

SCHOLAR Day Formal Presentations in Alphabetical Order:

Balazs, Jenna (Public Health & Sociology), **Grace Zilker** (Public Health), **Katelin Fields** (Public Health), **Mark Trissel** (Public Health), **Kelsey Vellente** (Public Health)

Faculty Sponsor: Beth Canfield-Simbro, Human Performance & Sport Business

Abstract: The Alliance Health Department: A strategic plan for the next 5 years

We've all made Alliance our home, whether it's full time or just during the school year. This research project has created a strategic plan for the Alliance Health Department by conducting in-depth interviews with AHD staff and Board of Health members. This is where we discovered more about the AHD's strengths and challenges. The strategic plan illustrates the actions and improvements that the AHD aims to reach within the next five years.

Beeker, Renee (MAEL)

Faculty Sponsor: Jennifer Martin, Education Department

Improving Justice in Family Courts: Building a Foundation of Safety for Families and Community.

Abstract: This presentation will provide a brief overview of the data collected by the National Family Court Watch Project. Data were collected during observations in family court proceedings in six different states. This presentation will share some interesting, and often unexpected, demographics uncovered by the Family Court Watch Project. The project took a careful look at behaviors and activities in random family courtrooms across the country. The data collected were helpful in identifying trends in these proceedings. Interesting trends were the statistics regarding the number of litigants that appeared pro se and the number of male litigants initiating court action. The analysis this project presents should be of interest to citizens interested in insuring families have access to justice. Public knowledge and understanding of the proceedings in family courts around the country will help to insure that the courts uphold the best interest of the families involved as they are chartered.

Benner, Brooke (Biology)

Faculty Sponsor: Lin Wu, Biology Department

Hemocompatibility Characterization of Nanoscale Surface Coatings on Silicon Substrates for an Implantable, Bioengineered Kidney

Abstract: Nearly 1 million patients in the United States live with End Stage Renal Disease (ESRD), with over 100,000 new diagnoses every year. Although hemodialysis has increased the survival of patients, transplantation is the only restorative treatment, yet approximately 100,000 Americans currently await a donor kidney. The creation of a bioengineered kidney would address donor organ shortage and morbidity associated with ESRD. In order to pass biological barriers within the human body, the device must be biocompatible. In this study, silicon substrates were used to test the hemocompatibility of nanoscale surface coatings. Lab techniques and experimentation including contact angle, ellipsometry, immunohistochemistry, scanning electron microscope imaging, enzyme-linked immunosorbent assays for albumin and fibrinogen, and human blood experimentation under physiologic conditions were used to characterize the hemocompatibility of the surface coatings. The results showed promising progress in the development of a biocompatible, implantable device.

Benninghoff, Abigale (History & Education: Adolescent to Young Adult)

Faculty Sponsor: Louis Rees, History Department

What It Takes for a Juicy Steak.

Abstract: Do you know what's for dinner? According to the National Public Radio, on average Americans consume fifty eight pounds of beef per year. From the open range to commercial feed lots, the progression of technology within the beef industry has heavily influenced the manner in which beef is produced in America today. With the use of artificial insemination and the use of hormones, many misconceptions in America's marketplace surrounding the production of beef are taking center stage. My research attempts to clear up those misconceptions by using information collected from interviews, observations, and university-based research. The research provided industry history and evidence of the benefits and disadvantages to these technologies and how they are viewed in American society. Through this inquiry, I concluded that the incorporation of these technologies have hugely impacted the beef industry as well as its production of the beef that is consumed in America. From the field to your plate, do you know what it takes?

Bittner, Alex (Physician Assistant Program)

Faculty Sponsor: Brook Gram, Physician Assistant Program

Sports Injuries in Adolescent Athletes: The Possibility of Early Prevention Without Long-Term Impairment

Abstract: Are you fearful of your child being injured while participating in sports? In the U.S., 38 million children age 0-19 participate in sports, and 2.6 million of them will report to the ED with an injury.

Strength training is a known preventative measure to injury, but there are concerns regarding whether it is safe for children. This research aims to answer what age would be appropriate for children to start weight training and what type of training would be most beneficial. This systematic review investigated outcomes with regard to the type of training, specifically maximal loading-type training (Olympic-style weight lifting) and the earliest age when benefit is seen. The results show that strength training can be effective, but Olympic-style weight lifting can cause significant long-term harm in children (e.g. early closure of growth plates). Medical providers and athletic trainers can use these results when counseling young patients and their parents.

Bohnak, Carisa E. (Biology & Economics)

Faculty Sponsor: Xiaoshu Han, Economics, Accounting & Business Administration Department

"The Patient Protection and Affordable Care Act and its effects on physicians, physician assistants, and the pharmaceutical industry."

Abstract: On March 23, 2010, President Obama signed the Patient Protection and Affordable Care Act (PPACA) which was designed to help over 34 million previously uninsured Americans obtain coverage. Additionally, the bill aimed to address rising healthcare costs, poor population health, and poor/uneven care. Although there are numerous positive aspects of the bill, there are also negative aspects and unanswered questions for both patients and healthcare providers. The goal of this presentation is to examine the overall effects of the Affordable Care Act on physicians, physician assistants, and the pharmaceutical industry by first discussing the U.S. healthcare system and issues within this system. Following this, there will be an in-depth discussion of both the positive and negative effects of the PPACA and how they directly relate to the respective fields of interest for this presentation.

Bryson, Alysse (Physician Assistant Program)

Faculty Sponsor: Brook Gram, Physician Assistant Program

Different treatment options suitable to children with ADHD.

