

BUTLER UNDERGRADUATE RESEARCH CONFERENCE

ABSTRACTS

ANTHROPOLOGY

Pride and Prejudice: Indigenous Identity and the State in Guatemala and Bolivia. Rosemary Booth, Butler University. Faculty Sponsor: Maria Brockmann-Dannemaier

From the beginning of colonization in Latin America, indigenous populations experienced identity creation at the hands of the colonizers. Today, a similar process continues with the state taking the place of the colonizer in indigenous identity configuration. Using a neocolonial theoretical framework as well as theories about indigenous identity politics, I will analyze the variety of ways in which indigenous populations in Bolivia and Guatemala have been conceptualized in order to serve the interests of the state. I will also examine the ways in which these indigenous populations create their own identities and how these identities may conflict or coincide with those created by the state. I have decided to use Guatemala and Bolivia as case studies for my research because they are the two nations in Latin America in which large portions of the population identify as indigenous.

Conflicting Interests: Archaeology, Racism and NAGPRA. Christopher Green, University of Evansville. Faculty Sponsor: Jennie Ebeling
The Native American Graves and Repatriation Act was passed in 1990 in order to protect Native Americans' material culture and the remains of their ancestors. Unfortunately, such legislation reflects the innate cultural disregard in the United States of Native American concerns. Both the laws, such as NAGPRA, and the culture which creates them need to change in order for Native American problems and resolutions to be legitimized by Euro-Americans. Problems with funding, law vocabulary, and entitlement have hindered large-scale reconciliation between scientists and Native Americans, and legal battles have only worsened the polarization. Archaeologists have a long established culture of elitism and even racism. Native American history has been defined by Euro-American domination in the last 300 years, which has only continued despite legislation like NAGPRA. Beyond the necessary changes needed in NAGPRA law to truly protect Native American heritage, deeper cultural changes must be adhered to by archaeologists in North America to create a harmonious, rather than contentious, working relationship between themselves and Native Americans.

Redefining the Family Post-Placement: Birthmothers and Kinship through the Adoption Lens. Stephanie Harris, Indiana University/Purdue University at Indianapolis, Faculty Mentor: Susan Hyatt

Based on interviews with birthmothers in the Indianapolis area, this project seeks to ethnographically document the experience of women who have placed their children for adoption with the aim of capturing their highly individual experiences as well as what they make of their experience post-placement in both kinship and cultural terms. While most studies of adoption focus on the experience of adoptive families in reshaping the domestic unit, this project asks how mothers regard the children they have relinquished for adoption and examines their understandings of the role these children play in shaping existing family and kinship structures and articulating new structures entirely. Post-placement, do birthmothers think of themselves and their adopted children as biologically related? How are birthmothers' notions of kinship extended to incorporate children that are no longer physically present, or how are these biological relations severed when birthmothers no longer desire to or no longer can maintain a kinship bond with their adopted child? Put simply, what happens to women's notions of kinship when they relinquish a child for adoption? This project situates birthmother experiences in the political, cultural, and social contexts of birth and pregnancy in the contemporary United States, providing a portrait of each birthmother's life history and how their pregnancy and the subsequent adoption shaped that history. Interviews with these birthmothers will thereby provide a lens refracting larger cultural trends with regard to sexuality, birth, pregnancy, and adoption in the contemporary United States.

A Possible Origin for Attention Deficit Hyperactivity Disorder. Mark Kindler, Ball State University. Faculty Sponsor: Evelyn Bowers

This presentation deals primarily with looking at the genetic disorder Attention Deficit Hyperactivity Disorder through an epigenetic stand point based off of the information of the genes involved, and the archeological data present at that time the disorder was said to develop. Through examining this information this report hopes to indicate why the disorder evolved, how it impacts the individual, and the impact the individual has on the social society in which they live.

CONAIE: Struggles and Strategies against an Unstable Government. Brianna Lamoso, Butler University. Faculty Sponsor: Maria Brockmann-Dannenmaier

In the past 30 years, the Ecuadorian government has been challenged by the indigenous population. Ever since 1986, the Confederation of Indigenous Nationalities of Ecuador (CONAIE), one of the most influential indigenous social movements in Latin America, has fought against neoliberal policies and has placed demands to create a plurinational state in the national debate. Despite the political instability within the

Ecuadorian government, in the last twenty five years, indigenous people organized through/by CONAIE have staged non-violent protests and organized national events where they have shown the success of ‘power by numbers’ threatening the power of the government itself. In this paper, I examine CONAIE’s goals, motives, and repertoires of action through time, paying special attention to how neoliberal policies established in the 1990s have affected their struggle. For this, I review the political and economic history of the Ecuadorian state and how its decisions have affected indigenous peoples through time. This historical analysis will help better understand the current context where CONAIE’s struggle takes place and how they challenge the powerful Ecuadorian government. By looking at the effects of neoliberal policies on the indigenous population and their defiance and struggle against these policies, this paper challenges the assumption that neoliberal policies have benefited all Ecuadorians.

The Impact of Indigenous Leadership: A Study of Evo Morales and Subcomandante Marcos. Chris McBarnes, Butler University. Faculty Sponsor: Maria Brockmann-Dannemaier

This research will explore the leadership of both Evo Morales and Subcomandante Marcos. Evo Morales burst onto the political scene in the year 2005, becoming the first indigenous president in Bolivia since some 500 years earlier. Forging himself into a true international icon, Subcomandante Marcos is the inspirational and reserved leader of the Zapatistas in Mexico. Both of these men are fine examples of how leadership can have impactful and long lasting effects on indigenous social movements. Through theory, we will work to unpack the ways in which leadership directly affects the success and progress of indigenous social movements. Lenses used for this particular research include Transformational leadership theory, Servant-leadership theory, and Neo-classical theory. The social and historical contexts of both Bolivia and Mexico have called for Marcos and Evo. Within the body of this research numerous leadership concepts will be explored in order to thoroughly explain this claim.

Embracing One’s Activists Roots: A Case Study on Social Justice Research in Hana, East Maui. Heather Meloy, Indiana University/Purdue University at Indianapolis. Faculty Sponsor: Susan Hyatt

This paper is an exploration of ethical considerations made while balancing employment within a social service agency; the ethical decisions of whistle-blowing within the nonprofit while conducting ethnographic research on activism; and the responsibility to the community. At the end of the day, as an anthropologist who are we beholden to? While ethnographers must be mindful of their motives and be keenly aware of the impact of our decisions, it is the responsibility of anthropologists to take bold stands on controversial issues.

Gendered Legality: Studying Women Within The Legal Frameworks of Urf and Shari’a Law. Paromita Sen, DePauw University. Faculty Sponsor: Angela Castaneda

My study aims to explore the legal roots of the gendered Jordanian society and the impact of both traditional tribal discourse and Shari’a Law on the cultural and thereby legal status of women. By understanding the roots of the legal systems, one stands to gain the impetus for legal change and by extension social change. This social change needs to be rooted in re-reading the culturally patriarchal interpretation and implementation of an otherwise gender sensitive Islamic Shari’a. A return to the spirit of the Quran is called for if one is to hope for better treatment of women in the region.

The Effects of Perception and Ethnography within the Zapatista Movement of Southern Mexico. Patrick Thevenow, Butler University. Faculty Sponsor: Maria Brockman-Dannenmaier

Public perception of social movements can directly affect their success or failure. The Zapatista Movement of Southern Mexico has gained international recognition for their struggle through the presence of international media within the movement which serves as a shield against the Mexican Army, protecting the Zapatistas from aggression through high levels of international scrutiny. While the Zapatistas have built a shield of media for physical protection, images portrayed by the media can both help and hinder Zapatista efforts. The effects of these foreign (mis)perceptions impact greatly the direction and actions of the movement. Through an analysis of the Zapatista Movement itself, its history and the history of its inspiration in Emiliano Zapata, I will attempt to better understand the struggles of this movement and how representations of it are created by foreigners and Zapatistas alike. Building from the framework created by Alcita Rita Ramos in her book *Indigenism: Ethnic Politics in Brazil*, I will analyze the effects of outside perception on the movement. By understanding how those outside the movement build and disseminate perceptions, one can better understand the impact of international attention upon the group. I argue the only means for truly understanding a social movement like the Zapatistas is through engaged ethnographic fieldwork, which allows for the creation of a more holistic, less romanticized view of the movement than through media perception. While ethnography is not perfect, it provides a far better view of the reality of a people or movement than media can ever hope to provide.

