

SCHOLAR Day 2009
Formal Presentation Abstracts

Johanna Ahlman
Faculty Sponsor: Frances Shortgen, Political Science

“The United Kingdom and the European Union: Addressing the Blair Years”

The United Kingdom and the European Union have had a very difficult relationship since the accession of the UK in to the European Economic Community (predecessor of the European Union) in 1973. The UK has consistently resisted integration into the European Community, a fact many scholars agree upon, even though it is a member of the European Union. This paper aims to offer a more detailed contextualization for the United Kingdom’s resistance to greater integration, focusing in particular on the “Blair years”. In particular, the author will argue that, contrary to previously-held perceptions, Prime Minister Tony Blair’s views deeply affected and shaped the UK relationship with the EU. This position will be illustrated with a set of key issues, themes, and developments that played out during Tony Blair’s term in office. The research is based on substantive review of relevant scholarly literature as well as content analysis of major policy pronouncements and political speeches, works of legislation in Parliament as well as social polls conducted from 1997-2007. The research suggests that Blair’s alignment with the United States parallels a declining opinion of the European Union.

Zachary D. Barker
Faculty Sponsor: Steve Cederbloom, Physics

“Autonomous Vehicle Navigation Using GPS”

The concept of unmanned, autonomous vehicles has been increasingly studied over recent years. There are many applications in industry and defense for technologies that allow for automated ground transportation of equipment through environments that are potentially hazardous to personnel. In this study, the development of a small scale, autonomous, GPS-guided vehicle is explored using commercially available radio-controlled (RC) vehicle hobby equipment and open source software and hardware. Specifically, this project uses the open source Arduino electronics prototyping platform, which is based on the Atmel Atmega168 microcontroller. A standard RC car has been outfitted with a modified version of the Arduino prototyping board, called ArduPilot, which has been programmed to interpret input from a separate GPS module and other sensing equipment. The vehicle is capable of autonomous navigation based on pre-programmed GPS waypoints and input from tactile sensors which provide obstacle avoidance capabilities. This project demonstrates that the development of a small scale autonomous vehicle is achievable using readily available hobby equipment, and it is reasonable that advances made at this level could benefit future research in practical applications.

Marshall Berkeley and Eric Shadrach
Faculty Sponsor: Ron Mendel, HPSB

“Does the addition of anaerobic training to an aerobic training regimen prove to be more effective at reducing body fat than an aerobic training regimen alone?”

Obesity is a rapidly spreading epidemic in the United States. This study investigates the effects of aerobic and anaerobic exercise on body fat loss. The purpose of this study was to determine whether or not the addition of anaerobic exercises to an aerobic training regimen when coupled with an energy restrictive diet is more effective at reducing body fat than an aerobic training regimen alone. Eighteen obese, male subjects (18-22 years old) with a body mass index (BMI) between 27.0 kg/m² and 33.0 kg/m² were recruited for the eight week study. The subjects were randomly assigned into three groups (n=6). The aerobic exercise group (AE) performed large muscle group activities four days a week at an intensity of 65% of their VO_{2max}. The aerobic and anaerobic exercise group (AAE) performed light resistance and agility exercises in addition to the large muscle group activities. The energy restrictive diet group (ERD) did not perform any exercise. All three groups were placed on an energy restrictive diet. No results were available at the time of this writing since data collection was still in progress. No conclusions could be drawn at this time since data collection was still in progress at the time of writing.

Justin Brew and Tony Rizzo

Faculty Sponsor: Ken Weber, Computer Science and Information Systems

"A GPU Implementation of a Modular Integer GCD Algorithm"

The presentation will describe an implementation of a greatest common divisor (GCD) algorithm specifically designed for massively parallel computing architectures, using a commonly available video card. The algorithm, originally written by Dr. Kenneth Weber, was modified to run in parallel on the one-hundred twelve shader processors in the graphics processing unit (GPU) of the NVIDIA GeForce 8800GT video card. Specific topics to be discussed include the Compute Unified Device Architecture (CUDA) applications programmer interface provided by NVIDIA, the methods used to accomplish this project, and the performance results observed.

Julia Cherson

Faculty Sponsor: Doug Hendel, Theatre

“Floating on the Chekhov Technique in *A Body of Water*”

The job of an actor can be very difficult in terms of character development, which is the focus of my study. I have rehearsed and developed a role by applying research and a series of exercises based on the acting technique of Michael Chekhov. By filming some of my rehearsals I have watched and recorded the progress of my developing character to analyze and further improve elements of my role. Each rehearsal was filled with new ideas, approaches, and tactics. The result of this work culminates in two performances of Lee Blessing’s play, *A Body of Water* on April 22 and 23, 2009. My performance in the role of Avis demonstrates the possibilities of character development using the Michael Chekhov technique.

Daniel Cakra

Faculty Sponsor: Xiaoshu Han, EABA

“Health Affairs – Perspectives”

No Abstract Submitted

Britney Ann Cirullo, Ryan Longenecker, Meredith Houmard, and Alicia Bluhm
Faculty Sponsor: Brian Woodside, Psychology

“Effects of Exercise on Serotonergic Neurotoxicity from MDMA (Ecstasy) Administration”
MDMA (Ecstasy) when abused is known to produce chronic neurotoxicity to serotonin terminals in rats, primates and humans. This type of brain damage can produce impairments in learning and memory tasks. Voluntary exercise has been associated with increased levels of serotonin in the brain as well as improvements in spatial learning. Sprague-Dawley rats were exposed to either MDMA (n=14) or saline (n=14). Seven animals from each group were exposed to voluntary exercise on running wheels. Behavioral testing took place in a Morris Water Maze to determine differences in spatial learning and memory via latency to platform and preference for target quadrant. Following behavioral testing, the hippocampus, an area known for learning and memory in the brain, was excised for analysis of 5-HT (serotonin) concentrations. It was hypothesized that exercise will decrease learning and memory deficits in MDMA exposed animals and increase serotonin levels in the hippocampus. The data thus far supports significant improvements in learning and memory in the MDMA exercise group compared to MDMA non-exercise group.

Ryan Coller, Matthew Jankowski, and Matthew Smith
Faculty Sponsor: Jim Kadlecek, HPSB

“What's the Difference-A Comparison of Browns', Cavs', and Indians' Fans”
The central focus of this study was to examine how individual difference factors could be used to explain distinctions between fans of the Cleveland Browns, Cleveland Cavs and Cleveland Indians. The present study utilized Cleveland market Scarborough PrimeNext data in order to enhance current understanding of consumer differences based upon major league professional sport team fan affiliation. The results provide teams with marketing insights to assist with the solicitation of corporate marketing partners as well as sponsorship activation strategies. In addition, corporate sponsors can utilize the findings when considering cross promotional strategies with the three teams. Finally, sponsors and sport properties alike can find the results valuable when developing marketing strategies and core consumer profiles.