Abstract: Recent statistics estimate the number of school-aged children diagnosed with ADHD in the US spans anywhere from 3-10%. Public concern over the associated possibility of side effects, dependence and unknown long-term effects of medication stimulants used for treatment of ADHD

has deterred many parents from seeking care for their children. Is there a better option? Neurofeedback (NF) employs the use of EEG recordings to monitor the brain's physiological state while projecting it on a computer screen. Patients essentially train their brain, learning to control behavioral habits originally idealized as unmanageable. This study is presented in the form of a literature review, analyzing and comparing current research on both forms of treatment after searching both educational and medical databases. Research suggests the combination of stimulants and biofeedback provide a high rate of efficacy in controlling ADHD. Parents of children with ADHD should know their options are not limited.

Cameron, Amanda (Writing)

Faculty Sponsor: Gwen Schwartz, English Department

The Navy and Cancer: A Life on the Water

Abstract: This project explored the death of the researcher's grandfather, who fell victim to lung cancer despite being a nonsmoker. Through a series of scholarly articles, connections were made between lung-related diseases caused by asbestos and the Navy's persistent use of the material throughout the twentieth century. You may wonder why a substance now banned from US water crafts is still an important topic. The answer is this: Servicemen who were exposed to asbestos during the 1900s are still rapidly developing lung-related diseases contracted while aboard Naval ships. The researcher analyzed data linking the US Navy to extensive asbestos use and presented the information through a former sailor's experience with lung cancer in a creative nonfiction essay.

Cibella, Marc (English: Writing)

Faculty Sponsor: Frank Tascone, English Department

Going Topless: An In-Depth and Uncensored Look at Jeep Culture

Abstract: They're four-wheeled masters of any terrain, whether it be wet or dry, warm or cold, friendly or hostile. They're also money hogs, dangerous, and frequent to break down. Yet, their legacy has inspired a rabid fan culture from sea to shining sea. Willingly riding shotgun and even sitting in the back seat once, join an air condition-loving nerd as he travels through mud pits, parades, rock crawls, and jamborees with Alliance's own Buckeye Freedom Jeep club in a humorous tale of creativity and freedom in search of the answer to one of life's most mind-boggling questions: why do people love Jeeps so much?

Cook, Logan (Psychology), **Carly Mihalic** (Psychology & English: Writing), **Levi Simmons** (Psychology)

Faculty Sponsor: Michael Knepp, Psychology Department

Placebo Effect on Physiological and Cognitive Reactions

Abstract: The purpose of this study is to analyze how prior information received can affect a person's expectations, thus affecting their reactions. 40 participants took either 200mg of caffeine or what they believed to be 400mg of caffeine. Cognitive reactions were measured by performance on the game Bop-It and two self-report surveys, while physiological reactions were measured via electrocardiograph machine. Researchers hypothesized that the placebo and caffeine groups would show similar cognitive reactions based on responses to the Caffeine Expectancy Scale and self-report survey as well as Bop-It scores. It is expected that the groups' physiological reactions will be different, with the caffeine group showing a greater increase in heart rate. If these hypotheses are supported, this study will contribute to current research that validates the effect of placebos, ultimately enlightening consumers and professionals in this field on treatment options other than medication.

Cox, Angie (Exercise Science), **Dakotah Young** (Exercise Science)

Faculty Sponsor: Kelsey Scanlon, Human Performance & Sport Business Department

The Effect of Barefoot Running on the Speed of Recreational Runners Compared to Shod Running

Abstract: Barefoot running has become a popular trend among endurance runners. There is a lot of research showing that running barefoot improves oxygen consumption of long distance runners and that running barefoot could reduce the risk of injury. However, very little research has been done studying the effects that footwear (or lack of footwear) has on sprinters. We examined running barefoot compared to running shod and the effect on sprinting times. Subjects ran 6 sprints of each of the following: 60m, 200m, and 400m. Half of the trials were completed barefoot and the other half wearing shoes (shod). Data collection had not been finalized at the time of this writing, but final results will be presented during the formal presentation. This knowledge could be vital to athletes or runners who want to improve their sprinting speed.

DiCrease, Caitlin (History)

Faculty Sponsor: Theresa Davis, History Department)

Reconstruction: America's Attempt to Protect African American Freedom

Abstract: We learn as children that the Civil War brought about the end of slavery in the United States, but was it able to actually guarantee real freedom to the African Americans of the South? Historians have often debated the effects of Reconstruction policy on American politics, economics, and society, and have come to conflicting conclusions. The standards that began during Reconstruction have had a significant impact on the history and development of the United States, even up to today. My research centers on determining whether or not Reconstruction successfully incorporated African Americans into a truly free society. Through the analysis of firsthand accounts, historical research, and policies of the period, I have reached the conclusion that Reconstruction ultimately failed to protect the freedoms that had supposedly been granted to the African American community.

Dreger, Kyle (Writing, Computer Science)

Faculty Sponsor: Frank Tascone, English Department

Publishing My Own Webcolumn and Podcast

For the past 30 weeks, I have been experimenting with publishing my own online webcolumn and podcast at kyledreger.com. This venture of writing and speaking online has led me to a readership of over 1,500 people, spanning 30 different countries. Taking on the role of writer, marketer, publisher, and editor, I have had the opportunity to experience many of the responsibilities that are involved with running an online publication. Reading over 800 news articles a day; curating media from over 50 different websites; and recording podcast episodes featuring inorganic chemists, writers, and professors; I have learned what it takes to publish a substantial amount of work online and how I can make a living in the future by doing so.