The Qawha Brotherhood: A Glimpse of Daily Life in the Rural Middle East. Patrick Thevenow, Butler University. Faculty Sponsor: Elise Edwards

For many the Middle East remains a place of mystery and intrigue; a land vastly different from our own. The people of the Middle East, their culture and religion, their very way of life, are something with which many Americans are completely unable to identify with. While their way of life is indeed different, this presentation attempts to show that while differences abound, we are not so different after all. The story presented was

compiled after four months of living in the Sultanate of Oman. This ethnographic account tells the story of a group of old men and their way of life which was experienced firsthand during my time in Oman. These men gathered every morning, in the same place within a souq (market) in the rural town of Nizwa. The story is written based upon observation and interviews conducted solely in Arabic; none of these men spoke English. They are the last generation of Omanis to remember life before the radical changes which arrived with the discovery of oil and a vestige of this former way of life remains visible in their lives. This story is not presented with any kind of theoretical interpretation; rather as it was originally written in pure narrative form. I am sharing this in the hope those who hear it will recognize something of their own lives in it and will assist in opening eyes and minds to the fact that while mankind is different, in the end we are all still human.

Indigenous Peoples in Eco-Politics. Abby Weber, Butler University. Faculty Sponsor: Maria Brockmann-Dannenmaier

Indigenous peoples of Latin America have been in constant struggle with local and state governments to attain the status and rights of full citizenship. In the Amazon region, in particular, these struggles has left many indigenous groups outside of the political system and are viewed as having a static identity that limits their participation and autonomy within the state. In an effort to gain full citizenship rights, many indigenous groups of the Amazon joined the environmental movement. They did so in hopes that it would draw attention to their struggles of autonomy and self-determination by claiming that their way of life helps preserve the environment. The question remains, however, as to whether indigenous groups benefit from participating with the international environmental movement; or whether the environmental movement is taking advantage of indigenous identities to promote its own agenda? In this paper, I attempt to answer this question by examining four different case studies of indigenous groups of the Amazon living in Brazil, Ecuador, and Bolivia. It is important to note that the country of origin of each indigenous group greatly affects their ability to attain their goals as different countries "deal" with the "indigenous question" in different ways. By analyzing indigenous participation in the environmental movement, this paper also explores the meaning of conservation of the Amazon for these people.

BIOLOGY

Does Damaging Leaves Induce Resistance or Susceptibility to Herbivory in Dogbane? Grant Adams & Kelsy Espy, Denison University.

Faculty Sponsor: Andrew McCall

Apocynum cannabinum (Dogbane) is a perennial herbaceous plant common throughout North America. *A. cannabinum* produces white waxy latex when damaged and is commonly predated on by the dogbane beetle, *Chrysochus auratus* (Hendrix 2004). Castelli & Casper (2002) showed that human visitation increased induced defenses while clipping induced susceptibility to herbivores. Little has been done on how prior damage may affect the extent and position of later damage. Our study addresses position and intensity of predation after human visitation and clipping.

Impact of Oral L-Arginine Supplementation on Reactive Hyperemia. Scotty Banks, Hanover College. Faculty Sponsor: Bryant Stamford

Nitric oxide (NO) supplements have been touted as a way to enhance muscle pump (reactive hyperemia) by increasing vasodilation. The enhanced muscle pump can be explained by nitric oxide's primary physiological function; relaxing smooth muscle, making it a major regulator of blood flow. While it is scientifically documented in the medical field that NO is responsible for increasing blood flow in unhealthy individuals it is left uncertain if NO supplementation can increase blood flow in healthy resistance trained men. The purpose of this study was to investigate the effect of oral nitric oxide supplementation on reactive hyperemia following a one-arm resistance training routine of the biceps, triceps, and forearm. This was a case study consisting of eight test sessions over a twenty-four day period. Subject blindly consumed a placebo or 9g of L-arginine for a total of twelve days. Subject was instructed through four resistance routines on four separate days (Days 3,6,9,12). Subject was given a one-week washout period before the second supplementation period. The second supplementation period was administered and performed exactly the same as supplementation period one. Arm volume readings were assessed on resistance days and taken: pre reactive hyperemia and post reactive hyperemia for the working and non-working arm. Initial findings have demonstrated a slight increase in reactive hyperemia when supplementing L-arginine. Completed data will be presented.

Is Using a Soft Tissue Simulant to Replicate Limbs Useful in Impact Force Studies? Bradley Becker, Jerred McCarty, & David Porta.

Bellarmine University. Faculty Sponsor: David Porta

Airbags are now present in the overwhelming majority of vehicles on the road today. They do an excellent job of protecting the head, neck and torso of occupants during a crash. However, limbs are still at risk for traumatic injury. Crash test dummies are reusable, nonbiofidelic surrogates for passengers. Accident and injury analysis with the traditional crash test dummies such as the Polar I and the Hybrid III is restricted because of the nature of their rigid frame. In order to study actual anatomical injuries to the limbs, dummies would have to be frangible. To that end, we developed artificial limbs from fresh deer femurs and gelatin (Kind & Knox, co.). These were struck with a drop arm impact machine which recorded the amount of force needed to fracture the bone through an Omega DLC-5k transducer. High speed video (300 frames per second) was also utilized to provide visual evidence of the impact for a more detailed examination. The average fracture force for the 4 simulated arms was 6.09 kN. The average for the 4 simulated thighs was 5.30 kN. These were compared to the impact of bare deer bones where the average fracture force was 5.69 kN. t-Tests were utilized to compare the force and anthropomorphic data. The amount of force and force per unit area for bones protected by the artificial tissue was not significantly different than that of the bare bones.

A Limnological Study and Bioassessment of Fish Populations on the Ohio River near Zimmer Power Plant, Moscow, Ohio. Cassi Binkley, Hanover College. Faculty Sponsor: Daryl Karns

The primary objectives of this research study were to determine the potential impacts of the Zimmer coal-burning power plant on the surrounding Ohio River ecosystem and to add to the long-term observations of fish populations on the Ohio River. Over four weeks during the months of June & July, 2010, we collected physiochemical data and conducted a bioassessment of the fish populations upstream and downstream of the power plant. A total of 33 fish species were collected by electrofishing, gill nets, and hoop nets. The Ohio River Fish Index (ORFI) was also calculated to assess the condition of the fish communities at each study site. Overall, the downstream and upstream sites were comparable in terms of abundance, biomass, and the ORFI, but the downstream did contain a higher diversity of species. The physiochemical data showed the typical seasonal range and fluctuation in Ohio River levels for temperature (air and water), pH (s.u.) and dissolved oxygen (mg/L). Turbidity levels, as measured by Secchi disk (m), were atypically high for this time of year due to high precipitation and high river levels. Measurements of conductivity (S/m) downstream of Zimmer proved to be higher than upstream. Overall, these parameters were similar above and below the plant, suggesting that the Zimmer Power Plant is having no significant impact on the ecosystem of the Ohio River near the power plant. One notable exception was the elevated conductivity (S/m) levels below the plant; this indicated a significant source of dissolved solids from the plant's effluent.

Sterilization and Optimal Growth Conditions for *Mnium Cuspidatum*. Hilary Broderick, Butler University. Faculty Sponsor: Phil Villani
Mosses possess many unique and favorable capabilities. These include the ability to grow on surfaces that are inhabitable to other species and to entirely regenerate from only one cell. While these seem like abilities that could be of interest to a researcher, mosses are widely understudied. The land surrounding Butler University contains multiple moss species, but none of them can be used for research without being properly sterilized. This project began by developing a sterilization technique to enable the use of a native moss, *Mnium cuspidatum*. After multiple trials, a technique using a solution of 15% bleach and 1% surfactant for two minutes was developed, and a stock of sterile *M. cuspidatum* was grown. The second step of the project was to determine optimal growth conditions. Nutritional medium, storage tape, agar concentration, and light intensity were each individually examined. Using both qualitative and quantitative observations, it was determined that *M. cuspidatum* grows best in an MS medium containing 5g/L agar, sealed with parafilm, and was not significantly affected by the varying light intensity examined.

Reproductive Biology of Protandrous *Saponaria officinalis*: Pollen Viability, Stigma Receptivity, and Pollinator Efficiency. Emily Carter, University of Indianapolis. Faculty Sponsor: Sandra Davis

Mixed mating among plant species continues to persist despite hypothetical models predicting the evolution of complete outcrossing or selfing. One plant species that exhibits such intermediate characteristics is *Saponaria officinalis*, a protandrous species in which flowers transition from male to female function. Numerous ecological factors are believed to affect the plant's reproduction and selfing probability. These include pollinator type, pollen grain viability, and female stigma receptivity. Randomly chosen individuals growing in a common garden were used to determine selfing and pollination success probabilities. First, inflorescences were bagged exposing flowers to day (bees) or night pollinators (moths). Second, pollen was collected from flowers at 0, 12, 24, 36, and 48 hours after opening. Pollen viability was determined by 1) Lactophenol-aniline blue stain and 2) germination on Brewbaker-Kwack medium. Finally, hand pollinations were made on emasculated flowers at regular intervals after opening. Stigmas were examined via fluorescent microscopy to determine timing for female receptivity. Day and night pollinators were found to be equally effective, with no difference in seed or fruit set from each group ($P = 0.398$ and 0.203). The male phase of flowers lasted approximately 24 hrs, as pollen viability at 0-, 12-, and 24-hour stages were significantly lower than the 36- and 48-hour stages. Stigma receptivity did not significantly increase over the first 36 hours, indicating the female phase does not begin until after a significant drop in male function. Therefore, the likelihood of selfing appears to be reduced due to little overlap between male and female stages.