Ryan Conatti
Faculty Sponsor: Gwen Gray Schwartz, English

“Bodie, California in Researched Creative Nonfiction Poetry”
There is a town in the Sierra Nevada range in California that has been discarded, abandoned, and forgotten by geologists, teachers, and history book writers for the past seventy five years. Bodie, CA, once known as the roughest town in the West, has been through avalanches, epidemics, murders, and devastating fires. It has bred some of the toughest, most inventive, and most greed driven people of the last century and a half. By thoroughly investigating this town's historical accounts and newspaper articles, as well as the definition of “creative nonfiction” (CNF), this presenter shows how historical research and poetry can play a vital role in creative nonfiction (CNF). This new sub-genre of CNF utilizes and merges the hallmarks and goals of both CNF and poetry to allow the reader a better understanding of the subject matter at hand. Such writing can

prove to be useful for analyzing data or taking a detailed look at historical events—whether the subject is Ellen Bryant Voight’s flu epidemic, Marilyn Nelson’s biography of George Washington Carver, or a collection by a young poet attempting to preserve the people, stories, and history of an old, decaying gold mining town.

Lindsey Coyle

Faculty Sponsor: Xiaoshu Han, EABA

“The Glass Ceiling”

In today’s society women are still struggling to climb the corporate ladder. The purpose of my research was to identify and explain the issues of the glass ceiling that women faced in the past and present workforce. In a recent study, 70% of men and 30% of women believe that the glass ceiling exists today. Primary challenges in the work force today for women consist of gender discrimination, stereotyping, and dual-career family pressures. In an effort to shatter the glass ceiling women are starting their own businesses because there are no barriers, tremendous job potential, and endless opportunities. My power point presentation will explain the glass ceiling, the related challenges that women currently face, and possible methods to break the glass ceiling.

Dan De Witt

Faculty Sponsor: Patricia Matthews, EABA

“Politics and the Dow Jones Industrial Average”

The purpose behind this presentation is to examine the reaction of the Dow Jones Industrial Average to announcements made by high ranking government officials. I feel it is important in this time of economic turmoil we understand investors' reactions to our elected officials in the government. This is not a partisan effort, but an examination of government and the Dow Jones as a whole. You will find, regardless of political affiliation or popularity, commentary from top officials can play a significant role in determining the direction of the Dow Jones.

Rebekah Deppert, Rachael Liggett, Jackie Maglosky, and Alecia Schalmo

Faculty Sponsor: Kristine Turko, Psychology

“Autism Awareness”

The prevalence of Autism in the education system has grown tremendously in the past decade, affecting classroom teaching techniques and resources. The purpose of the current study was to investigate the knowledge that mainstream and specialist educators have acquired of Autism Spectrum Disorder, and how this knowledge influences their attitude towards classroom inclusion. Kindergarten through sixth grade teachers from mainstream schools and specialist schools were included as participants in this study. An e-mail containing a link to the informed consent form, the questionnaire, and the debriefing form was sent to the site administrators who then distributed the links to their teaching staff. We expect to find two results. First, specialist educators will have more knowledge of Autism Spectrum Disorder than the mainstream classroom teachers. Secondly, specialist educators will have more positive attitudes toward classroom inclusion practices for children with Autism, than will mainstream classroom teachers. The data collected will be useful in helping to identify ways to make classrooms more suitable

for children with Autism, and to further the knowledge and interest of Autism Spectrum Disorder for educators.

Matt Dieterich

Faculty Sponsor: Theresa Davis, History

“Arab Perception of United States Foreign Policy”

The terrorist attack of September 11, 2001 against the United States demonstrated that there is hatred against nation-states from groups of people who possess certain ideologies. The roots of this terrorist attack can be found in the Arab perception of the United States foreign policy. The goal of this research is to understand how the United States foreign policy motivated the 9/11 terrorists. Data for this project were taken from various scholarly sources. The results show that the terrorist attack of September 11, 2001 against the United States demonstrated that there is now a new type of hatred against nation-states. Now, instead of nations going to war with other nations, individuals who possess unifying ideologies are attacking nations. This new concept of a group of people sharing a common hatred against a nation-state began when foreign policies from nation-states bounded people from different nations together and motivated them to think alike. Hopefully, the US can learn from this experience and work to prevent future terrorist acts.

Paul Farwell

Faculty Sponsor: Liangwu Yin, History

“Legalism in China: From the Qin to the People’s Republic”

While most of the Western world owes a great deal to Socrates and Greece, much of the Asian world owes a great deal to Han Fei and China. His doctrine, known as legalism, was used by Chinese dynasties in an effort to keep China unified and strong. No one will find the principles of democracy or individual rights in this doctrine, as it emphasizes absolute power and conquest. Nevertheless, this doctrine has been instrumental in China’s development from when China was first unified under the Qin dynasty through today with the founding of the People’s Republic. I discuss the principles of legalism, its use in the first legalist dynasty called the Qin and how it was used in succeeding dynasties up into the current regime known as the People’s Republic. I discuss how other parts of the world have used various legalist principles, such as Europe in the 20th century. Understanding legalism is the foundation for a deeper understanding of China.

Maria Fesz

Faculty Sponsor: Elaine Anderson, Music

“Musical Fusion: The Influence of Brazil and Bach in Hector Villa-Lobos’ “Aria” from *Bachianas Brasileiras No. 5*”

Brazilian composer Hector Villa-Lobos’ “Aria” from *Bachianas Brasileiras No. 5* is one of his most popular and successful musical compositions. When writing his music, Villa-Lobos was heavily influenced by his native country of Brazil. His travels all over the country, which included major cities as well as rural villages, gave his music a distinct characteristic. Villa-Lobos also traveled to Europe, where he became fascinated with the works of Johann Sebastian Bach. Villa-Lobos was so taken with Bach that his nine *Bachianas Brasileiras* all incorporated some of Bach’s baroque musical style. However, Villa-Lobos did not look to the past and

compose just a new kind of baroque music; he is committed to composing in his own Brazilian style. Maria Fesz will be discovering how Villa-Lobos fused the old, new, and the culturally diverse to make this “Aria” so popular to the general public. She will be exploring the influences of Brazil and Bach that Villa-Lobos had on writing all musical aspects in his *Bachianas Brasilieras No. 5*, and will do this by examining recordings of Brazilian music and Bach Preludes as well as Villa-Lobos’ life and travels. Maria will also be playing an arrangement of the “Aria” for cello and piano.

Kelli M. Fulton

Faculty Sponsor: Jeff Hahn, Sociology

“At Home Parenting: An Extension of the Primary Caretaker Role on Custody Decisions in Divorce Cases”

The purpose of this study is to determine whether there is an increase in custody awarded during divorce cases to those parent(s) who do not work outside of the home. With almost half of all marriages ending in divorce, it is important that research be done in all areas surrounding divorce. When children are at the center of a custody dispute, all aspects of the parents’ lives are taken into account by the Court in order to determine which parent would provide care that is in the “best interest of the child.” Data for this study were gathered from the divorce case files of Attorney Matthew C. Giannini in Youngstown, Ohio. The independent variables of employment status at the time of divorce, as well as age, gender, and income level were correlated with the outcomes of custody decisions by the Court. Significant findings are discussed and policy implications noted.

John P. Gallo

Faculty Sponsor: John Bienz, English

“A Change Gonna Come”: The Transition from Postmodern Solipsism to Cosmopolitan Literature with Toni Morrison, Barack Obama, and Dave Eggers”

As the election of Barack Obama for President puts America on the cusp of a movement towards a more inclusive and compassionate government, this change should also be reflected in a literary movement away from postmodern solipsism. The disparate and splintered voices of postmodern writing serve a dual purpose: they facilitate a greater “self-awareness” but can, at the same time, paralyze the writer and reader into solipsism. In contrast, cosmopolitanism encourages an acknowledgement of the past while moving forward, and a recognition of the common humanity in all people. Toni Morrison’s *Beloved* offers an excellent touchstone piece that sets up the problems of postmodernism and offers solutions, while Barack Obama’s speeches evidence a movement towards cosmopolitanism, and Dave Eggers presents a linear movement from postmodern self-referentiality to cosmopolitanism. The case for cosmopolitan literature will be made by presenting specific problems with postmodernism, examining cosmopolitan solutions, and providing a case study of the works of author Dave Eggers whose books present an almost seamless transition from postmodernism to cosmopolitanism.

