in our country. 1 in 4 children will experience abuse in some form throughout their life. Nurse home visiting programs, where nurses spend one-on-one time with new mothers and families, are one of the current measures being taken to help address child maltreatment. Nurse home visiting programs can start right after the baby is born and remain in place for the following years. This study, a systematic review, attempts to determine which practices utilized in these programs are most effective for preventing and reducing child abuse. The findings include benchmarks set by Congress relating to the child and parents that should be impacted to prove a program's effectiveness, leading to around seven program models showing the most positive impact on the family and child's well-being monitored through two years of age, but continuing for life.

Kelby Smith (Art)

Nominating Professor: Professor Margo Miller

Title: VPA by Design: A Graphic Exploration of the Visual and Performing Arts

The visual identity of a brand is expressed through a logo and assisting visual elements. Good logo design acts as the visual foundation and represents organizations. For my SCE, I have based my work on designing a logo and promotional materials for the Visual and Performing Arts Department at the University of Mount Union. Creating a sub-branded logo associated with the university allows this department to have their own visual aid while simultaneously sharing the overall brand of the university. The body of my work also includes materials based on a hypothetical Visual Performing Arts summer camp offered to high school students through the university. Research completed consists of the history and evolution of logos and the existing brand of the University of Mount Union. The poster will take you through the evolution and timeline of my artistic process while my research illustrates my creative decisions. My graphic design work is a collection of creative solutions that demonstrate my ideas using visual and textual content.

Bridget Stauffer (Physician Assistant Studies)

Nominating Professor: Professor Vanessa Worley

Title: The Mediterranean Diet: Can It Prevent Colorectal Cancer?

Can eating a specific diet help prevent colorectal cancer (CRC)? CRC is the second and third most lethal cancer in men and women, respectively. It can take up to 20 years to develop, suggesting that preventive measures could make a difference. A Mediterranean diet (MD) focuses on consumption of fruits, vegetables, extra virgin olive oil, and whole grains, with low consumption of red meat, saturated fats, and refined sugars. A MD can lower the risk for obesity, diabetes, and cardiovascular disease, but can it prevent CRC? This systematic review of literature attempts to determine the link between diet and a lowered risk of CRC by examining studies that try to elucidate the impact MD could have. The research shows there is a link between the two. It also suggests that MD could reduce the risk of other cancers as well.

Rebecca Taylor (Athletic Training)

Nominating Professor: Professor Sonia Wehrlin

Title: Chronic exertional compartment syndrome

Chronic exertional compartment syndrome is a condition that is not fully understood in the medical world, and is believed to often go untreated and undiagnosed (Bresnahan & Hennrikus, 2015). In the active population, which is classified as those who participate in athletics at any level or exercise on a regular basis, the likelihood of having chronic exertional compartment syndrome is increased because of the repeated stress and force acting upon the lower extremity each time the foot strikes

the ground. This in turn causes an increase in pressure in one or more of the four compartments of the lower leg caused by edema or bleeding that restricts the capillaries, nerves, and muscles from carrying out their normal functions which produces the adverse reactions that those with this condition note ("Compartment syndrome", 2009). Being that the condition is often overlooked it is important to understand the indicators and possible treatments options. The review of literature determines a fasciotomy is the surgical option with the most supporting research. Although there is research on a wide range of intervention options ranging from non-operative measures such as rehabilitation or changes in gait mechanics to using Botox injections, the fasciotomy has the greatest durational effect without the need for further interventions. Bresnahan, J. J., Hennrikus, W. L. (2015, June). Case report: Chronic exertional compartment syndrome in a high school soccer player. Case Reports in Orthopedics, 2015, Article ID 965257. http://dx.doi.org/10.1155/2015/965257015/965257. http://eds.a.ebscohost.com/eds/pdfviewer/pdfviewer?sid=ebacfd48-8b29-468a-94cd-84dbe80f9e9c%40sessionmgr4008&vid=0&hid=4103 Compartment syndrome. (2009). Compartment syndrome. American Academy of Orthopedic Surgeons. Retrieved from http://orthoinfo.aaos.org/topic.cfm?topic=a00204

Sarah Vapenik (Biology)

Nominating Professor: Dr. Lin Wu

Title: The Effect of Freshwater Mussels on the Phytoplankton Community

North America has the highest diversity of freshwater mussels in the world, especially in Ohio. Mussels are filter feeders that consume phytoplankton and help to provide nutrients to the water. Phytoplankton are a vital part of the food chain, but if the population becomes too high, negative effects such as algal blooms can occur. In this study, the goal was to determine what effect freshwater mussels have on the phytoplankton community. Three different densities of mussels were studied in 10-gallon aquaria environments containing phytoplankton. The phytoplankton were collected in September 2017 from the Mount Union campus lake using a plankton net. Once every two weeks the population of phytoplankton were studied using a dissecting microscope to see how they changed. Hach Kits were used to monitor the pH, temperature, nitrate, ammonium, phosphate, and dissolved oxygen levels. It was found that the larger density of mussels resulted in a greater abundance and richness in species of phytoplankton. In the presence of high levels of nitrate and phosphate, it was found that there was an increase in the number of blue green algae.

Jesse White (Exercise Science) **Barry Myers** (Exercise Science)

Nominating Professor: Dr. Lonnie Lowery

Title: Via® Instant Coffee Prior to Ballistic Exercise Increases Serum Epinephrine

Coffee, of various types, is one of the most commonly consumed beverages in the United States, largely due its stimulating nature. One application for coffee is use as a "pre-workout" product to enhance exercise performance. Various mechanisms have been described regarding improved performance, however less is known about the various types of coffee and physiological systems by

which they work. The purpose of this study was to examine the effect that Starbucks Via® instant coffee (VIA) has on serum epinephrine (SE) concentrations prior to and during non-exhausting, explosive exercise. We hypothesized that VIA ingested one hour prior to dynamic exercise would increase SE compared to an identical decaffeinated placebo (DCF). Resistance trained individuals exercised at 50% of their one repetition maximum (1RM) in bench press and squat, as well as in the vertical jump. Six dynamic maximal effort repetitions were performed in each. The exercise bout was completed 60 min. after ingesting Via (328 mg caffeine) or DCF. Pre-coffee, post-coffee-absorption, and post-exercise, SE samples were obtained through blood draws and analyzed via Enzyme-linked immunosorbent assay (ELISA). Prior to ingesting the drink, SE concentrations were quantitatively lower for the VIA condition than the DCF condition, but not statistically different. An hour after absorbing VIA, SE was quantitatively greater than SE concentrations after absorbing DCF but not significantly so. After exercise, the VIA condition exhibited a higher SE concentration than DCF concentrations that tended to diverge from the more modest increase for DCF ($p=0.066$).