Effects of Maternal Care on Egg Survival of Ring-legged Earwigs (*Euborellia annulipes*): Surrogate vs. Biological Clutches. Julia Constable, Natsumi Fearnside, & Graham Judge, Earlham College. Faculty Sponsor: Wendy Tori

Female earwigs are known for exhibiting maternal care for their clutches of eggs. We conducted an experiment to answer the following questions: (1) What is the importance of maternal care on egg survival rates?; (2) Can females identify their own clutches or would they provide maternal care to any clutch they are exposed to?; (3) What are the costs of maternal care on female fitness?. We bred earwigs in the laboratory, introduced a male earwig to act as a predator, and analyzed different survival rates of: (1) clutches with no female, (2) clutches cared for by a random female, (3) clutches tended by their biological mother, and (4) two clutches cared for by one female (one of which was her own, and the other, a surrogate clutch). We also analyzed the difference in time required to produce a new clutch between females that cared for their first clutch and females that provided no maternal care (females were removed from their clutches). We found that maternal care plays a vital role in egg survival rate. We also found that females if given a choice between their own clutch and a surrogate clutch, will provide care for their own. However, if they were only given a surrogate clutch, maternal drive seemed to be strong enough that they will care for surrogate clutches as if it were their own. Lastly, we found that maternal care is costly to females. It increased the amount time required to produce a new clutch of eggs.

The Effects of Aspirin, Acetaminophen, Ibuprofen and Naproxen on p53 Tumor Suppressor Protein and an Apoptotic Pathway of Human Non-Small Cell Lung Cancer. David Collins, Bellarmine University. Faculty Sponsor: Joann Lau

Breast cancer is the most common cancer seen among women, affecting ten percent of the world's population, and half of a million cases of lung cancer are newly diagnosed each year worldwide. Anti-cancer drugs have been developed to combat this deadly disease, but alternative therapies are now being suggested. It has been suggested that non-steroidal anti-inflammatory drugs (NSAIDs), which are normally used to treat minor aches and cardiovascular diseases, exhibit a promising chemopreventive effect, particularly for endothelial cancers. The precise physiological mechanisms through which aspirin and other NSAIDs function to provide a chemopreventive effect are unclear; both acetylation of cyclooxygenase and acetylation of the p53 tumor suppression protein have been implicated. In this study, the proliferation and proteins of a known lung cancer cell line, H1793, were assessed in an attempt to determine the importance of protein acetylation in inhibiting the growth of non-small cell lung cancer. The efficacy of the anti-cancer drug/topoisomerase inhibitor, topotecan (TPT), was assessed on its own at varying concentrations and in combination with maximal therapeutic plasma concentrations of four different NSAIDs: aspirin, acetaminophen, naproxen and ibuprofen. Data indicates increased cell death in the presence of aspirin and acetaminophen when combined with TPT, showing that some of aspirin's helpful cancer-fighting effects can be attributed to the acetylation of p53 due to similar acetylation by acetaminophen seen in Western blotting. This is important because aspirin, acetaminophen and other drugs with acetyl groups will be able to be studied in the future as helpful aids in chemotherapy regimens.

The Impact of Postactivation Potentiation on Vertical Jump Performance. Matthew Dahle, Hanover College. Faculty Sponsor: William Tereshko

The purpose of this study was to determine if a maximum voluntary isometric contraction (MVIC) could elicit a postactivation potentiation (PAP) response to improve vertical jump performance. This study also investigated the optimal time when executing the MVIC to achieve the maximum PAP response. An MVIC is the peak force produced by a muscle as it contracts while pushing against an immovable object. PAP is the increase in contractile ability of a muscle following a stint of previous contractions. The subjects were ten college-aged athletes recruited from sports requiring skilled jumping. Maximum vertical jump height was measured on the Vertec before and after each MVIC with 4-minute rest periods before and after the MVIC. The time intervals tested when executing the MVIC were 3, 6, 9, 12, and 15 seconds. Subjects performed one MVIC at a knee angle of 120° each session with at least one day of rest in between sessions. An isometric squat on a customized power rack served as the MVIC exercise. The difference between maximum jump heights reflected PAP response. It was hypothesized that the 3-, 6, and 9-second MVIC would increase vertical jump, and the 12- and 15-second MVIC would decrease vertical jump. The 6-second and 15-second MVIC respectively were hypothesized to increase and decrease vertical jump the most. Pilot data support the hypotheses, and full data will be presented.

It Must be in the Water: In vivo Methodology to Determine Endocrine Disruptors in Aquatic Environments. Grace Dible, Marian College. Faculty Sponsor: Rod Macrae & Sara O'Brien

Recent studies have started to show a greater appearance of endocrine disruptors in the environment. These chemicals act as hormone mimics or excitors that may alternate an organism's physiology. The endocrine disruptors of most concern are those found in aquatic environments that may come from pesticide runoff and trace of birth control found from waste water treatment facilities. Atrazine, Bisphenol A (BPA), and 17 β -estradiol are chemicals of current concern. The EPA started testing for possible endocrine disrupting chemicals in 1996 when research demonstrated the feminization of fish and frogs. Most endocrine disrupting screening programs currently measure the amount of chemicals present in aquatic environments, including drinking water sources; however, the ecological and biological relevance is less known. Our experiment proposes a novel technique using quantitative back scattering light spectroscopy measurements on the model organism medaka (*Oryzias latipes*) to examine the relevant effects of proposed endocrine disruptors. These transgenic fish have a reporter gene, green fluorescent protein (GFP), in their liver tissue, which is expressed under estrogen excitation due to the production of vitellogenin, a protein precursor for egg production. Female medaka express GFP in normal aquatic environments, while the males do not express the gene. Our study sets out to develop an in vivo technique that measures the degree of endocrine disruptors via the amount of GFP fluorescence, hence the feminization of both sexes. Overall, this study seeks to elucidate the sub-lethal and real-time effects endocrine disruptors have on bioactivity.

Regulation of Inhibitory Synaptic Transmission at the Neuromuscular Junction by the Anaphase Promoting Complex in *C. elegans*.

Hitesh Dube, Butler University. Faculty Sponsor: Jennifer Kowalski

The human body functions properly due to the nervous system and its specialized cells, neurons, which communicate via neurotransmitters (chemical signals) at synaptic junctions. Although much is known how synaptic transmission occurs, many of its regulatory mechanisms remain unidentified. Previous experiments identified the Anaphase Promoting Complex (APC) as a regulator of synaptic transmission. The APC is a well characterized ubiquitin ligase that signals proteins for degradation in many cell types; however much remains unknown regarding its function and target proteins in neurons and at synapses. To study APC function in synaptic transmission, I used the *C. elegans* roundworm as a model organism, due to the simplicity of its nervous system. I used behavioral and pharmacological assays to investigate the neuromuscular junction (NMJ), a specialized synapse between neurons and muscle cells where a balance of excitatory and inhibitory motorneuron signaling controls

muscle contraction. APC activity is required to prevent excessive contraction at the NMJ likely by acting in one or both presynaptic motoneuron classes. I hypothesized that the APC acts presynaptically to control inhibitory transmission. In several pharmacological assays, I found that APC loss of function mutants exhibited phenotypes similar to mutants with inhibitory transmission defects. Thus, the APC appears to regulate inhibitory signaling. Additionally, preliminary results from experiments with APC mutants that had APC functionality restored only to inhibitory neurons indicate that APC activity in inhibitory neurons is sufficient for normal synaptic transmission. Current work is aimed at confirming these results and testing for an additional role in excitatory motoneurons.

PCR Analysis for Identification of Airborne Pathogenic Fungi. Christopher England, Bellarmine University. Faculty Sponsor: Joanne Dobbins

Historically, the identification of *Aspergillus* and *Penicillium* had been based on the morphological structure of the fungal pathogens, including the microscopic view of the fruiting bodies. The two fungi appear similar in their morphological features until full maturity when the key differences can be seen microscopically and macroscopically. The time needed for the fungi to fully mature is approximately two weeks. This study examines a more time efficient manner of identifying these fungal species by use of PCR. For this study, the time allotted for the fungi to grow was decreased from fourteen days to 72 hours, which does not allow the fungi to fully mature. The primers for the PCR were obtained from previously published data and were combined to identify certain fungi. Two of these primers were combined to screen samples for the presence of either *Aspergillus* or *Penicillium*. The band sizes for the two fungal genera allowed for the distinction between them. The primers used to detect *Aspergillus* were combined with another species specific primer set which allowed for the distinction between *Aspergillus fumigatus* and *Aspergillus flavus*. This method will also be used to distinguish between species of the *Penicillium* genus, such as *Penicillium chrysogenum* and *Penicillium notatum*. This PCR method has shown accuracy in identifying fungal pathogens within three days, which adds an extra dimension of accuracy. This study can be applied to the medical field as a diagnostic tool for the detection of *Aspergillus* sp. in the respiratory tract, commonly known as Aspergillosis.