John P. Gallo

Faculty Sponsor: Scott Gravlee, Philosophy and Religious Studies

“Bankrupt on Selling:” Ethical Economics in the Context of Today’s Crisis

As the recession deepens, it becomes apparent that action is needed to overcome our country’s growing economic hardship. The Obama administration has opted to find a solution in a large bailout and stimulus package. The majority of the discussion of this plan has been about whether the bailout will work, not whether it is ethical. By examining the bailout from the perspective of two distinct economic schools—free-market and Keynesian—it is easier to evaluate whether the steps taken manage to preserve our sense of justice, human dignity, and the importance of socially responsible decision making. It becomes apparent that the individual schools, as they stand now, cannot encompass all of the diverse concerns mentioned. Therefore, it is important to be able to combine the two theories, emphasizing their favorable effects while simultaneously downplaying their disagreeable results. This can be done by examining elements of cosmopolitanism, theories about equality, and F. Scott Fitzgerald’s idea of negative capability, and eventually presenting a solution that offers a working economics that preserves justice, human dignity, and social responsibility.

Angelina C. Gingo

Faculty Sponsor: Angela Smith Alder, Criminal Justice

“Nor Cruel and Unusual Punishments Inflicted”

This project will examine the protection against the infliction of cruel and unusual punishment provided by the Eighth Amendment to the United States Constitution. This study of the Eighth Amendment will occur in the context of the 2008 Ohio Supreme Court case, *State v. Hairston* (118 Ohio St.3d 289), where the court considered the following question: Is a 134-year prison sentence grossly disproportionate, shocking to the sense of justice of the community, and therefore unconstitutional under the 8th amendment? The Ohio Supreme Court held that Hairston’s sentence does not violate the protection against “cruel and unusual punishment” set forth in the Eighth Amendment. This decision will be analyzed in light of recent case law, especially the decision of *Harmelin*. Ultimately, Hairston’s sentence was held to be constitutional and the Ohio Supreme Court chose to echo the distinction outlined in *Harmelin*. Interpreting the Eighth Amendment, the Supreme Court pronounced that the Eighth Amendment does not provide for strict proportionality, but only precludes a grossly disproportionate sentence. Did the Ohio Supreme Court err in adopting the *Harmelin* concurrence as precedent, but ultimately arrive at the proper constitutional decision?

Jacob Hancock

Faculty Sponsor: Patricia Matthews, EABA

“The Cramer Effect”

A few words spoken by a few people can drastically affect the course of the US financial markets. Two of them hold official posts - Alan Greenspan, the former fed chairman, and Ben Bernanke, the current chairman. Sometimes even chosen silence at their ends can result in market volatility. The market is affected by high profile investors like Warren Buffet or Jim Cramer. Cramer is the host of the popular CNBC show, “Mad Money,” on which he offers advice about stocks to the viewers of his show. With his fan base on CNBC growing, Jim Cramer has shown a tremendous ability to move stocks, raising concerns of some market experts, including himself. This presentation discusses Jim Cramer, his recommendations, and his

market moving "Cramer effect." Particular emphasis will be made on the psychological biases that cause investors to react the way they do to information provided by Jim Cramer.

Mallory Herman and Ashley Kekel
Faculty Sponsor: Jeremy Ervin, Education

"Making the Grade"

This portfolio contains the standards put forth by the National Middle School Association (NMSA). We have studied twenty-seven NMSA standards and found artifacts to prove that we are knowledgeable of each performance indicator found within this set of national standards. This portfolio contains a reflection of how we have met each standard using artifacts from our preclinical experience. There are several purposes for this portfolio. The first purpose is to show evidence that we understand the performance indicators that the NMSA deem appropriate for teacher candidates to show proficiency in. Another purpose is to provide a collection of work for future use. Each standard is represented with artifacts, which consist of lesson plan, SMART Board slides, activities, reference letters, final evaluations, student letters, and pictures. A third purpose is for us to reflect on what we have learned during our years in the Teacher Education Program at Mount Union College. This portfolio is a way for us to assess the learning that has occurred over the past four years, and more specifically how we were able to apply that learning in the actual practice of teaching during our preclinical experience.

Nathan Huston
Faculty Sponsor: Marcelina Higgins, HPSB

"A Comparative Analysis of Football and Ice Hockey Head Injuries and the Effect of Helmets"
Head injuries continue to be a major cause of concern in athletics. This is especially true for contact sports such as football and ice hockey. The invention of the modern helmet has reduced the number of severe head injuries and deaths in sports, but concussions are still very common and can lead to more severe problems overtime. The purpose of this research was to determine how prevalent concussions remain in American football and ice hockey and how effective their respective helmets are in reducing the number and severity of head injuries. Fifteen recent scholarly journal articles were analyzed, showing that concussions are still a major issue in athletics. While helmets have dramatically decreased the number and severity of head injuries, there is still more fine-tuning necessary to make it as safe as possible without changing the game. It is crucial for the sports medicine team to be well informed about head injuries because returning a concussed athlete back to competition too early can be life altering or even life threatening. More research on the topic is necessary in order to make the helmets as efficient and safe as possible.

Marina Iwao
Faculty Sponsor: Maira Liliestedt, Music

"East Meets West: Japanese Pianist Performs European and Japanese Music"

Different countries have different languages, cultures, views and ways of thinking. The same as these, music also has its own style and is different from country to country. Some differences between Western music and Japanese music include the scales. Japanese scales are audibly

different than Western scales. In this presentation, I am going to perform three piano solo pieces; Maurice Ravel's Sonatine, first movement, Frederic Chopin's Ballade No. 1 in G minor, and Kozaburo Hirai's Fantasy on "Sakura Sakura" (Cherry blossom) The first two pieces are Western art music, and the last is based on a Japanese traditional melody. After the performance, I will address the differences between preparing and performing Japanese music of my native country and Western art music.

Andrew Johnson

Faculty Sponsor: Sheri Brugh, Mathematics

"The Great American Road Trip"

The Great American Road Trip problem requires the solver to find the shortest driving distance through all of America's forty eight continental states. Any circuit through a given amount of points is known mathematically as a Hamilton cycle. This particular problem deals with finding the shortest Hamilton cycle, which is found using a traveling sales person algorithm. A traveling sales person algorithm requires exact vertices to be defined, and the distances between these individual points can be most accurately found using modern Global Positioning System technology. A path with a small number of vertices can be found by hand using one of these algorithms in a few minutes; however a map with this many vertices, which is the case in the Great American Road Trip problem, requires advanced computing technology. The result of this research and experimentation is an approximation of the shortest path through all forty eight continental states.