Duda, Shane (Physician Assistant Program)

Faculty Sponsor: Brook Gram, Physician Assistant Program

Marijuana Without the High: an Exploration of its Potential in Medical Use

Abstract: The legalization of marijuana has been a huge topic in recent media. Twenty states currently permit the use of marijuana for medical purposes, four of which have been legalized within the last two years. The use of medical marijuana has the potential to impact not only those who use it, but also anyone who is around them. While multiple studies have shown that medical marijuana has numerous side effects that many patients find bothersome, it continues to be used in the treatment of several neurologic disorders. This research is a systematic literature review that evaluates the therapeutic benefit of marijuana that lacks THC, the chemical responsible for its troublesome side effects. The results suggest treatments that do not exhibit the psychoactive effects of traditional marijuana may

offer promising alternatives for patients suffering from neurological disorders compared to treatments that are currently being offered.

Fountain, Sara (Biology)

Faculty Sponsor: David Thiele, English Department

Don't Go Stakin' My Heart: Justifying the Mutilation of the Undead in Dracula

Abstract: Vampires and other undead beings have flooded myths and folklore of the Victorian era. They have influenced many works of art, including Bram Stoker's novel, *Dracula*. In my research I studied the folklore, superstitions, scientific advancements, medical research, disease contagion, and general views of death at the time in order to justify the characters' actions and decisions for when and how bodies of the dead and undead could be mutilated for the benefit of mankind. Have you ever wondered where all of the fascination with vampires and inspiration for novels like *Dracula* came from? Come and see my presentation to see how the superstitions of the undead have influenced authors and the general public surrounding the Victorian era.

Gibson, Rebecca (Biochemistry)

Faculty Sponsor: Debra Boyd-Kimball, Chemistry & Biochemistry Department

The Effect of High Fat Diet on Oxidative Stress in the Mouse Kidney

Abstract: Chronic kidney diseases are associated with oxidative stress which is an imbalance between pro-oxidants and antioxidants. When oxidative stress is increased it limits an organism's natural antioxidant protection mechanism. Due to an increase in pro-oxidants and a decrease in the antioxidant defense mechanisms over time, high fat diet induced obesity in turn leads to oxidative stress which has been found to be a major culprit of kidney damage. Previous studies have primarily focused on long-term high fat diet exposure that induces obesity and oxidative stress in the kidneys of mice; however, studies of short-term high fat diet exposure are limited. The purpose of this study was to examine the effect of a short-term high fat diet, which did not induce obesity, on oxidative stress levels in mouse kidney. The results of biochemical tests completed to determine the level of oxidative stress in the kidney will be presented.

Gromes, Kristin (Mechanical Engineering), **Alina Selby** (Mechanical Engineering), **Shannon Guernsey** (Mechanical Engineering)

Faculty Sponsor: Osama Jadaan, Engineering Department

Design and Analysis of Aerodynamic Fairings for Improving the Performance of Flatbed Trailers

Abstract: Transportation by tractor trailers plays a major role in national economy. Studies show that up to fifty percent of the tractor's power is consumed to overcome the air resistance to motion known as drag force. One of the techniques implemented in the recent past to overcome this drawback is the usage of fairings. Fairings are attachments to trailers that reduce drag force and improve the trailer's fuel efficiency and stability on the road. This Senior Capstone Design project is sponsored by MAC Trailer and is executed by three mechanical engineering students. The work includes researching the existing fairing designs, analyzing the designs through computer simulations, 3D printing and experimental testing of trailer models in a wind tunnel, and designing new fairings that fulfill the industry requirements.

Guertal, Cy (Mechanical Engineering), **Neal Seaman** (Mechanical Engineering), **Daniel Luzar** (Mechanical Engineering), **Bryan Pike** (Mechanical Engineering)

Faculty Sponsor: Osama Jadaan, Engineering Department

UMU Baja Races toward Competition

Abstract: The objective of the UMU Baja team was to build a single seat, all-terrain vehicle and to compete at the national level inter-university SAE Baja competition held in Peoria, Illinois in June 2014. The team consists of four senior mechanical engineering students that have spent the past year designing, analyzing all the components, obtaining sponsorships and building the vehicle. Through this experience, classroom knowledge was expanded upon into hands-on engineering. Topics covering the design, analysis and testing of frame, suspension, steering, braking and drivetrain will be discussed. The final product – the UMU Baja vehicle - will also be on display.

Hodes, Jamie (Physician Assistant Program)

Faculty Sponsor: Brook Gram, Physician Assistant Program

Effect of low to moderate alcohol consumption during early pregnancy on fetal development and childhood cognitive functioning.

Abstract: Have you ever wondered if one or two alcoholic drinks during pregnancy will really harm the baby? What if small amounts actually had no negative consequences? Most women are aware of the damaging risks of alcohol consumption during pregnancy, yet approximately 50% still drink despite doctor recommendations! Perhaps the establishment of a safe alcohol level during pregnancy could decrease chances of negative fetal outcomes. This study examines the consequences of low to moderate alcohol consumption in early pregnancy with the ultimate goal of determining how much (if any) alcohol is actually considered safe during pregnancy. The research was conducted through a systematic review of medical literature. Findings suggest that small quantities consumed occasionally do not appear to pose serious threats to the baby's development or childhood mental functioning. However, a safe level of alcohol consumption has not yet been established. Current medical literature still recommends abstinence from alcohol during pregnancy.