Does Leaf Damage Induce Anti-Herbivore Defenses in *Raphanus sativus* Petals or Pollen? Kelsy Espy, Denison University. Faculty Sponsor: Andrew McCall

Different plants have the ability to change in response to their herbivore environment by adjusting their constitutive or inducible defenses (Karban and Nagasaka 2004). Chemical defenses have been found in the petals of *Raphanus sativus* (Strauss et al. 2004), however it is unknown whether these are induced defenses, or if there are defenses in the pollen as well. Therefore we were interested in whether or not induced defenses vary between petals and pollen of the same plant. We also looked to see if any patterns were dependent upon flower color. Our results showed that *S. exigua* larvae that fed on pollen gained significantly more weight than those insects fed on petals, and when fed petals; control insects gained significantly more weight than insects on experimental plants in maternal family line 1 only. This shows that there were defenses induced in the experimental treatments, but that the strength of induction differs among maternal family lines. There was also a significant color by damage interaction such that larvae on damaged plants weighed less than those on undamaged plants but only for white flowers.

Comparison of Turtle Population Structure and Parasite Load in a Closed Spring-fed Pond and an Open Dredged Canal: Does Disturbance Matter? Cassie Freestone & Lauren Steele, Marian College. Faculty Sponsors: Sara O'Brien, Marian College & Travis Ryan, Butler University

Examining parasite-host relationships is a developing area of biology and ecology with concern focused on the possible effects of parasites on an organism's life history and overall fitness. Research shows turtles to be a vital species monitored when assessing overall ecosystem quality by counting ectoparasite infestation. The main objective of this study was to compare the ecosystem construct and ecosystem health of a closed, spring-fed, environment of low human disturbance (Marian University Ecolab, Indianapolis, IN) and an open, dredged, heavy disturbed environment (Central Canal, Broad Ripple, Indianapolis, IN). In this study, turtles were captured, processed, and examined over the period of June-October for ectoparasite, blood parasite and bacterial load. Species diversity, abundance, turtle age, morphology and sex ratios were also noted. Upon comparing the current results of these data with previous data from the Central Canal, we found that the turtles from the Ecolab had a lower total leech infestation, different species diversity, and varied age and size structure. Ecolab species diversity was more limited with a tendency of catching aerial baskers rather than bottom-dwellers, however, species found in high abundance in the Ecolab compared to the canal, were larger in size. Overall this study provides preliminary results to elucidate the effects of human disturbance on the eco-physiology of a long-lived native Indianan species and provides a springboard for future work examining the complexities of such issues.

The Cloning and Analysis of a Cytokine-like Gene in Hermit Crabs (*Coenobita clypeatus*). Elizabeth Gabel, Millikin University. Faculty Sponsor: Samuel Galewsky

Cytokines are small cell-signaling molecules that are secreted by many immune cells and are a component of innate immunity. Although innate immunity is fairly well understood in mammals, it is not as studied in invertebrates outside of *Drosophila*. Previous research shows that Spätzle is a cytokine-like molecule found in *Drosophila* and is required in the Toll signaling pathway. ProSpätzle is cleaved by a protease into an active

molecule that binds the extracellular region of the Toll receptor and causes a phosphorylation of the intracellular Toll/Interleukin-1 Receptor domain, which activates a signaling pathway. A Spätzle-like protein has been identified in Chinese shrimp (*Fenneropenaeus chinensis*). This provides a potential conserved sequence to identify Spätzle in other invertebrates, such as hermit crabs. Hermit crabs (*Coenobita clypeatus*) can serve as potential model organisms because they are a novel organism with little molecular data known. Previous research has shown that hermit crabs have a behavioral response indicating pain, but no work has been carried out to demonstrate an inflammatory or immune response at the molecular level. We have successfully cloned a Spätzle cytokine-like gene that shares strong identity with the Spätzle-like protein of Chinese shrimp and highest identity with Spätzle from salmon louse (*Lepeophtheirus salmonis*). We are currently defining the tissue distribution of Spätzle using reverse transcription-polymerase chain reaction (RT-PCR) and investigating possibility that Spätzle is expressed during an immune response in the hermit crab.

Optimal Foraging and Decision-Making in a Plasmodial Slime Mold. Noah Gettle, Earlham College. Faculty Sponsor: Chris Smith
Organisms foraging for resources patchily distributed throughout their environments must be continuously making decisions about how much time to spend in a given patch and when to continue searching for other patches. These decisions are often complex, requiring due consideration of multiple factors including resource quality, travel time to patch, and proximity and quality of neighbor patches in order come to the optimal outcome. According to optimal foraging theory, however, it is presumed that all organisms do just this, optimizing energy intake per unit time. Although this theory has been successfully tested on number of higher order organisms few studies have examined foraging behaviors in more “basic” organisms. This study examined the effectiveness of decision-making in the single-celled, multi-nucleated slim mold *Physarum polycephalum*. By examining behavioral responses to variations in food patch quality and distances to food patches, we tested the predictions of optimal foraging theory in a single-celled organism that does not possess a central processing center, a characteristic typically associated with complex decision-making.

Acoustic Competition May Help Explain Dusk Singing in Veeries. Joel Hogle, Earlham College. Faculty Sponsors: Kara Belinsky & Wendy Tori
Birds singing in a group, such as those singing in the dawn chorus, must face the constraint of acoustic competition when the songs of other birds mask their songs. Many studies have demonstrated that birds adjust the short-term timing of their songs to avoid overlap with other songs, but birds may also avoid acoustic competition in other ways. In this study, we test the hypothesis that veeries, *Catharus fuscescens*, sing at dusk to compensate for the acoustic competition they experience at dawn. We recorded natural samples of veery song to compare the number of times their songs were masked by heterospecific songs and to identify the species masking their songs at dawn and at dusk. We found that veery songs were masked more often at dawn than at dusk overall, and that a larger number of species were responsible for the masking that occurred at dawn. We conclude that increased acoustic competition may partially explain why, in addition to singing at dawn, veeries and other thrushes also sing at dusk.

Optimal Foraging in Leafcutter Ants: A Study on Ant Size, Speed, Collisions, and Leaf fragment Size and Shape. James Hood, Earlham College. Faculty Sponsor: Wendy Tori
Leafcutter ants cut and carry leaf fragments back to their nests to cultivate fungus in underground gardens. Optimality theory suggests organisms forage to maximize their energy intake per unit of time. Foraging efficiency can be affected by factors such as leaf fragment size (with respect to ant size), ant speed, leaf shape and number of collisions. Previous studies on leafcutter ants have shown a positive relationship between ant size and the size of leaf fragment carried, as well as variation in ant velocity based on leaf fragment size and ant size. Here we conducted a natural experiment and documented some basic characteristics (head width, size of leaf fragment, speed, shape of leaf fragment, and number of collisions between ants) of foraging ants from a night-active colony of *Atta cephalotes* in the Amazon rainforest of Peru. Our goal was to test foraging relationships observed in lab experiments, expanding upon natural experiments in a less studied region. The expected positive relationships between ant size and size of leaf fragments as well as between ant size and speed were shown to be significant. After normalizing for head width, a negative relationship between size of leaf fragment and ant speed was found. Leaf shape didn't affect speed or number of collisions significantly and ants didn't prefer a specific leaf shape. No discernible pattern was shown with number of collisions or traffic patterns based on observations. The implications of our results in light of previous studies are discussed.

Does Atrazine Induce Sex Reversal in American Toads (*Bufo americanus*)? Tyler Hoskins & Christopher Hess, Butler University. Faculty Sponsor: Christopher Hess
Atrazine is the most commonly used herbicide in the United States and is also the most ubiquitous pesticide contaminant in ground and surface water. Previous research has shown atrazine to act as an endocrine disruptor, causing demasculinization, testicular oogenesis, and even complete sex reversal in male amphibians. These studies have focused primarily on aquatic frogs (such as those of the genera *Rana* and *Xenopus*) and suggest marked variation in response to atrazine, even among closely related species. We exposed wild-caught American toads (*Bufo americanus*) to ecologically relevant doses of 0, 0.1, 1, and 25 ppb atrazine throughout the larval period, in order to determine if the toad's more terrestrial life history affects its susceptibility to the herbicide. Preliminary findings indicate that atrazine exposure may significantly affect mass

at metamorphosis, a major predictor of survivorship in the terrestrial environment. Ongoing histological examinations of preserved gonads will more thoroughly indicate the morphological effects of atrazine as they relate to gonadal development and differentiation.