Kelsey Jones

Faculty Sponsor: Angela Smith Alder, Criminal Justice

"Constitutionality of Sobriety Checkpoints"

Under the 4th Amendment of the United States Constitution, Americans have been guaranteed the right to privacy, including a freedom from "unreasonable searches and seizures"; but the Supreme Court continues to rule on cases that seem to eat away at that freedom, leaving the individual with less freedom and giving more power to the government. One such example of this power struggle is the ongoing debate of the Constitutionality of sobriety checkpoints: Does the government have the right to "search" every motor vehicle at a check point without probable cause or even a hint of suspicion? To answer this question, I have researched Supreme Court cases, legal briefs and law journals to understand the Supreme Court's definition of privacy and apply it to this issue. This study attempts to demonstrate that sobriety checkpoints are violating Americans' individual right to privacy under the 4th Amendment and that the Supreme Court should readdress its previous decision in line with these findings.

Laura Jurasko

Faculty Sponsor: Maira Liliestedt, Music

"The Distance from a Piece to a Song: A Contrast and Comparison of Preparation for Recitals in Voice and Piano"

This academic year Laura Jurasko presented two recitals, one in voice and one in piano, as part of her senior musical study. This presentation will include performances of pieces from each of

these recitals as well as a discussion of some of the differences and similarities in preparation for recitals in voice and piano. For example, research and examination of text is a requirement unique to preparation for a recital in voice; preparation for a piano recital requires addressing several musical lines at once, placing a different challenge on the process. Despite the many differences, preparation in both voice and piano share certain musical goals such as technical accuracy and emotional commitment.

Nathaniel Kamban

Faculty Sponsor: Jennifer Hall, Foreign Languages

“André Gide: a Crisis of Faith”

André Gide is a celebrated French author from the early twentieth century. Gide penned numerous acclaimed novels such as *The Immoralist*, *The Pastoral Symphony*, and *The Narrow Gate*. His astute yet controversial literary works are well-known throughout the world and, in 1947, Gide’s contribution to the literary world was acknowledged when he was awarded the Nobel Prize for Literature. Gide’s works often reflected his own personal and religious development. During his childhood, Gide was raised in an environment that was characterized by the puritanical Christian faith of his authoritative mother. However, as a young man Gide found himself rejecting the religious creed of his upbringing. This research project analyzes three of Gide’s works in order to gain an insight into Gide’s spiritual development. Specifically, Gide’s works present a classic struggle between the desire to please one’s flesh and the desire to please God. The works of André Gide present a clear analysis of the positive and negative attributes of the Christian moral system. His works speak to the heart of every believer as he seeks to understand the role of religion, God, and morality.

Nathaniel Kamban

Faculty Sponsor: Michael Grossman, Political Science

“Trapped in Debt; an Analysis of the Efficacy of Debt Relief”

In the early 1980’s the international community awoke to a massive economic crisis that was spreading across numerous developing nations. International organizations throughout the world watched as developing nations struggled to repay their hefty international debts. In order to begin to climb the ladder of economic development many nations borrowed huge sums of money from international creditors. However, today numerous developing nations are constrained by heavy debt repayments. Nations are forced to spend much needed funds on debt payment financing. This has led the global community to call for the implementation of debt relief initiatives for heavily indebted nations. Numerous debt relief programs have been created and subsequently utilized over the years. This project examines the efficacy of debt relief strategies through various country case studies. Specifically, this project analyzed five nations that experienced varying types of debt relief strategies. The effectiveness of partial debt relief initiatives, complete debt forgiveness schemes, and no debt relief programs were examined. It is evident that debt is a heavy burden for many nations; however the extent of which current programs are alleviating the debt burden is still unclear.

Jennifer Kelley

Faculty Sponsor: David Thiele, English

“Colonial Education in *Train to Pakistan*”

No Abstract Submitted

Jenny Kohr, Alyson Butler, and Lisa Bresson

Faculty Sponsor: Ron Mendel, HPSB

“The Effects of Interval Strength Training and Cardiovascular Training on Body Composition in a Type II Diabetic Population”

Type II diabetes mellitus is an increasingly prevalent health problem that affects 23.6 million people in the United States of America. The disease is characterized by relative insulin deficiency and/or insulin resistance, a disorder in which the cells do not use insulin properly. The primary treatment for Type II diabetes is non-pharmacological and includes diet modifications and exercise. The purpose of this study was to compare the effects of an interval strength training program and a cardiovascular training program on body composition in a Type II diabetic population. An analysis from an eight week, randomized study of twelve sedentary subjects, between the age of 35 and 55, with Type II diabetes was conducted. Measurements of body composition assessed via air displacement plethysmography (BOD POD), anthropometric measurements (waist-to-hip ratio, height, body weight), and blood glucose levels were obtained at baseline (week 0) and the final week of the study (week 8). At the time of writing, the data collection from the eight-week study had not yet been completed. The conclusion(s) will be determined upon completion of data collection.

Kelsey Lancy, Ashley Walker, Staci Keene, and Julie Murphy

Faculty Sponsor: Kristine Turko, Psychology

“Automatic Activation of Stereotypes Toward Mental Illness In College Students”

The field of social psychology has been devoted to examining the automatic activation of attitudes, especially stereotypes. Automatic activation is the unconscious processing of ideas, thoughts, or feelings toward a particular subject. While stereotypes towards social categories like ethnicity is common, those towards mental illness have received little attention. Research has shown that the stereotype of mental illness is strong, and that strong stereotypes tend to be activated more automatically. We tested this finding among college students. Gender was also included as a variable, because research has shown that females tend to be more empathetic and less stereotypic of mental illness. We initiated automatic activation by priming participants with a mental illness stereotype. A Stroop task was then completed to measure the effect of the prime. In addition, participants completed a modified Day’s Mental Illness Stigma Scale that measured attitudes towards the mentally ill. We found that the stereotype of mental illness is automatically activated; thus supporting the notion that the stereotype of mental illness is strong and negative. Furthermore, we found that women are less stigmatizing of mental illness.

Jessica Laurinaitis, Amanda Leigh, Kalie Rock, and Heather Stalter

Faculty Sponsor: Peter Schneller, Education

“Around the World: A Two-Week Integrated Unit”

Our research project was to compile a thematic two-week integrated unit for an exemplary middle childhood class. As participants, we used our knowledge of educational psychologists, teaching theories, and cooperative learning ideals to create culminating lessons that would allow middle school students to explore the various content areas. Our chosen project explores the similarities and differences of cultures throughout the world and to assist in student understanding of how content areas can be applied together across the curriculum, including history, math, geography, environmental studies, music, art, and culture. Each field is encompassed and integrated into the use of reading and writing for the middle childhood level. Children are broken into small groups where they become experts on their chosen country and complete assignments and projects leading to the culminating activity when they will present as experts of their country in a school-wide assembly. The ideals of this project were to simulate the cooperative learning environment that is fundamental for advancing learning in middle school, as well as to meet the diverse needs and multiple intelligences of middle school students, while simultaneously providing them with the tools to showcase their new discoveries.

Rachael Sarah Liggett

Faculty Sponsor: Jeff Hahn, Sociology

“Factors Influencing Women to Return to their Abusers”

Domestic violence has become an increasing concern in modern society. This research examined several factors that may influence a woman’s decision to return to her abuser after staying at a domestic violence shelter. A random sample of past clients of the Alliance Domestic Violence Shelter was selected in order to study educational level, work status, the duration, type, and severity of abuse that was experienced, if they had ever left their abuser before, length of the relationship with the abuser, and whether or not they decided to return to their abuser at the end of their stay. The results shed light on the variables that influence a woman to return to her abuser.