Klinec, Christian (Exercise Science), **Josh Winn** (Exercise Science)

Faculty Sponsor: Katherine Clark, Human Performance & Sport Business

The Effects of Grip Training on Bench Press, Hang Clean, and Overall Grip Strength during an Eight Week Offseason Strength and Conditioning Program for Division III Collegiate Football Players

Abstract: Strength and conditioning has become one of the most critical aspects of a successful collegiate football program. Core lifts such as the bench press and hang clean are well known; but grip exercises are not viewed as important. The purpose of this study is to understand the effects of grip training on bench press, hang clean, and overall grip strength during an eight week offseason strength and conditioning program for Division III collegiate football players. An experimental group of 10 offensive linemen went through a grip strength program twice a week, along with their normal strength program; at the end of the 8 weeks the group will be compared to a control group of 10 Linemen who only followed the normal football strength program. It is inferred that the experimental group will have a higher percent change in their grip strength at the end of the study.

Kurek, Julia (Psychology), **Jessica Jamison** (Psychology), **Hannah Rothgery** (Psychology), **Peter Lannan** (Psychology)

Faculty Sponsor: Kristine Turko, Psychology Department

The Effects of Social Stories on Performance in the Typical Population as a Means of Preparation

Abstract: A social story is a visual aid using descriptive, direction, perspective, and affirmative statements that present a step-by-step analysis of the outcome of a particular situation or event. They are used to help individuals with disabilities prepare for a task and they are used to reduce the anxiety level of the individual. Social Stories, as a means of preparation, have never been utilized on the typical

population. Therefore, the purpose of this study is to see if Social Stories, as a form of preparation, can be used on the typical college population to reduce anxiety and positively affect their performance on a given task. Our experiment investigated the effect preparation has on the outcome of a given performance. Specifically, a Social Story was used as the particular form of preparation and was tested on the typical college population. Participants were asked to play a computer game that measured accuracy, as well as fill out a short questionnaire regarding their general level of anxiety.

Laux, John (Civil Engineering), **Jeremy Walker** (Civil Engineering), **Mitchell Phillips** (Civil Engineering), **Amanda Turner** (Civil Engineering), **Matthew Zalaskalns** (Civil Engineering)

Faculty Sponsor: Osama Jadaan, Engineering Department

The Hull Well Pad Design Project

Abstract: One of the biggest booming topics related to Civil Engineering recently is the natural gas and oil drilling in the North East. This new discovery of oil and natural gas in Ohio has enormous economic benefits and has the potential to push our country to be more self-sufficient in obtaining our own forms of energy. As a senior Civil Engineering class, Utica Oil and Gas Co. has asked our class to determine the feasibility of drilling at a site located in Carroll County, Ohio. The project consists of five parts of design which include a Sediment and Erosion Control, Haul Route, Well Pad access drive, Well Pad, and an Alternative Haul Route. All of these aspects have been designed to engineering standards using the computer program AutoCAD Civil 3D. To determine the best design of our project, a cost estimate was performed as to which design will be the most cost effective, which is a major concern of our client.

Looker, Jeffrey (Integrated Media)

Faculty Sponsor: Mark Bergmann, Communication Department

Is the Future of Radio Doomed to Dead Air?

Abstract: This video documentary explores the evolution of local radio and how its very existence is being threatened by technology and corporate greed. Local radio personalities Jeff Kinzbach, Joe Cronauer, Kayleigh Kriss and others share their thoughts and insights on the future of terrestrial radio and how it can be saved from extinction. Whether you are a fan of classic rock, country, today's hits, or talk radio, your favorite station may be in jeopardy. Learn how your local station can be saved and what can be done to help preserve this crucial form of broadcast media.

Loosli, Emily (Biochemistry)

Faculty Sponsor: Robert Woodward, Chemistry & Biochemistry Department

Designing More Effective Antibiotic Screening

Abstract: It is estimated by the Centers for Disease Control and Prevention, that 70% of bacteria that cause infections are resistant to at least one antibiotic. With antibiotic-resistance on the rise, new potential targets are being investigated. One such target, known as LpxC, helps to construct the protective outer layer of Gram-negative bacteria known as lipopolysaccharide, or LPS. This enzyme is responsible for catalyzing the second step of the biosynthesis of lipid A, a key component of LPS. The natural substrate of this enzyme is needed to screen for antibiotics. Unfortunately the LpxC natural substrate is very expensive and purchasing the natural substrate for use in the laboratory is not an option. Therefore, the synthesis of the natural substrate is currently being performed. This presentation will include a brief discussion about antibiotics, antibiotic resistance, purpose of this research, and progress that has been made towards the synthesis of the natural substrate.

Mason, Mel (Religious Studies & Communications), **Joy Raub** (Religious Studies & Sociology), **Wilma Levensgood** (Religious Studies & Art), **Jamie Laubacher** (English), **Anthony Walsh** (Religious Studies)

Faculty Sponsor: Nicole Johnson, Philosophy & Religious Studies

"Exploring Connections: Religious Commitments and Perspectives on Nonviolence"

Abstract: Are religious people more committed to nonviolence than non-religious people? If peace is a desirable value, how do peace-able attitudes and perspectives develop in individuals? This project begins by investigating whether commitments to nonviolent belief, practice, and lifestyle are stronger in Mount Union juniors and seniors who identify as non-religious versus those for whom Christianity is central to self-identity. Findings from a survey comparison generate questions about the capacity of Christianity to educate adherents toward nonviolent commitment and practice. The project also explores the foundations and motivations, religiously-based and otherwise, for students' commitments to nonviolence and related social issues. The findings from qualitative interviews with individuals who identify highly as "nonviolent" are important to the work of peace education generally and to the intersection of peace education and religious studies in particular.