Self-Thinning and Neighborhood Competition in Stands of Black Cherry (*Prunus serotina*) with Varying Soil Qualities. Susan Jeffery & Michael Warner, Earlham College. Faculty Sponsor: Brent Smith

Soil quality has an influence not only on growth of individual plants but also on patterns of self-thinning and the influences of density-dependent mortality and neighborhood competitive effects. Studies have shown that different soil qualities can cause predictable deviations from the $-3/2$ thinning line expected by Yoda's law. Here we analyze data from a 23-year study of survivorship and growth that began in 1987 in near-monoculture even-aged stands of *Prunus serotina*. The study was initiated before thinning began to occur and includes data from two study sites with extremely different soil qualities, allowing us to see differences in growth and mortality, competitive effects, and self-thinning between similar stands in different soil conditions. There was also variation in density among plots in one of the sites. Despite differences in soil quality, we found thinning lines that supported the $-3/2$ power law in all study sites. In regards to neighborhood effects, we did not find a significant relationship between survival and proximity of neighbors in 1987. We found that the initial height for individual trees in 1987 and the trees' relative heights compared to their original neighbors in 1987 were the greatest determinants of survivorship, regardless of distance from its neighbors. The levels of competition the trees experienced were influenced by soil quality (which set the growth rate) and starting density. Trees in plots with high soil quality and therefore high growth rate experienced density-related competitive effects much earlier than in plots with low quality soil.

Development of the Tobacco Hornworm (*Manduca sexta*) Under High Temperature Stress and Varying Nicotine Concentrations in the Diet. Chris Jernigan, Butler University. Faculty Sponsor: Carmen Salisbury

The primary focus of this study was to determine if environmental stressors can decrease the survivability of specialist species. The larval tobacco hornworm, a lepidopteran species, specializes on plants of the family Solanaceae such as tobacco and tomato plants, and is able to tolerate high levels of the nicotine in its diet. In this study, I monitored the growth and survival rates of larval hornworms grown on diets containing varying levels of nicotine under different environmental temperatures. I predicted that high temperature stress might hinder the ability of the larvae to metabolize high levels of nicotine and this would be manifested in decreased growth rates. I raised three groups of 15 larval hornworms from hatching to pupation or death on three diets: control (no nicotine), low nicotine, and high nicotine. The larvae were raised at 27°C and their weights were recorded every two to four days. The experiment was repeated at 32°C. The results of the experiments did not clearly support my prediction. At 27°C, larval growth rate was much higher among controls compared to the nicotine groups. However, all groups suffered high levels of mortality at 27°C. At 32°C, the control group had higher survivorship to pupation compared to the nicotine groups. While there were discernable differences between the control and the nicotine groups at each temperature, there were no clear differences among the high and the low nicotine diets.

Alteration of Dihydrofolate Reductase's Metabolic Rate. James Kincaid, Bellarmine University. Faculty Sponsor: Joann Lau

Dihydrofolate reductase (DHFR) is a 187 amino acid enzyme that plays a vital role in both regulation of cellular metabolism and control of cellular growth. It acts as a catalyst in the reaction of dihydrofolic acid (DHF) to tetrahydrofolic acid (THF) through the oxidation of NADPH to NADP+. A defect in the DHFR gene has been linked to many disorders, including those characterized by the blockage of DNA synthesis. Site-directed mutagenesis has been performed on DHFR at a number of different locations. Most notable of these changes have been in regions associated with substrate or NADPH binding, which caused either higher or lower affinities for the respective substrates. In this experiment, pET21-DHFR-GST-His plasmid was used for site-directed mutagenesis of DHFR. Eight different mutations were generated. Amino acid 65, Asparagine was mutated to Glutamine, Tyrosine, Serine, or Aspartic acid. Glutamine, amino acid 36, was mutated to Alanine or Asparagine. The 57th and 71st amino acids, Threonine and Arginine, were mutated to Aspartic acid and Lysine respectively. Expression and functionality of site-directed mutagenesis on DHFR were analyzed through western blotting, spectrophotometry and DNA sequencing. Data supports both the successful mutation of DHFR, as well as the ability to alter its metabolic rate on dihydrofolic acid and NADPH. Because of the immensely important role DHFR plays in metabolic regulation further knowledge of the protein is important in understanding its activity in the cell.

Reproductive Traits of the Nebraska Spiny Softshell Turtle (*Apalone spinifera*). Matthew Lachiusa. Earlham College. Faculty Sponsor: John Iverson

Spiny Softshells (*Apalone spinifera*) have the third largest range of any North American turtle species (Buhlmann et al. 2009). However, due to their elusive and highly aquatic life style, softshells are difficult to study, so many of the details surrounding their life history remain unknown. We investigated reproductive traits of Spiny Softshells, such as the number of clutches produced per breeding season, clutch size, and egg mass, and we examined whether these traits correlated with adult female size. In the summer of 2010, we used fyke nets to capture gravid females from Rattlesnake Pond near Blue Creek in the Sandhills of western Nebraska. Females were measured and weighed, as well as x-rayed to determine clutch size. Data from previous studies of this species across North America were also compiled to ascertain whether these reproductive traits vary geographically. This research was supported by the Stephen and Sylvia Tregidga Burges Endowed Research Fund.

A Six-year Study of Demography and Habitat Distributions of Three Amphibian Species at a Temporary Pond in Central Ohio. Tian Lan, Denison University, Faculty Sponsor: Rebecca Homan

We conducted a six-year study of spotted salamanders (*Ambystoma maculatum*), wood frogs (*Rana sylvatica*), and American toads (*Bufo americanus*) at a relatively undisturbed pond, to understand how amphibian populations change over time and how individuals are distributed in the upland habitat. Using a single drift fence encircling the breeding pond, we captured all animals entering and leaving the pond. We found that over six years, adult breeding populations of each species fluctuated, with low of 16% annual change (spotted salamanders) and high of 379% annual change (American toad) between consecutive years. Additionally, the sex ratios of adult spotted salamanders were not uniform across years, with a bias in favor of males. Numbers of emergent juvenile amphibians varied dramatically across years, ranging from about 77,000 juveniles (wood frogs) to zero recruitment (all species), in a given year. For habitat distributions, we found that the adults of all three species oriented their migrations non-randomly to the pond each year, except for one year for American toads. Significantly, most of adult spotted salamanders and wood frogs chose the habitat with older, more extensive forests without an edge (East) across years. In contrast, adult American toads showed no consistent habitat use patterns. For juvenile amphibians, all three species migrated toward habitats non-randomly each year; however, there were no clear patterns across years. Our study suggests that characteristics of surrounding habitats play a role in determining amphibians' terrestrial habitat choices. Furthermore, our study aids in conservation managements and addresses the importance of long-term studies.

Impact of Muscle Size on Blood Pressure Response During Exercise. Abby Lauber, Hanover College. Faculty Sponsor: William Tereshko

The importance of blood flow distribution during whole-body exercise, such as running or jogging is investigated heavily among health and exercise professionals with the result indicating that the body competes for blood flow to distribute oxygen to the working muscles. What happens when just one muscle group exercises in a non-competitive setting such as rehabilitation? The answer lies among the body's adjustment in the vascularization in the independent working muscle. The purpose of this study was to investigate the impact of muscle size during and after aerobic exercise on blood pressure response. Ten male, college aged athletes performed one and two-legged exercise on a cycle ergometer to measure the impact of muscle size on blood pressure during exercise. The size of the quadriceps muscle mass was manipulated to find the blood pressure response using one leg as the small mass and two legs as the large mass. One and two-legged cycling was performed on a cycle ergometer. Heart rate was measured using a Polar heart rate monitor, while the blood pressure was measured using a stethoscope, cuff, and sphygmomanometer. It was hypothesized that the small muscle mass will generate a higher blood pressure response during exercise and immediately after exercise. Data collection is still ongoing, but considerable evidence shows that one-legged cycling produces a higher blood pressure response during exercise than traditional two-legged cycling. Also, blood pressure response in the leg after one-legged exercise is significantly higher in the working leg compared to the non-working leg.

Eradication of Periwinkle over Two Years: Hope for Invaded Forests. Brian Lawrence & Darrin Rubino, Hanover College. Faculty Sponsor: Darrin Rubino

Periwinkle (*Vinca minor* L.) rapidly creates a dense groundcover if it escapes into regional forests. Similar to other invasive species, periwinkle disrupts native species assemblages and alters the ecology of the forest community. This study assesses the removal of *Vinca minor* by herbicide treatment and subsequent reestablishment of native flora over a two-year period. Eradication methods were spray to drip and a single pass of herbicide (glyphosate). Previous studies have demonstrated the efficiency of these herbicide applications and their limited detriment on the understory community. In one forest, drip application of herbicide reduced periwinkle cover from ca. 100% to $3.8 \pm 4.0\%$ (SD) after one year. In this forest, plots were established for future monitoring of species richness and periwinkle cover. In a second forest that was treated two years ago, the two herbicide application techniques were reapplied. ANOVA showed both application methods led to a significant decline ($F = 42.06$, $P < 0.05$) in periwinkle cover after two years, but the spray to drip method appeared to be more effective in reducing periwinkle cover. Species richness significantly increased ($F = 11.34$, $P < 0.05$) in sprayed plots when compared to untreated, invaded plots. There was no significant difference between the application types. The findings suggest that removal of periwinkle from forests likely requires multiple herbicide applications over several years. Depending on the application method, species richness of the treated plots can match that of the adjacent, noninvaded forest.