Kelly Loughry

Faculty Sponsor: Rebecca Stevens, Criminal Justice

“An Social learning Overview of Probation in the District of Alexandria, Virginia”

As a part of my Senior Culminating Experience, I interned with the Virginia Department of Corrections at the Alexandria, Virginia Probation and Parole Department. This research utilizes social learning theory to explain the criminal conduct committed by the probationers that I came in contact with during the internship. The results show that, consistent with social learning theory, those who engage in criminal behavior do so because they have been socialized in primary groups to believe this is the correct way to behave.

Christopher Mark

Faculty Sponsor: Angela Smith Alder, Criminal Justice

“Should Flag Burning be protected as Symbolic Speech under the First Amendment?”

This presentation will examine the ongoing controversy of flag burning in the United States, and the debate over whether this act is, or should be, protected by the Constitution. The legality of flag burning has always been a hot-button issue in the United States. Any mention of the issue is

apt to make tensions flare, and heated arguments are likely to ensue. Many Americans view the burning of the American flag, a symbol of the United States and a beacon of hope to so many people elsewhere in the world, as offensive and controversial; this has made the issue such an interesting occurrence to research and debate. Firstly, this presentation will provide a synopsis of free speech concepts, the rulings that the United States Supreme Court has specifically made on the flag burning issue, and the constant conflict over this issue between the United States Congress and Supreme Court. Secondly, the presentation will examine the arguments that the opposing sides have on this issue, including evidence and support for these arguments. Lastly, I will present my own viewpoint on this issue and put forward support for the viewpoint that I hold.

Harrison Markel

Faculty Sponsor: Scott Gravlee, Philosophy and Religious Studies

“The Controversy Over Animal Experimentation: Does the Acquisition of Medical Knowledge Justify the Mistreatment of Non-Human Animals?”

With regard to animal rights, one of three positions is commonly adopted: 1) Animals have no rights; 2) Animals have some rights, but are not equal to humans; or 3) Animals and humans are equal. In light of recent studies on animal cognition, the second position is the most tenable. Relevant research suggests that, although animals do not possess the capacities common to most humans, they can experience pain and suffering to a greater extent than was previously speculated. The implications of such studies on the practice of animal experimentation for the advancement of medical science are the subject of heated controversy. Some argue that such findings support the discontinuation of animal experimentation altogether, while others claim that the research is not sufficient to overturn current experimentation policies. We argue that, considering the research on animal cognition, the status quo is in need of modification, though the discontinuation of animal experimentation entirely is too strong a position.

Angela Marshall

Faculty Sponsor: John Bienz, English

“Categories in Libraries: Struggling with Imaginations”

The library catalog is not as cut and dry as one would think. While some libraries use the Dewey Decimal system, many educational institutions use a Library of Congress numerical system. Because this presenter is preparing for a career as a librarian, she wanted to know which system patrons preferred. Through scholarly research and a survey of faculty, this presenter discovered that although libraries use a traditional classification, patrons think and search through a more natural form. The use of comparison by prototypes leads the patron to connect ideas and texts, but in the library the ideas and texts are arranged differently from the natural classification, requiring librarians to be the go-between for the patron and catalog. Therefore, the distance between patrons’ thinking and the use of classical categorization in libraries must be mediated imaginatively by librarians.

Derek J. Mason

Faculty Sponsor: Jeff Hahn, Sociology

“Homogamy and Its Impact on Marital Satisfaction”

This research examined problems underlying the divorce rates in American society from a Sociological perspective. The research focused on the concept of “homogamy,” or the similarity of spouses, and how it related to marital satisfaction. The variables that were examined were the similarity of alcohol use, tobacco use, educational attainment, religiosity, and income level. The data for this research was gathered from the study, “Marital Instability Over the Life Course [United States]: A Six-Wave Panel Study, 1980, 1983, 1988, 1992-1994, 1997, 2000,” which was obtained from the ICPSR data sets, accessed from the Mount Union College Library. Only the data obtained from the 2000 wave of this study was examined. Previous literature indicates that couples with higher degrees of homogamy tended to show higher marital satisfaction, leading to lower divorce rates. The results of this study partially support prior research.

Ashley Matthews

Faculty Sponsor: Jeff Hahn, Sociology

“The Effects of Mental Illness and Substance Use on Domestic Violence Shelter Program Completion”

This study assessed the relationship between personal deviance and the ability of a woman residing in a domestic violence shelter to complete goals set when entering the shelter program. Personal deviance in this study was defined as past and or present alcoholism, drug addiction, and mental illness. The goals that were measured are obtaining legal services, finding suitable housing, finding employment, furthering education, and securing counseling services. The sample included all clients of a small residential domestic violence shelter over a two year period. The proposed hypotheses were not supported. Possible reason for this are discussed.

Joshua Matthews

Faculty Sponsor: Debra Boyd-Kimble, Chemistry

“The Effects of Oxidative Stress on Lactate Dehydrogenase”

Oxidative stress has quickly become a subject of investigation among many medical illnesses affecting humans. It may be a cause for diseases such as Parkinson’s Disease (PD) and Alzheimer’s because evidence shows it disrupts the physiology of important structures in the brain. Previous research has shown that the oxidized enzyme lactate dehydrogenase-2 (LDH-2) has been present in a familial model of PD compare to a controlled model. The goal of this research was to investigate the affects of oxidative stress on LDH-2. Initially, LDH-2 needed to be isolated and purified from bovine tissue through centrifugation and affinity chromatography. The isolated enzyme could then be subjected to forms of oxidative stress and its effectiveness at converting lactate into pyruvate tested by monitoring the reduction of nicotinamide adenine dinucleotide (NAD⁺) into NADH. Results could lead to future studies at protecting LDH-2 as a means of preventing or possibly treating such diseases as PD.

Eric Medallis

Faculty Sponsor: Chris Saffici, HPSB

“How Effective are Relationships?: Teacher-Student vs. Coach-Player”

This study focuses on the effectiveness of relationships between teacher-student and coach-player while at the same time comparing and contrasting to show their similarities and differences. For a future in teaching and coaching, I found it interesting to research the two professions on how effective their relationships are with the students and/or players. The study inferred that a coach is almost identical to a teacher and the student represents the player and vice versa. Although very similar, there are significant differences. What made this study so interesting were my personal interviews with teachers and coaches which formed the basis or support for my study. They provided me with the most reliable information because of the one on one style of data gathering. Also of great benefit, several references of books including famous coaches John Wooden from UCLA and Duke University's present-day coach Mike Krzyzewski supplied me with essential teaching/coaching strategies as well as techniques to help establish a positive relationship. This study was not only educational but it provided me with positive feedback on how to positively affect or make an impact on my students whether it is in the classroom or out on the playing field.

Eric Medallis and Alex Koehler
Faculty Sponsor: Beth Canfield Simbro, HPSB

“Take-10”

These presenters are part of a program called “Take-10,” a curriculum to lead students in 10 minutes of physical activity related to traditional, classroom content, like doing jumping jacks and counting in Math and practicing spelling words while stretching in Language Arts. The Take-10 program allows students to be interactive as it grabs their attention and changes the pace of a traditional classroom. Most importantly it addresses the issue of child obesity which is one of the biggest health problems the United States faces. Lack of exercise and a poor diet, as well as lack of quality education, are causing the decline in our health as a nation. The Take 10! program allows future health professionals to get practice in the field, allows for students to get activity in a traditional classroom setting, and allows the teachers to receive the information needed to continue these activities after the students of HE 420 portion of the program ends. After all, research shows that physically active students are better learners.