McClellan, Madeline (Literature & French)

Faculty Sponsor: Michelle Collins-Sibley, English Department

Connecting Chains: Communal Narrative Aspects in Twelve Years a Slave

Abstract: Solomon Northup's narrative *Twelve Years a Slave* tells the story of a free black man who was kidnapped, sold and endured twelve years of slavery before finally regaining his freedom. The narrative, however, goes beyond Northup's story and by using the elements of self-defined by community and an oral history that are typical of African culture, Northup creates a collective narrative that encompasses and shares the stories and lives of many slaves. In this presentation I will discuss the use of orality, oral elements and traditions, and communal narratives as they pertain to creating a more complete and comprehensive look at the institution of American slavery to fully convey the true horrors of slavery while portraying the sense of community and interdependent lives that were so prevalent amongst slaves.

McCue, Kaylin (MAEL)

Faculty Sponsor: Jennifer Martin, Education Department

Isn't Math Hard Enough?: Adopting the Common Core State Standards

Abstract: According to the latest trends in education, our current mathematics curriculum it is not adding up to international competition. As a result, the state of Ohio is joining a large portion of our country in adopting the Common Core State Standards for the 2014-2015 school year. The concern for students, parents, and teachers alike is: how will the transition to the Common Core State Standards affect the face of high school math classrooms in Ohio? Data were collected from scholarly articles, interviews with members of the Ohio Department of Education, and current high school teachers and students. I have found that the transition will not be an easy one, requiring new materials, redesigning units, an increase in technology and a level of thinking with which most of Ohio's students have yet to have been challenged.

McMinn, Megan (Biology)

Faculty Sponsor: Bertrand Landry, Foreign Language & Cultures Department

Alienation and Immigration: The Question of Preservation of National Identity.

Abstract: There is one paramount truth that surrounds all nations: The modern scope of national identity has been molded through the historical lens of immigration. Although each country experiences immigration differently, it has shaped entire populations, and has created friction in the realm of

maintenance of a national identity. Today, there is a call for reform. This change takes on many cultural and political issues that the majority of nations and individuals face currently. Maintaining a balance between the national identity and diversity of a country is imperative. A cross cultural examination of reform progression was conducted in order to show that any nation can learn from the triumphs and failures of another. The nations explored—France, Quebec, and the United States—need to take initiative to look at the historical, political and sociocultural issues that each face in relation to immigration reform and maintenance of national identity.

Mitchell, Shelbey (Psychology) **Andrew David Budendorf** (Psychology), **Krista Leighty** (Psychology), **Jessica DeWater** (Psychology)

Faculty Sponsor: Michael Knepp, Psychology Department

The influence of comedy, deep breathing, and classical music on test anxiety and test improvement

Abstract: Test taking has become important when measuring the knowledge and determining the future success of a student. It is rarely acknowledged that testing may not be an accurate measurement of ability, particularly when a student possesses test anxiety. 60 participants were placed into one of three groups to take two math exams with a relaxation techniques administered in between. The researchers investigated which technique between deep breathing, humor, and soothing music is the most effective in reducing anxiety levels and improving math test scores. The expected findings were that students in the humor condition would have the highest reduction in anxiety and largest increase in test scores. Results from this study will provide information on the best relaxation technique to reduce anxiety, improve test scores and ultimately benefit the field of psychology and academic world. This study will assist students in achieving their full potential on exams without test anxiety.

Myers, Morgan (Neuroscience), **Stephanie Hillensbeck** (Psychology & French), **Britanny Lyons** (Psychology), **Victoria Machan** (Psychology), **Annaleise Lessick** (Psychology)

Faculty Sponsor: Michael Knepp, Psychology Department

The effects of inducing stress and motivation on physical performance and heart rate.

Abstract: - Induced mental states, such as stress or motivation, can affect physical performance both negatively and positively. The same mental states can have an impact on physiological outputs, such as heart rate (Mullen, Faull, Jones, & Kingston 2012). This study used time restraints, task goals, negative feedback, and reward to look at the effects of mental states on physical performance and physiological outcomes. Fifty-nine participants were placed into four groups: stress, motivation, a combined group, and a control group. The effects of stress and motivation were looked at by shooting basketballs and collecting ECG data. Inducing stress or motivation did not have an effect on performance, ($p > .01$). The physical task caused a significant change in mean heart rate ($F(3,55) = 70.172, p = .000$). The hypotheses were not supported, and showed that the number one factor in heart rate was physical activity, not induced mental states.

O'Connor, Rachel (Early Childhood Education & Japanese)

Faculty Sponsor: Hamako Furuhashi-Turner, Foreign Language & Cultures Department

Untying the Knot: Reactions to Increasing Divorce Rates in Japan

Abstract: In recent years, divorce has become more prominent in America, but what about in other countries? The focus of this study will take you halfway around the world to Japan where both divorce culture and family values appear very different from our own. I will be presenting my research based on my translation of a Japanese graphic novel and movie as well as on recent texts and interviews with

Japanese students to provide an authentic explanation of how divorce culture in Japan is changing in relation to Japanese family values.

Peck, Kalyn (Physics & Computer Science), **Secilia Dunkerton** (Computer Science, German & Japanese), **Emily Stafford** (Information Systems)

Faculty Sponsor: Steve Cederbloom, Physics & Astronomy Department)

A Telescope Named JARVIS

Abstract: Since ancient times, the study of the nighttime sky has been a consuming passion of scientists, philosophers and humanity. However, the weather has constantly been a limiting factor in studying the cosmos, especially in Ohio. Hours of preparation can be wasted by the appearance of a single cloud. Enter JARVIS, an automated far-field telescope built using a lens, CCD camera and PVC pipe. JARVIS will allow users to remotely check the weather, track key stars of interest to an individual, and use precise measurements to photograph the heavens. The main intelligence that drives JARVIS is the Raspbian operating system running off a Raspberry Pi that monitors circuits measuring cloud cover and rain while also running servo-motors to position the telescope. JARVIS can save students and professors hours of time, while letting them focus on what's truly important: the celestial sky.