RT-PCR Analysis of the 14-3-3 Gene Leonardo after Oxidative Stress in *Drosophila Melanogaster* Mutants. Jessica Lindemann, Millikin University. Faculty Sponsor: Samuel Galewsky

A number of cell signaling pathways have been implicated in the oxidative stress sensing system including the insulin growth factor receptor, the Ras/Raf and the mitogen activated protein (MAP) kinase pathways. One critical integrating component in these pathways is the 14-3-3 protein. 14-3-3 proteins are a highly conserved class of cytoplasmic signaling molecules in eukaryotes. We have examined the effects of oxidative stress, induced with the herbicide paraquat, in *Drosophila melanogaster* on leonardo and epsilon 14-3-3 genes. Through genetic manipulation of the two 14-3-3 genes we can alter the fruit flies' response to oxidative stress. Lower levels of 14-3-3 protein apparently cause an increase in oxidative

stress resistance. To further our study, we have used Reverse Transcriptase-PCR to assay gene expression levels of leonardo transcript in leonardo and epsilon mutant flies exposed to 0 mM, 2.5 mM and 5 mM concentrations of paraquat.

In vivo Expression of Cloned *Saccharomyces cerevisiae* S-adenosyl-L-methionine (SAM) permease (SAM3 gene) Facilitates Uptake of SAM by *Escherichia coli*. Blake Markwell, Millikin University. Faculty Sponsor: Jeffery Hughes

Studies of the ubiquitous nucleotide S-adenosyl-L-methionine (SAM) are complicated by its inability to cross cell membranes. Consequently, research on SAM metabolism in *Escherichia coli* is limited to the use of cell extracts, toxic methionine analogs and imperfect mutant strains to block or modify its synthesis. The yeast *Saccharomyces cerevisiae* produces a transmembrane SAM permease encoded by the SAM3 gene that facilitates the import of exogenous SAM. To test the potential of in vivo SAM3 expression for allowing SAM uptake in *E. coli*, the SAM3 gene was cloned into the expression vector pUC18 to produce pSAP1. *E. coli* K-12 strain GW2558, a SAM-deficient strain with a constitutively expressed metF::lacZ reporter gene normally repressed by SAM, was then transformed with pSAP1 and incubated with SAM to assess SAM-dependent repression of the metF reporter. While the presence of pSAP1 itself repressed metF expression to some level when compared to pUC18-transformed controls, it also produced a significant dose-dependent reduction in reporter expression over a 1mM – 10mM SAM concentration range. These significant effects were dependent on both the presence of pSAP (F1,40 = 873.3; p<0.001) and the dosage of SAM (F4,40 = 19.13; p<0.001). Additionally, SAM dosage effects depended on the presence or absence of pSAP (F4,40 = 3.762; p<0.05). Future studies will attempt to verify the results with more direct measures, while examining the apparent pSAP-dependent reduction in metF expression.

Drugs Used to Treat Neuropsychiatric Disorders Affect Alpha-7 Nicotinic Acetylcholine Receptors. Sean McGuire & Ross Price, Earlham College. Faculty Sponsor: Robert Rosenberg

Nicotinic acetylcholine receptors (nAChRs) are ligand-gated ion channels that are pentamers of alpha and beta subunits (alpha 1-10, beta 1-4). nAChRs are expressed throughout the central nervous system (CNS), peripheral nervous system (PNS), and at the neuromuscular junction (NMJ). Binding of the neurotransmitter acetylcholine or other agonists causes the ion channel to open, allowing influx of cations, and causing membrane depolarization. We focused on alpha-7 nAChRs which modulate neurotransmission in the CNS, including dopaminergic and serotonergic pathways. nAChR activity plays a role in many neuro-psychiatric disorders such as depression, addiction, Alzheimer's disease, Parkinson's disease, schizophrenia, ADHD, and chronic pain. Our research examined drugs that are in use or in development for the treatment of these disorders. Specifically, bupropion is a dopamine/NE reuptake inhibitor used to treat depression and nicotine addiction. Zimelidine and fluvoxamine are SSRIs used to treat depression. Gabapentin is used to treat neuropathic pain, epilepsy, and other disorders. Ziprasidone is used for treatment of schizophrenia and bipolar disease. The complete, detailed mechanisms of most of these drugs are still not completely understood. The goal of our research was to test the hypothesis that these drugs could modulate the activity of alpha-7 nAChRs as part of their pharmacological action. We obtained evidence that bupropion and zimelidine are competitive inhibitors of alpha-7 nAChRs and that fluvoxamine is a non-competitive inhibitor. The administration of gabapentin produced no significant change in channel activity. Thus, the pharmacological actions of some reuptake inhibitor anti-depressant drugs may include alpha-7 receptor blockade.

Survey of Terrestrial Vertebrates and Invertebrates on North and South-Facing Slopes in Southeast Indiana. Shawna McLetchie, Hanover College, Faculty Sponsor: Daryl Karns

North and south-facing slopes exhibit different microclimates. I surveyed terrestrial invertebrates and vertebrates on north and south-facing slope transects and along a creek in a forested valley located in southeastern Indiana. I used thermal data loggers to monitor the thermal environment of the creek and two slopes. I surveyed animals by recording the abundance and diversity of taxa under natural cover objects (woody debris and rocks, n=50 cover objects for each transect) over an eight week period in fall of 2010. The south slope maintained a statistically (P<0.001) much higher temperature (27±3.0°C) under its cover objects than the north slope (17.6±0.8°C) which was still warmer than the creek (16.0±0.9°C). Though the total number of animals did not vary among sites (chi-square = 0.73, P=0.394), some taxa did exhibit differences in numbers among the sites. Even though there was a significant decline (chi-square = 373.74, P<0.001) in the total number of animals found in the first four weeks (1822) and the second four weeks (827), some animals, such as the millipede, centipede, and pillbug, peaked in number in the middle of the study before declining while others, such as the spider and salamander had more numbers in the second month of the study. Ants made up at least 60% of the biomass under cover objects in all sites. The creek exhibited a greater abundance of non-ant animals (313) compared to the north (213) and the south slope (174) and therefore had the most animal activity underneath more cover objects.

Growth Responses of Sweet Basil (*Ocimum basilicum*) to Nutrient Limitations and Varied Substrate Grain Size. Rebekah Miller, Michelle Bahnick, & Emma Cohn. Earlham College. Faculty Sponsor: Brent Smith

The effect of soil grain sizes, nutrient availability, and their interaction on plant growth have spurred many studies. However, the complexities of plant growth systems and limitations make it difficult to establish an overarching model. This experiment measured the growth of *Ocimum basilicum* planted in three soil types: clay, loam and sand. These were subjected to nutrient regimes that differed in nitrogen, phosphorus, and potassium concentration. Seedling thinning and transplantation were required to set one plant per pot and in equal replicates across treatments. Regular measurements of stem height, leaf length and number were taken. The plants were harvested, dried and weighed, 38 days after

transplantation. Percent mortality associated with transplant shock were highest in clay, lowest in sand, and did not differ between nutrient treatments. Differences in height, leaf length, and number of leaves were significant between soil types and nutrient treatments; the interaction between these factors was also significant. Plants grown in clay consistently showed the least growth; loam showed the greatest height growth; and sand had the longest mean leaves, and most biomass. Among nutrient treatments, plants grown with no added nutrients had the least biomass, while those grown in high N, P, and K had the most biomass. Poor performance in Clay might have been due to lower water absorption of small-particle soil. Without a study of the full lifespan it is impossible to determine whether the interaction of nutrients in different soil types follows the law of the minimum or multiple limitation hypotheses.

Impact of AD/HD Medications on Physiological Responses to Exercise. Alexis Morgan, Hanover College. Faculty Sponsor: Bryant Stamford
The purpose of this study was to examine the impact of Attention-Deficit/Hyperactivity Disorder (AD/HD) medications on physiological responses to exercise. In this study, the cardiorespiratory and muscular fitness of one male and one female participant was tested. Medication status was the independent variable in this study. Cardiovascular and respiratory measures were taken while the subjects performed moderate intensity exercise on a cycle ergometer. The dependent variables were heart rate, oxygen consumption, and respiratory exchange ratio. In the evaluation of muscular fitness, the participants' maximum muscular strength and muscular fatigue index of knee extension and elbow flexion movements were measured and recorded as dependent variables. It was hypothesized that AD/HD medications will: (1) elevate heart rate at rest; (2) elevate heart rate during submaximal intensities of exercise; (3) not affect oxygen consumption; (4) not affect respiratory exchange ratio; (5) not affect muscular strength; (6) not affect muscular endurance. Data is still in the process of being collected.