Matthew Moinet
Faculty Sponsor: Anne Ritchey, Mathematics

“The Centers of the Continental United States”

If you controlled your own country, where would you put the capital city? You might say that it should be near the most densely populated area. Or would you want it to be the geographical center of your country? For my mathematics SCE, I chose to explore the concept of centroids, specifically the different centers of the United States. The first center I computed was the geographic center. Basically if the Continental United States was made of a flat piece of wood, at what point would it balance on your finger? I began by transposing a map of the United States onto a coordinate plane. From there, using calculus, I calculated the area inside the map. Then using equations for centroids I could derive the geographic center to be near Lebanon, Kansas. The second part of my research was to find the population center. You can think of this like adding weight equal to population to points on the piece of wood and then recalculating the center. I discovered the population center to be near Montgomery City, Missouri.

Margaret Morgan
Faculty Sponsor: John Bienz, English

"Deconstructing Derrida, Metonymies Making Metaphor"

The field of cognitive linguistics severely undermines postmodern linguistic theory. Much postmodern theory claims that language is the final context through which we understand the world. It claims that, in effect, language is not helpful in understanding anything substantial about people and the world, that it gives way to uncertainties upon uncertainties. Tenets of cognitive linguistics, as exemplified through Toni Morrison's *Beloved*, effectively deconstruct these postmodern claims. They show that language does not trap us; rather, it is a useful entity we employ to generate ideas, change discourse, and heal from the past.

Margaret Morgan
Faculty Sponsor: Jennifer Hall, Foreign Languages

"The Metaphors That Betray Us: Metonymy and Metaphor in *Madame Bovary*"

The nature of language and the nature of existence are thematic issues in Gustave Flaubert's *Madame Bovary*. Protagonist Emma Bovary's life is an epic struggle to live up to a non-fragmented, cohesive metaphor of her idea of "*la vie ideale*" (the ideal life). In his painstakingly precise prose, Flaubert exposes to his readers the betrayal of metaphor and shows the utter realism of life: fragmented and non-cohesive. Pertinent here are the ideas of cognitive linguistics and postmodernity, and the questions they pose about reality—what is the nature of language? Can language accurately represent reality? Can reality be 'gotten at' through language? This presentation examines specific scenes and exchanges in the novel which help clarify these questions.

Lucas Murray, Jeremy Gerstacker and Greg Ferrell
Faculty Sponsor: Mark McConnell, EABA

"Change is Golden, Alliance Chamber Marketing Proposal"

A thriving retail community contributes significantly to a city's quality of life. The Retail/Services Division of the Alliance Area Chamber of Commerce challenged Mount Union students to develop a marketing plan with the objective of encouraging Alliance area residents to patronize local establishments instead of buying from internet sites and/or out-of-town retailers. Given a specific budget and timetable, each team sought to develop innovative, cost effective campaigns to affect the attitudes and behaviors of members of their target audience. In fall 2008, twelve teams of students enrolled in a fall 2008 Foundations of Marketing course accepted this challenge, with each team creating and presenting a its own marketing plan. Following run-off presentations and a vote by Chamber members, this team was named the winner of the fall 2008 marketing plan competition.

Michael Myers and Brooke Ghilani
Faculty Sponsor: Jim Kadlecek, HPSB

"Strategies for Reaching the Non-Attending Cleveland Indians' Fan"

With ticket sales the primary source of revenue for professional sports teams, organizations are challenged with the task of converting fans who watch the team on television or listen to games on the radio into ticket-buying fans. The purpose of this study was to investigate characteristics of Cleveland Indians fans that consume the games by watching or listening, but do not attend games. Strategies for reaching them were developed with the intent of converting them into ticket purchasers. Findings from the Cleveland market Scarborough PrimeNext data were utilized to provide the foundation. The resultant sport marketing recommendations could be implemented to effectively reach the target group and generate ticket sales revenue for the team.

Jennifer M. Outland

Faculty Sponsor: Jeff Hahn, Sociology

“The Personal Development of Students at the Collegiate Level is Directly Affected by Contact with Diversity”

This research investigates the developing strategies for affective interaction between diverse individuals on a college campus. The data used in this study was taken from the Mount Union College Education Benchmarking (EBI) survey, conducted spring semester of 2008. That study was done to determine what variables effect how a college student perceives personal and social environments in relation to diversity. My research examined how interpersonal relationships, interracial friendships, perceived equal treatment among college students, and interracial tension affect a student’s personal development. The research hypothesized that those individuals with more contact with diversity had greater personal development and those with less biased views of equal treatment had less interracial tension in their lives. The results show that some of these factors correlated with personal development, while some did not. Implications for college policy are discussed.

Lisa Perko and Tim Campbell

Faculty Sponsor: Beth Canfield Simbro, HPSB

“GIFT and BFIT: Alliance YMCA Afterschool Program”

GIFT and BFIT are after school programs for fourth and fifth grade girls and boys to promote physical activity and healthy lifestyles. Once a week for eight weeks, the children are able to come together and learn about the benefits of health, physical activity and nutrition. Along with YMCA staff, Health majors put together the curriculum and lessons that were then presented in the programs. After a weekly 15 minute learning activity, the children spend most of the time in both group and individual exercises including some activities such as swimming, dodge ball, football, soccer and relay races. At the end of the lesson the children are given a healthy snack ranging from apples to granola bars. By promoting physical activity and healthy choices, the children are more aware of being able to choose healthy foods and the importance of exercising. Children want to participate in GIFT and BFIT because it is a chance for them to engage themselves in healthy behaviors that they may not be getting exposed to.

Anne Marie Rogan

Faculty Sponsor: Jeffrey Draves, Chemistry

"Intermolecular Potential of Methyl Bromide with Water"

Limited work on aerosols has been done at the molecular level so very little information is available regarding the chemical structure for the aerosol and its role in influencing the uptake of chemical compounds. *Ab initio* calculations using the Gaussian 03 package were conducted on the methyl bromide – water system to determine a potential energy surface. Calculations at the MP4 level using a polarized 6-311+G** basis set revealed that the equilibrium methyl bromide – water complex is T shaped with the oxygen atom 0.271nm from the C-Br bond. The potential energy minimum was calculated at 15.7kJ/mol.

Lindsey Royer, Rebecca Johnson Murphy, and Derek Patterson
Faculty Sponsor: Shawn DeNardo Watters, Education

“Autism Spectrum: Around the World”

Most people have seen billboards proclaiming the prevalence of Autism in the United States; and many U.S. citizens may even take a brief second out of their day to stop and think about what this “epidemic” means to them. This study has sought to clarify data on the prevalence of Autism in the United States and to determine if there has been an increase in the number of individuals diagnosed with Autism Spectrum Disorder (ASD) in the United States. Also, this research expands upon the shores of North American research studies conducted in Europe. Comparison of international autism rates may help to shed light on possible causes of ASD; which span from mercury exposure to genetic factors. However, it is important to keep in mind that because Autism is a spectrum disorder, diagnoses are variable and measured differently according to each individual. This makes research on Autism challenging; however, research is what will drive our world as it strives to meet the needs of individuals with ASD.