Phillips, Jesse (Writing & Religious Studies)

Faculty Sponsor: Frank Tascone, English Department

Don't Be Good for Nothing

Abstract: Your career isn't necessarily your vocation. Being *good for something* doesn't mean you *have* to land the big-money job or find the dream career. Many college graduates feel the despair of their impending graduation and experience the pressure of finding THE job instead of feeling encouraged to do many things that are fulfilling, meaningful, *good*. My experience at a local non-profit ministry called Men's Challenge helped me to articulate the fear that many people my age face: "What am I going to do with my life?" Join me, a simple writer, as we discuss blue-collar poetry, Shaker music, memories of dad, the etymology of certain words, and a very special nun. Don't fret over doing well. Don't be good for no good reason. Don't Be Good for Nothing.

Pishotti, Gabriella (Writing)

Faculty Sponsor: David Thiele, English Department

Sex Sells...Even the Supernatural Kind: Connecting Bram Stoker's Dracula to Victorian Prostitution

Abstract: Recently, vampires have been resurrected as a pop culture phenomenon. As a supernatural creature that often oozes seduction, it's no wonder that today's sex-obsessed society has become enthralled by these creatures of the night. The vampires in Bram Stoker's *Dracula* are no exception to this sexualized role. In fact, after analyzing *Dracula* and researching its original context, I argue that *Dracula* serves as Stoker's commentary on Victorian prostitution. Through his work, Stoker supports the punishment of prostitutes while suggesting that men are just as guilty for prostitution as the women. My presentation will give insight into the implications of Stoker's work as well as compel members of the audience to analyze their own views (or the views of their society) on prostitution, a societal taboo which has fallen from notice in today's modern world.

Pishotti, Gabriella (Writing)

Faculty Sponsor: Michelle Collins-Sibley, English Department

Girls Just Wanna Have Some – Presence in History, That Is

Abstract: Ever wonder why American textbooks only seem to talk about dead, white guys? Where is everyone else while they are off riding their white steeds and rescuing America from her fire-breathing

British invaders? The truth is there were plenty of damsels not in distress who also played a part in establishing our country today. However, these women are often left out of history. For my research, I compared earlier histories of women during the American Revolution with more modern histories of women from this era. After analyzing several books and articles, I have found a large shift in perspectives about women, and that their lack of presence in history directly correlates with their past oppression. By realizing women's absence in history during the Revolutionary War, greater efforts can be made to pay attention to women's history, helping to give them a stronger voice in the past, today.

Princic, Kevin (Japanese & International Studies)

Faculty Sponsor: Hamako Furuhashi-Turner, Foreign Language & Cultures Department

"Japan vs China: A Historical Explanation of Japan's Perspective"

Abstract: Recently, Japan and China have been feuding over a set of islands that lie between the two nations. They are called the Senkaku Islands in Japanese. Japan and China have a very long history full of violence and bloodshed that further complicates their relationship. Currently, both countries are claiming ownership of the islands without any sign of giving them up. What truly spurred the dispute was the Japanese government purchasing the islands from a private owner in 2012. This led to claims of ownership by China and increased military presence from both countries around the islands.

Explaining Japan's view point on this issue is important because as outsiders watching this situation transpire, it is difficult for us to understand the context of the relationship between Japan and China. Through interviews, surveys and academic journals I will explain a Japanese perspective on this dispute and their opinions on China.

Reash, Caitlin (MAEL)

Faculty Sponsor: Jennifer Martin, Education Department

TEACHnology: Changing How We Communicate and Collaborate

Abstract: *TEACHnology: Changing How We Communicate and Collaborate* Would you consider yourself digitally literate? As technology shapes societal changes, schools and businesses are implementing numerous technology-based programs to keep up with the trend. How can organizations utilize up to date communication techniques to offer training and support necessary to lead to sustainable change? During my practitioner action research, I collected data through surveys and interviews and determined support and training was needed for new technology-based programs being introduced at my school. As a response, I created online support through screencasts, presentations, and a voicethread to increase communication and collaboration. While this is an ongoing program, attitudes and understanding of the new technology have already improved, and participants were introduced to a number of innovative communication techniques that peaked their interest. This project took place in a school, but has implications in any organization that provides training and wants to expand communication and collaboration.

Reigle, Abigail (Economics, Writing & Applied Criminal Justice)

Faculty Sponsor: Xiaoshu Han, Economics, Accounting & Business Administration Department

Medical Malpractice Litigation's Contribution to Healthcare Costs: An Economic Analysis

Abstract: Most Americans would agree that healthcare spending has spiraled out of control and reached unsustainable levels, but what's causing it? One potential factor is that physicians may be facing an increasing number of medical malpractice claims and, theoretically, their malpractice insurance companies raise premiums due to increased litigation costs. Physicians may pass on these increased costs to consumers by raising their own prices. Or physicians may move to a location with more lenient laws or even stop practicing altogether. Many types of reform have been proposed, and some have

even been enacted, but are they successful? To help answer these questions, I reviewed scholarly journal articles from several fields, including economics, law, and healthcare. While there was some disagreement among scholars about the most effective reforms, it is clear that the malpractice system, and the economy, could benefit from increased transparency and communication between physicians and their patients.