Relationship of Carapace Size to Major Claw Size in Male Fiddler Crabs. Julia Nawrocki, Ball State University. Faculty Sponsor: Tim Carter

Sexual dimorphism is a common occurrence within many species and one such example is within fiddler crabs. In this study, two species of fiddler crabs *Uca pugnax* and *Uca pugilator* were examined on Sapelo Island, Georgia. The objective was to determine if the major claw of male crabs grew at an even rate with the body size in both species. To do this 100 males of each species were captured and then the length, width, and height dimensions of both the major claw as well as the body carapace of each individual. A crude volume was then calculated to create a crude volume measurement of the claw size and body size, separately. A linear regression was then run to determine if there was a relationship between the two body components. It was found that there was a relationship within the *Uca pugnax* species and the major claw grew at a fairly steady rate in relation to the body size. There was no consistent relationship found within *Uca pugilator*. The results supported the original hypothesis that *Uca pugnax* required this relationship because they used their claw in male-male combat, whereas the *Uca pugilator* major claw's main goal is to attract a mate and a larger claw generally yields greater sexual success.

Seed Preference at Artificial Feeders in Common Eastern North American Birds. Phoebe Oaks & Lauren Shade, Earlham College. Faculty Sponsor: Wendy Tori

Optimal Foraging Theory states that animals forage in ways that confer the highest net rate energy intake (Pyke et al. 1977). Thus, seed-eating birds should select the most profitable seed type(s) available. In this study, we compared the seed preferences of common Eastern North American birds with different foraging methods. We set up three artificial feeders—one of each with sunflower hearts, black oil, and gray striped sunflower seeds—in a goldenrod field near an open forest edge. We recorded the number of visits every species made to the feeders during 30 minute trials between September and November 2010. Carolina Chickadees (*Parus carolinensis*), Tufted Titmice (*Parus bicolor*), American Goldfinches (*Carduelis tristis*), and House Finches (*Carpodacus mexicanus*) had large enough sample sizes to allow us to conduct statistical analysis. We found that, in our study site, Carolina Chickadees and Tufted Titmice showed a significant preference for black oil sunflower seeds over gray-striped sunflower seeds, but no preference when compared with sunflower hearts. Conversely, American Goldfinches and House Finches did not show a significant preference for any seed type. Caching birds as a group made significantly more visits than expected to the black oil feeder, and the same was true for non-caching birds and the hearts feeder. This likely reflects the higher profitability of consuming hearts on site due to their lack of a shell and/or the benefits of selecting seeds with shells for caching (i.e., protection from robbers, weather, and/or decay).

Fire Effects at Prairie Border Nature Preserve. Jessica Orr, Purdue University, North Central. Faculty Sponsor: Vanessa Quinn

In the Nature Conservancy's Prairie Border Nature Preserve, fire is used to control invasive species and promote native species diversity by removing thatch, opening up the canopy and recycling nutrients. In order to determine fire effectiveness in promoting native species diversity, species diversity in two sites was examined. Both sites were planted in 2004 with the same seed mix and experience the same soil and hydrological conditions. The only difference between them is their burn regime: one site was most recently burned in 2010 while the other was burned in 2007. Percent cover and species diversity was evaluated using 1m² quadrats placed at regular intervals along transects randomly distributed in each site. If fire does not promote native species diversity at the expense of nonnative, invasive species then there should be no difference in species diversity between the two sites. We found however that the burned site had three more species per quadrat on average, fewer

invasive species and a higher forb to graminoid ratio. This suggests that fire may be a useful tool in restoring prairie habitat at The Nature Conservancy's Prairie Border Nature Preserve.

Refining the Annotations of Malaria Genomes. Kellen Paine, Emmalee Adelman, & Alisha Harms, Earlham College. Faculty Sponsor: Peter Blair

Malaria remains a global scourge to human life and existence and is responsible for up to 500 million cases and 3 million deaths annually. Therefore the need to establish and design novel malaria drug and vaccine strategies is crucial yet remains challenged, in part, due to the current status of malaria gene annotations. While the human malaria (*P. falciparum*) genome deserves the majority of attention, the accuracy of the rodent model (*P. yoelii*) genome is imperative for the traditional pipeline of drug/vaccine development and validity studies. Our research utilizes published large-scale datasets, notably Expressed Sequence Tags (ESTs), comparative genomics, and bioinformatic approaches to resolve and correct the current *P. yoelii* gene annotations. To date our research group has examined 1225 genes, 20.8% of the genes in the published *P. yoelii* 17XNL genome (Nature, October 3, 2002). Overall, 18.7% of all genes surveyed were incorrectly called as originally published. This presentation will offer both a description of our methodology and an update of results. Our data are currently available on the free online genomic resource, PlasmoDB (www.plasmodb.org), for dissemination to the greater malaria research community. This work was funded by an NIH Academic Research Enhancement Award (R15 AI068675-01/02) and the Stephenson Fund.

Microhabitat Selection of *Reithrodontomys megalotis* in Central Indiana. Jessica Rodkey, Valerie Clarkston, Rob Chapman, & Matt Kraushar, Purdue University. Faculty Sponsor: Patrick Zollner

The eastern-most range of the Western harvest mouse (WHM) occurs in the central regions of Indiana making it a species of concern in the state. Therefore, it is important to understand their local habitat requirements. Previous live trapping at Purdue Wildlife Area documented the presence of this species at four locations. During the 5-6 years since that trapping one of these sites became overgrown with woody invasive plants while the other three sites retained characteristics of native prairie-like vegetation including two aged prairies and one control prairie. We conducted live trapping during fall 2009, spring 2010, fall 2010, and spring 2011 which revealed the continued presence of WHM at the prairie like sites but their absence at the site changed by woody invasive plants. Subsequent to live trapping, brush-hogging was carried out in the woody site and a prescribed burn was implemented in both non-control prairies. Detailed analysis of vegetation around nests and feeding sites of WHM before and after the burns showed a positive correlation with dense debris and a thick prairie grass community including Big Bluestem, Little Bluestem, Switch grass, and Indian grass. But, a negative correlation was found between WHM numbers and the occurrence of woody plant species.

Rejuvenating Neural Stem Cells in the Aging Brain. Jennifer Romine & Xiang Gao, Indiana University/Purdue University at Indianapolis. Faculty Sponsor: Jinhui Chen

Neural stem cells (NSC) have been found in the adult mammalian brain. These NSCs can continue to generate new neurons throughout the life span. Decrease in neurogenesis in the aged brain has been correlated to cognitive decline. The molecular signaling that regulate age-related decline in NSC proliferation is still poorly understood. Here we took the advantage of a transgenic mouse, Nestin-GFP, to quantify the total number and proliferation of different subtypes of NSCs at different ages. In this transgenic mouse, green-fluorescent protein (GFP) is driven by Nestin promoter to express in the NSCs, thus NSCs are easily visualized and different subtypes of NSCs, including quiescent neural progenitors (QNPCs) and amplifying neural progenitors (ANPCs), are distinguishable. We found that the total number of both QNPCs and ANPCs decreased as the mice aged, while the number of ANPCs exhibited a more dramatic decline. DNA synthesis analysis confirmed that proliferation of ANPCs reduced significantly while proliferation of QNPCs remained relatively consistent in aging mice. These results imply that the NSCs become more quiescent in aging mice. We further found that mammalian target of rapamycin (mTOR) signal pathway may be involved in regulating NSC proliferation and we are in the process of assessing whether we can rejuvenate NSCs by restoring their proliferation capacity through activating this signaling pathway. The results from this study aim to identify a molecular signaling that regulates NSCs proliferation and potentially can be targeted to enhance neurogenesis for attenuating cognitive decline in aging brain.

A Predatory Snail that Catches Paper Clips and Other Snails. Samantha Rupert, Indiana University/Purdue University at Fort Wayne. Faculty Sponsor: Winfried Peters

Agaronia propatula is a common snail of the intertidal zone of sandy beaches of Central America. It feeds on smaller animals, mostly other molluscs. *Agaronia* lacks eyes and cannot locate potential prey visually. In a series of field experiments, I attempted to establish which stimuli *Agaronia* uses to identify prey. Using artificial objects including paper clips, I found that the primary stimulus is movement, more precisely: vibration transferred through the moist sand. secondarily, the smell of prey animals appears to be involved, but the absence of smell does not prevent an *Agaronia* from attacking a vibrating object. Additional experiments showed that the receptors for vibrational as well as olfactory stimuli are located in the most anterior portion of the foot.

Molecular Signaling Regulating Neural Stem Cell Proliferation in the Adult Brain Following Traumatic Brain Injury. Pich Seakaew, Indiana University/Purdue University at Indianapolis. Faculty Sponsor: Jinhui Chen

Traumatic brain injury (TBI) is one of the most serious injuries that human can suffer. Currently, there is no effective treatment available to reduce the neurological dysfunction following TBI. The identification of neural stem/progenitor cells (NSCs) in the adult brain holds the hope of repairing the damaged brain following TBI. By using a transgenic reporter mouse line, Nestin-GFP, in which green-fluorescent protein (GFP) is driven by Nestin promoter to express in the NSCs, NSCs are easily visualized and different subtypes of NSCs are distinguishable. We took the advantage of this transgenic mouse to quantify the proliferation of different subtypes of NSCs following TBI. We found that TBI rapidly induced both quiescent neural progenitors (QNPCs) and amplifying neural progenitors (ANPCs) to enter cell cycle within a few hours after injury. The proliferation of NSCs was correlated with activation of mammalian target of rapamycin (mTOR) signal pathway. Blocking this signaling pathway with rapamycin attenuated NSCs proliferation after TBI. These results suggest that TBI promotes both QNPCs and ANPCs proliferation after TBI, and mTOR signal pathway is required for their activation. NSC activation by TBI may reflect the induction of innate repair and plasticity mechanisms by the injured brain and mTOR signaling may serve as a novel target for augmenting neurogenesis in the adult brain for promoting post-traumatic functional recovery.