Emily Saracusa
Faculty Sponsor: Mike Zwilling, Mathematics

“Bacon With Your Eggs? Applications of a New Bivariate Beta-Binomial Distribution”

The new bivariate beta-binomial model is applied to two everyday applications: bacon and egg purchases and reading habits for pairs of magazines. It was developed to create a model for correlations between trials and within trials for bivariate random variables. This model uses techniques from bivariate discrete distribution theory and is derived from the Sarmanov distribution. Observations of grocery purchases and magazine reading were collected to form two separate data sets. For these data, maximum likelihood parameter estimators and correlations are calculated. The bivariate beta-binomial model fits the observed data well and can be used to improve business inventory.

Taylor Sassa, Allison Wiggins, and Nate Kamban
Faculty Sponsor: Martin Horning, EABA

“Water Stress Issues in Africa: Case Studies of Egypt, Chad, and the Sudan”

Water stress in Africa contributes to persistent and frequently, worsening conditions of extreme poverty. It contributes to crop failures, desertification, the spread of disease, and, in some cases, the outbreak of violence. The presentation on Egypt will focus on the problems caused by the Aswan High Dam and analyze the effectiveness of the programs that are in place to help

overcome these problems. The presentation on Chad will analyze the cause and effects of reduced water volume in Lake Chad on the country of Chad and the surrounding area. The presentation on Sudan will investigate the relationship between the shortage of arable land and water and the war in Darfur. The presentation will conclude with a look at the Millennium Village Project. The Millennium Village Project implements a holistic strategy to addressing the problem of extreme poverty in Africa. One of the key goals of the Millennium Village Project is to provide access to clean water for all the members of the selected rural village communities.

Stephanie Schwartz and Melissa Morrison
Faculty Sponsor: Ron Mendel, HPSB

“The Effects of Red Bull, Motor Tabs and Plain Water on Hydration Status during Sub-maximal Exercise in the Heat”

Hydration is a critical component to both safety and efficacy of exercise or sport. Many commercially available beverages purport both with little scientific evidence to support the claims. The purpose of this study was to examine if pre-exercise consumption of two commercially available sports drinks, Red Bull®, and Motor Tabs®, and plain water had any influence on hydration status after performing an intermittent, high-intensity cycle ergometer exercise under heat stress. Twelve non-acclimatized subjects were randomly separated into three groups: Red Bull (RB; n = 4), Motor Tabs (MT; n = 4), and plain water (CON; n = 4). Prior to the exercise trial, each subject performed a VO_{2max} test on a cycle ergometer and provided a urine sample to evaluate hydration status via urine specific gravity (USG) and color. Each subject performed one exercise bout on the cycle ergometer in environmental chamber (38°C (100°F) and 0% humidity) 30 minutes after beverage consumption. Six exercise/rest intervals were performed (8 minutes at 65% and 2 minutes at 45% VO_{2max}). Core body temperature was also assessed via rectal probe. Urine was collected immediately following exercise and examined for USG and color. At the time of this writing, data collection was still in progress so no conclusions had been drawn.

Jennifer M. Scrimenti
Faculty Sponsors: Jamie Capuzza and Gavind Shanadi, Communication

“Gender Bias in the Media: The Case of the 2008 Olympics”

This study updates previous research on gender bias in media coverage of the Olympics. Scholars have found that male athletes receive more media coverage than female athletes, and that contact and strength sports also receive more coverage. Billings (2007) has argued in his study of the 2004 Olympics that if men and women athletes are portrayed unequally, a mindset that devalues female athletes may be created. Specifically, this content analysis investigated possible gender bias in the Sports Illustrated and USA Today coverage of the 2008 Olympics. The focus was on the two mediums because they reach large national audiences. The goal is to determine if gender coverage has changed since the 2004 Olympic Games.

Jesse J. Shamp
Faculty Sponsor: Angela Smith Alder, Criminal Justice

“The Establishment Clause and Ten Commandments Displays on Government Property”

Since the founding of our country, Americans have defended and maintained a right to religious freedom. This right, as stated in the First Amendment, demands that government does not make any law regarding the establishment of religion. This is known as the Establishment Clause, and its interpretation and application have been controversial for nearly two centuries. In recent years, much controversy has centered on displays of the Ten Commandments located on government property. The issue being discussed is whether or not displays of the Ten Commandments on government property violate the Establishment Clause of the First Amendment. The research is centered on some of the landmark Supreme Court cases of the past 50 years and the tests the Court has used to determine Establishment Clause violations. By analyzing these tests and reviewing historical and legal documents dating back to the founding of our nation, it is concluded that a display of the Ten Commandments on government property is unconstitutional unless there is a significant educational and historical value attached to the display.

Ashley Shea-Sutton and Lauren Cully
Faculty Sponsor: Shawn DeNardo Watters, Education

“Behavior Management Strategies in Inclusive Environments”

Inclusion is becoming more prevalent in today’s classrooms. Inappropriate behavior may be one of the largest barriers in an inclusive environment. This presentation is meant to give positive classroom strategies to use in an inclusive environment. It discusses exceptionalities that are defined under Individuals with Disabilities Education Act (IDEA) as well as those which are not. Each of these unique exceptionalities brings with it their own specific needs. The classroom strategies discussed in this presentation are meant to help any educator meet the specific needs of not only students with exceptional learning needs, but all students in the classroom. Along with the classroom strategies, co-teaching models and positive behavior supports are also defined and explained as beneficial in inclusive environments. Overall this presentation is meant to give beneficial classroom strategies to not only general education teachers, but those who are teaching inclusive environments.

Clay Sinnett and Mike Brode
Faculty Sponsor: Patricia Matthews, EABA

“Constructing and Evaluating a Mutual Fund”

Mutual funds comprise only one of many investment choices but offer specific advantages over other types of investments. We will begin by discussing the basic structure of the mutual fund industry, along with those advantages that differentiate it from other alternatives. After providing the framework to understand this investment device, we will explain the process of constructing a specific mutual fund. The two types that will be discussed are a large-cap growth mutual fund and a small-cap value mutual fund. This will involve insight into both how a mutual fund is constructed as well as the way its performance can be evaluated. Lastly, we will share how our research helped us discover the rationalization that goes into making decisions pertaining to developing a specific fund.

Carly J. Skidmore
Faculty Sponsor: Paul Tidman, Philosophy and Religious Studies

“The Logical Housewife: A Pragmatic Analysis of Feminist Epistemology in Science”

The emergence of feminist epistemology in the philosophy of science has raised new questions on the objectivity of scientific rigor. Feminist Standpoint Theory is a powerful suggestion that asks scientists to draw their research, experimentation, and conclusions from the female perspective. Rooted in Marxist ideology, this theory has incited an abundance of serious criticisms – surprisingly from many other feminists. More importantly, the role of feminism in the philosophy of science has an undeniable impact on the way the scientific method is applied, experimentation is conducted, and conclusions are drawn. This paper seeks to analyze several arguments of feminist standpoint theory, and to provide a pragmatic context for the implications of feminist epistemology in the philosophy of science. Further, this paper will argue against the pragmatism of standpoint theory in the practice of scientific inquiry.