Ruhlin, Michael T. (Physician Assistant Program)

Faculty Sponsor: Brook Gram, Physician Assistant Program

An Analysis of Health Benefits In Organic Foods

Abstract: A non-organic apple costs \$1.99/ pound as opposed to an organic apple that cost \$2.99/ pound. What difference justifies this staggering 50% increase in price? Consumers often perceive that an organic diet is superior than a diet consisting of traditionally raised food; but is there fact behind their reasoning? Benefits such as reduced allergenicity, cancer prevalence and other advantages are thought to be gained from an organic diet. A systematic review of scholarly literature was conducted on Medline Complete and while a potentially meaningful difference exists between organic and conventionally raised food, the clinical relevance in health at this time in research is inconclusive. Whether you practice a vegan-lifestyle or eat a more traditional diet, everyone consumes food, therefore it is important to be knowledgeable in order to make better decisions based on research rather than assumptions at the market.

Santana, Kayla (Exercise Science), **Jackie Profera** (Exercise Science), **Rachael O'Hara** (Exercise Science)

Faculty Sponsor: Kelsey Scanlon, Human Performance & Sport Business

The Dehydration effects of Caffeine in College aged Females.

Abstract: Caffeine is a stimulant that increases alertness and decreases fatigue. These effects coupled with the diuretic effect have made caffeine a drug used in research as an ergogenic aid in exercise performance. However, the lack of research utilizing female participants inspired us to focus on how caffeine specifically affects dehydration in college-aged recreationally active females. Subjects ingested 16oz of coffee (~300mg caffeine) during one trial, and 16 oz of water in the second trial an hour before after they ran on a treadmill at their individual predicted speed based on their one mile run pre-test for 30 minutes. Subjects had their urine specific gravity via a urine refractometer taken as well as their fat free mass measured via the Bod Pod in order to measure the dehydration effects of the stimulant. Data collection was not completed at the time of writing, but final results will be displayed during the presentation.

Schossler, Brittany (Psychology), **Christina Sickinger** (Psychology), **Scott Manusakis** (Psychology), **Austin Mercer** (Psychology)

Faculty Sponsor: Kristine Turko, Psychology Department

The Effects of Visual Stimuli on Reaction Time and Accuracy in Athletes and Non- Athletes

Abstract: Are you aware of how efficient you are at responding to different visual signals? In this study, we examine two different forms of visual stimuli and the ability of participants to react quickly and accurately to these stimuli. We are looking for differences between athletes and non-athletes. This study is conducted using the E-Prime program to present a visual simulation. In this study, we hope to find that athletes will perform more quickly and more accurately at the simulation than non-athletes. The results of this study may be helpful for both coaches and athletes, as responses to visual stimuli are a large component of athletic training.

Simpson, John Alex (Psychology & Communications)

Faculty Sponsor: Sarah Torok Gerard, Psychology Department

The Legacy of Dr Philip Zimbardo

Abstract: Have you ever wondered why so many people appear so eager to engage in acts of violence? Are you curious as to why and how situations such as the Holocaust and the My Lai massacre occur? Inquiries about how ordinary citizens act in such sociopathic ways are discussed in this study about Dr. Philip Zimbardo and the Stanford Prison Experiment. In this study, acts of brutality that you would only accuse sadists of committing are examined and explained using situational behavioral theories. Furthermore, this study provides techniques to recognize and resist blind obedience and the resulting behaviors.

Slotta, Amber (Exercise Science), **Sarah Gliatta** (Exercise Science)

Faculty Sponsor: Lonnie Lowery, Human Performance & Sport Business

The effects of a resistance training protocol versus an endurance training protocol on body composition in college aged students.

Abstract: The quickest way to losing weight and becoming healthier is now an everyday interest. Weight control through exercise has become a popular tool in controlling diseases, both physical and mental. Therefore, the purpose of this study is to determine the effects of two types of training individually on body composition and weight. Subjects include 16 women, who are relatively inactive. Subjects will be assigned randomly to one of three groups following different exercise protocols for a seven week period: A resistance training group, an endurance training group, or a control group. Both the resistance training and endurance groups will exercise four times per week for one hour. Body composition results will be measured using ultrasound, waist to hip ratio, and the BodPod. To maintain equitable effort, subjects will also report Rate of Perceived Exertion scale ratings during each workout. It is expected that both groups will significantly improve body composition compared to the control group, in whole body percent fat or in local, millimeter fat reduction. Further, the resistance training group will significantly improve body composition compared to the endurance training group. In conclusion, the results will help determine the best type of training to do for improving body composition.

Smith, Sabrina (English)

Faculty Sponsor: Michelle Collins-Sibley, English Department

Two Equal Halves of a Whole

Abstract: Have you ever been told that one gender is better than the other? Comments like “Girls can’t throw” and “It is not manly for a boy to sew” are examples of stereotypes and some of the mild gender problems that still plague America. Conditions for women have gotten better since the days of Margaret Fuller and early feminism in America, but there is still so much we can learn from her ideas in “Woman in the Nineteenth Century.” We can take these ideas and apply them to our own culture and cultures around the world. I analyzed Margaret’s work and other scholarly thinkers such as Ralph Waldo Emerson in my research to find the true place for women in society.