Carly J. Skidmore

Faculty Sponsor: Michael Grossman, Political Science

“Why Men Don’t Rebel: The Absence of Violent Collective Action in Zimbabwe”

What does it take for an oppressed people to rise up against their oppressor? The theory of relative deprivation suggests that when there is an intolerable discrepancy between the expectations and capabilities in a population, a revolution is bound to occur. In the all but failed African nation of Zimbabwe, it would be intuitively clear that the discrepancy faced by her citizens is even beyond intolerability. This paper examines the rise and fall of revolutionary behavior in Zimbabwe in attempt to explain why the Zimbabwean population has not yet overthrown their government. This research utilized data from all recorded riots within the country, with special consideration given to cause (the reason for protest), size, level of violence (amount of destruction to property, number injured or dead), and police or government reaction. To measure the level and type of relative deprivation and frustration in Zimbabwe, this study used public opinion polls generated from 1998 – 2008 by a range of third party agents, including Afrobarometer, the Mass Public Opinion Institute, and Zimbabwe Watch to gauge the citizenry's satisfaction with its economic and social position in relation to other citizens within the country, citizenries in other sub-Saharan African nations, and past conditions.

Sarah Stuckey

Faculty Sponsor: Susan Haddox, Philosophy and Religious Studies

“The Emerging Church: Passing Fad or Lasting Reform?”

In recent years, scholars have noted a shift in Western thought from the cut and dry truths of modernism to a distrust of absolute truth in the postmodern world. The emerging church is a new phenomenon that tackles the question of how Christianity can relate to postmodern culture. Emerging church leaders believe that the traditional styles of church are not inspirational enough for a majority of the culture. Despite being steeped in controversy and plagued with vague theology, this movement has positively added to the dialogue of reform in the church. This paper discusses the ambiguous definition of the emerging church, its effect on Christian thought, and the immense criticism surrounding the movement. In order to assess the longevity of the movement, this paper points to the dynamic history of the Church throughout the years. By

noting the characteristics, flaws, and history of the movement, this paper analyzes the future implications of this ongoing conversation in the church.

Doug Terry

Faculty Sponsors: Jamie Capuzza and Govind Shanadi, Communication

“Western Culture and Foreign Communication: An Examination and Cultural Comparison of the Construction and Delivery of Australian Online News and American Online News”

In a rapidly globalizing society, the phenomenon of intercultural communication is becoming more and more complex. Additionally, interconnectivity between cultures as a result of widespread use of the Internet means that a higher number of people from a greater variety of cultures have the ability to interact with one another. The purpose of this study is to examine the difference in construction and delivery of online messages in the format of online news in a cross cultural setting; that is, specifically Australia Channel Nine Online and CNN Online. To achieve this, story titles from both sites’ home pages were recorded, coded and catalogued to determine differences in such areas as range and scope of subject matter, prevailing topics of social interest, levels of factual news vs. entertainment reporting, differences in levels of regional, national and international reporting and others. By doing this, one is able to ascertain differences in news message construction and delivery and thus determine what contributing factors to these differences may be. Particular interest lies in what manner of (positive or negative) cross-cultural feedback may be addressed through identification of these differences.

Lauren Trumpeter and Stefan Rutsch

Faculty Sponsor: Patricia Matthews, EABA

“Investing in Biotechnology and Specialty Steel: A Focus on Amgen and Allegheny Technologies Inc.”

To date, the federal government has spent over \$2,063,800,000,000 on the bailout, the total property foreclosures have increased 225% from 2006, the unemployment rate has reached 7.6%, and the total national debt is quickly approaching \$11,000,000,000,000. Because our economy is currently experiencing the worst recessionary state since the Great Depression, it is crucial to determine the value of a firm. This enables investors to make informed decisions about the purchase of a stock. In order to make this decision, the top-down approach is used. The top-down investment approach is used to analyze the current situation in which a stock is in. It begins by determining the factors that influence the economic environment. It then goes on to examine the causes for industry ups or downs. The company’ financial statements are then analyzed to determine strengths and weaknesses. The results are then compared to those of their competitors. Finally, the factors mentioned above have an impact on the stock price of the company. These changes in price are analyzed. The “big picture” is created by putting all the sections mentioned above together.

Alan Twaddle, Stephanie Morris, and Krista Yankush

Faculty Sponsor: Jon Scott, Biology

“Cell Signal Transduction and Flagellar Regeneration in *Chlamydomonas Reinhardtii*”

Signal transduction pathways are important in cellular growth and differentiation and in cellular responses to a variety of external stimuli. The unicellular alga *Chlamydomonas reinhardtii* was used as a model for investigating the involvement of two signal transduction pathways during the regeneration of its flagella. Deflagellated *C. reinhardtii* lose their motility, but will regenerate flagella and recover motility within sixty minutes under optimal conditions. Acid-deflagellated cells were allowed to reflagellate in the presence of four inhibitors (colchicine: a microtubular assembly inhibitor; dideoxyadenosine: a cAMP pathway inhibitor; neomycin: an IP3/DAG pathway inhibitor; and EGTA: an inhibitor of Ca^{2+} entry). Reflagellation was measured indirectly as the percent of cells that remained non-motile compared with untreated controls. Each inhibitor slowed reflagellation rates compared with controls. Although the results were consistent with a primary role for the IP3 signal transduction pathway in flagellar regeneration, involvement of the cAMP pathway could not be ruled out.

Becky Unkefer

Faculty Sponsor: Al Gotch, Chemistry

“Catalytic Tar Cracking”

Biomass is an upcoming and renewable source of energy. There are four main processes in which biomass conversion can be achieved however a common significant problem is the formation of tars, which are undesired byproducts. Previous published work indicates the identified tars, such as acids, cresols and furaldehydes, may be successfully cracked by catalytic pyrolysis. This experiment was designed to crack tars through catalytic pyrolysis. A number of catalysts were selected based on their ability to remove oxygen in the form of carbon monoxide or carbon dioxide. This proposed work studies the iron-oxide alumina catalyst and its ability to crack the model tar compounds m-cresol and 2-furaldehyde at relatively low temperatures of 500-700°C. Typically the results showed that more tars were removed but more coke was formed at higher temperatures.

Alyssia Weaver

Faculty Sponsor: Sheri Brugh, Mathematics

“Tuning an Instrument Like a Mathematician”

Are mathematics and music really related? Surprisingly enough, for centuries, mathematics and music have gone hand-in-hand. In fact it was not until the seventeenth century that music was considered an art form as opposed to a science. The relationship between these two fields has sparked interest among professionals in both disciplines. As a result of my research, I have found that music is strongly related to abstract algebra and geometry. In particular, music forms an algebraic structure known as a group in abstract algebra. From this group, musical notes can be further divided into subgroups and cosets. In addition, composers include movements in their musical pieces that are similar to translations and reflections in geometry. Mathematics can also be applied to real-life situations involving music. For example, mathematics can be used to tune an instrument like a guitar by using triangles to find the appropriate placement of frets along the neck of a guitar. In my presentation, I will be exploring how the set of musical notes form a group and how mathematics can be applied to tuning instruments.

Brian West

Faculty Sponsor: Susan Haddox, Philosophy and Religious Studies

"Theology from the Pews: Thinking About War and Peace in the United Methodist Church"

This study begins by looking at recent editions of the *United Methodist Book of Discipline* and moves to a study of how lay members of the United Methodist Church interpret and understand the doctrinal statements included in the *Discipline* regarding war and peace. Recent scholarship on the UMC's *Discipline* has criticized the church for not making the doctrine available to the laity, and therefore the members of the church are left uninformed about the social teachings of the UMC. Through qualitative interviews with members of the United Methodist Church, this project confirms that the doctrines are not being taught in the church. To address this problem, those lay members interviewed offer constructive criticism for the church's leadership, confirming the church's responsibility to teach the social doctrine of the UMC.