Sommerfeld, Anne (Physician Assistant Program)

Faculty Sponsor: Brook Gram, Physician Assistant Program

New Medical Treatment for Allergy Sufferers

Abstract: Do you suffer from severe allergies? Do you currently receive allergy shots? If you fall into one of these categories, then you may benefit from this new allergy treatment. Most people that suffer from allergies usually take medications to lessen their symptoms; however, this does not completely get rid of the allergy. Currently, allergy shots are the only method that actually eliminates allergies, but there has been new research into the idea of using oral treatment for allergy sufferers. A systematic

review of various research articles was carried out in order to determine how safe and effective the oral allergy treatment options are compared to allergy shots. Most of the findings supported the fact that oral treatment options are just as safe and effective as allergy shots for adult and children patients. This research may improve overall convenience and eliminate the use of needles.

Spehar, Julie (Physician Assistant Program)

Faculty Sponsor: Vanessa Worley, Physician Assistant Program

Electronic Cigarette: Just Harmless Water Vapor?

Abstract: Have you ever sat across an individual at a restraint smoking an electronic cigarette and wondered if you were in danger? Electronic cigarettes have gained considerable attention since their American market introduction in 2007. E-cigarettes are devices intended to mimic the conventional cigarette, containing a cartridge filled with a nicotine-laced liquid that is vaporized by a battery-powered heating element. Manufacturers claim it to be a safer alternative to the conventional cigarette, however, they are not required to disclose the ingredients present in the vapor inhaled and exhaled by the user. This information is critical to evaluate the health risks for the both the users and those around them. Therefore, in order to provide more information to the individual smoker, as well as the general public, I've conducted a systemic review of recent research, focusing on acute exposure, nicotine delivery and health effects. Is it just harmless vapor? Come find out!

Stewart, Katie (Accounting/Finance & Economics), **Asti Evans** (Accounting & Finance), **Ella Boothby** (Finance & Human Resources)

Faculty Sponsor: Patricia Matthews, Economics, Accounting & Business Administration

Top Down Exploration of Investment Opportunities

Abstract: A top down research approach to the current economic state can reveal hints to timing and investment potential. This project applies economic and technical analysis of past and current trends in the United States' economy with a concentration on the computer hardware manufacturing industry; specifically Apple, Hewlett-Packard, and Diebold. This exploration resulted in conclusions on investment options for a unique industry.

Tippel, Stefanie (English), **Madeline McClellan** (Literature & French), **Ashley Chittenden** (Early Childhood Education), **Jimmy Winkelman** (Intervention Specialist & Physical Education), **Samantha Furr** (Early Childhood Education & Intervention Specialist), **Sarah Fountain** (Biology), **Miranda Huebner** (Early Childhood Education & Intervention Specialist), **Annie Bova** (English: Literature), **Abby Wemhoff** (Health & Physical Education)

Faculty Sponsor: Jennifer Martin, Education Department

Where is the Love?

Abstract: Service-learning is used to enrich a student's education by allowing the student to contribute to the community in positive and enduring ways, all the while learning from the project itself. Because service-learning was a requirement in our multicultural education course, the students of Dr. Jennifer Martin's class decided to contribute to the community by creating and hosting a conference for 100 Alliance Middle School students with the intention of making the middle school students aware of the consequences of bullying based on gender, race, media, etc. We chose Alliance Middle School to conduct our conference after we were made aware of the various amounts of bullying taking place in the school and the effect that bullying had on the school's environment and culture. We ultimately learned the rewarding feeling that service-learning allows and that making a difference is possible.

Veverka, Amber (Writing), **Alex Williamson** (Middle Childhood Education)

Faculty Sponsor: Ernest Pratt, Education Department

White Privilege: Does it Exist in America?

Abstract: White Privilege is a concept that is commonly overlooked, or even unheard of. Originally used by the colonial ruling class seeking to divide the oppressed from their oppressors, it is the idea that people who are white have undeserved and unseen benefits not had by people of color. Because we live in a society where the majority of citizens embrace meritocracy, the idea that anyone can achieve their goals in life as long as they work hard and persevere, that same society has trouble accepting that not everyone starts on a level playing field. Recognizing White Privilege is the first step to reaching equality, and it starts with education of true equality from a young age. This presentation seeks to explain this concept in depth, as well as provide a forum for talking about the issue without judgment.

Woodall [Riesenberg,] Emily (Physician Assistant Program)

Faculty Sponsor: Brook Gram, Physician Assistant Program

Male birth control: What are the options?

Abstract: The options for women's birth control seem to be endless, but what about for men? This study focuses on various birth control methods just for men, and how this will affect future planning with both men and women. A literature review was conducted comparing the hormonal and non-hormonal options of male contraceptives, as well as the effectiveness of each. Injections of various hormones was effective in decreasing sperm count, but had some side effects. Results showed that the most effective method with the least amount of side effects was a non-hormonal implant, which lasts for up to ten years. Increasing the options for male birth control will not only allow men to have a more active role in future planning, but will in turn allow women more options if they are unhappy with their current birth control method.

Yoza, Jeffrey (Psychology), **Brett Stoll** (Psychology), **Diony Jasmin** (Psychology)

Faculty Sponsor: Kristine Turko, Psychology Department

So You Think You Can Math?

Abstract: Math Tests. Like them or hate them, you've had to do them time and time again in your education. But did you know that some people might have a natural inclination to do poorly on them? Likewise, some people might be better equipped to handle math—all before education or grades even come into play! This study investigated how students at the University report their intrinsic confidence in handling mathematics as well as their perceived anxiety levels in everyday situations that necessitate mathematics and what effects it had when they were asked to complete an elementary level math exam. The research completed is beneficial to future teachers, those entering any field that involves mathematics, and those that want to know how a few simple words can change a student's test score.