Identifying the Diversity of Lactobacillus Flora in Sour Mash. Mehvish Seyal, Bellarmine University. Faculty Sponsor: Joanne Dobbins
Lactobacillus sp. is found in diverse environments due to their adaptation in changing habitats and it urges the microbiologists to design various techniques to identify the different species of lactobacillus. One of the habitats of lactobacillus is the brewing distillery. The lactobacillus along with yeast undergoes fermentation and produces alcohol. In the past studies lactobacillus species have been successfully identified by PCR using the 16S rRNA and the 23S rRNA primers. In this study the same technique was used to make standard primers and then using those primers to identify the diversity of lactobacillus species in the sour mash that makes bourbon. The sour mash sample was obtained from the local distillery and PCR using 16S rRNA and 23S rRNA primers was done on it at various intervals of time. By doing the PCR and gel electrophoresis, an attempt was made to isolate all the present species of lactobacillus in the sour mash.

Patterns of Tree Preference of the North American Beaver (*Castor canadensis*) in an East-Central Indiana Riparian Forest. Jonathan Shepard & Finn Olcott, Earlham College, Faculty Sponsor: Brent Smith
Optimal foraging theory for central place foragers predicts that the further a consumer forages from a central point the more selective in terms of resources they should become. Beavers (*Castor canadensis*) exercise a wide range of choice in woody plants and thus provide a good model for testing this theory. In our study we examined a beaver pond in east-central Indiana investigating patterns of woody plant choice and taking measurements on stump height, diameter and nearest standing tree species and size to gain an understanding of beaver preferences across distance from water and lodge. In general, beavers preferred Hackberry (*Celtis occidentalis*), White Ash (*Fraxinus americana*), Flowering dogwood (*Cornus florida*) and Black willow (*Salix nigra*); however, this preference did not differ with distance from water or lodge. Our results support the findings of similar studies that show that beavers tend to select small to intermediate sized trees. We also found that with increasing distances from the lodge beavers selected fewer trees from the extremes of their preferred size range. These results support the predictions of optimal foraging theory for central place foragers such as the beaver.

Analysis of Co-Occurring Phenotypes in Infants with Down Syndrome with Cardiac Defects. Nicole Shepherd, Indiana University/Purdue University at Indianapolis. Faculty Sponsor: Randall Roper
Down syndrome (DS), caused by a trisomy 21, is the most common chromosomal aneuploidy occurring in approximately 1 of 750 live births. Individuals with DS exhibit craniofacial dysmorphology, cardiac defects, gastrointestinal problems, and cognitive impairment, although these phenotypes vary in incidence and severity. Common cardiac defects are usually recognized in young infants with DS and include atrial septal anomalies, ventricular septal abnormalities, atrioventricular canal defects, and patent ductus arteriosus. Additional abnormalities may also affect infants with DS, but not be identified until later in life. Since multiple phenotypes are found in these individuals, we hypothesize that children with a severe congenital heart defect may be at increased risk for additional medical issues. To investigate this hypothesis, we performed a retrospective chart review of 170 infants with DS between birth and 6 months of age who were referred to the Down Syndrome Program at Riley Hospital for Children from August 2005 to July 2010. We analyzed comorbidity in infants with upper airway obstruction (UAO) or a feeding problem with and without a severe congenital heart defect. Our data show that 33% of infants without a cardiac defect have identified UAO while 44% with a severe cardiac defect have identified UAO. Additionally, 59% of infants without a cardiac defect compared to 49% with a severe cardiac defect have a feeding problem. With the knowledge of these comorbid clinical features in DS, healthcare providers may be able to identify potential complications affecting infants with DS earlier in life.

The "Full Sail Reflex" in Surfing Snails. Amy Silva, Indiana University/Purdue University at Fort Wayne. Faculty Sponsor: Winfried Peters
Some gastropods of the sandy beach intertidal perform swash surfing, a type of locomotion in which the expanded foot serves as an underwater sail. Here I describe a peculiar behavior that is typical of swash surfing species but missing in others. When kept in water filled vessels in which they cannot conduct their natural burrowing and feeding activities, the East Pacific sandy beach snails *Agaronia propatula*, *Olivella columellaris*, *O. semistriata*, and *Impages cinerea* respond to gentle water movements by assuming their characteristic surf posture. In the wild, this full sail reflex leads to an avoidance of unsuitable locations and an accumulation of snails in suitable ones. This could result in the ordered but dynamic

zonation of swash surfing species on beaches, even in the absence of any navigational capabilities and directed locomotion. Moreover, swash surfing species in which swash surfing actually has not been observed in the wild, may be identified through their performance of the full sail reflex.

Site by Site Comparison of Disturbed Habitats and the Underlying Complexities of Avian Population Number and Behavioral Aggression. Lauren Steele, Kyle McFerran, & Cassie Freestone, Marian College. Faculty Sponsor: Sara O'Brien

Fragmentation of habitat is currently a major issue in wildlife management and sustainability. Fragmented habitat can manifest in numerous ways such as loss of amount of habitat, decreases in connectedness of habitat, and/or increase in edge effects due to the change in shape of remaining habitat. Avian species are highly subject to the effects of human disturbances such as fragmentation because they need to defend territories to maintain effective breeding and foraging home ranges. To understand the pressure human disturbance puts on a local avian species, we examined the effects of fragmentation on territorial aggression of the song sparrow (*Melospiza melodia*). Specifically our study compared not only the degree of territorial aggression displayed between individuals living in fragmented and non-fragmented habitats, but also the suite of behavior actions within an aggressive encounter. Additionally we sought to understand the relationship between fragmentation and density of individuals in each habitat type. Overall this study demonstrates that fragmented areas contain a greater density of individuals maintaining territories and these increase in density influence certain aggression scores as well as the types of aggressive behaviors.

Composition of Avian Species in Bamboo versus Terre Firme Habitats. Emily Terao & Caroline Asselin, Earlham College. Faculty Sponsor: Wendy Tori

Different habitats often contain distinctive avifauna based on the characteristics and resources available. Amazonian lowland rainforests are known to have the highest diversity of bird species in the world, as well as high habitat heterogeneity, including sub-habitats such as bamboo, terra firme, and varzea (Robbins et al. 1991). Bamboo forest is dense and highly monospecific with high insect abundance, whereas terre firme is more botanically diverse with an open understory and a wider variety of resources available (e.g. insects, flowers, fruits). Due to these differences, we hypothesized that habitat type (terre firme vs. bamboo) has an effect on the abundance, composition, richness, and foraging habits of understory birds. To test our hypothesis, we captured and identified individual birds using mist nets in terre firme and bamboo forests in the Los Amigos Biological Station in Southeastern Peru. Our results suggest that habitat type has an effect on the spatial distribution of birds. We captured significantly more birds in the bamboo forest than terre firme forest. However, we did not find a significant difference in species richness or foraging guild abundance (insectivore vs. non-insectivore) between habitats. Conversely, among insectivorous birds, we found a significantly different abundance of trunk, sallying, ground, and foliage foragers between the two habitats. Sallying foragers were more common in bamboo forest, and trunk foragers were more common in terre firme forest. Lastly, we found that less than 15% of the species captured were shared between the two habitats, suggesting an extremely high beta-diversity across habitats.

Florivory in *Datura wrightii*. Eric Thomson, Denison University. Faculty Sponsor: Andrew McCall

Florivory is a form of herbivory that could potentially affect the reproductive success of the plant. Florivory has not been thoroughly investigated and in this experiment I investigated florivory in the perennial plant *Datura wrightii*. *D. wrightii* lends itself to studying florivory because floral damage has been observed and the flowers bloom for less than a day so they do not have to be monitored frequently. Studies have shown that *D. wrightii* is unaffected by herbivory but it may be affected by florivory differently because of its concentration on reproductive structures. In this experiment I attempted to better understand the relationship between *D. wrightii* fruit set and florivory. First, I investigated the location and culprit of florivory upon *D. wrightii* through a survey of florivory at two field sites in the Sonoran desert. The most frequent visitor in damaged flowers was *Cyclocephala melanocephala* (Coleoptera). I found that the calyx tube was the most frequently damaged part of the flower. Certain parts of the flower may be more frequently damaged because of their differing nutrient contents or differing levels of defenses. Pollen is frequently stolen for this reason from other flowers and halictid bees were frequently found at the field site. Unfortunately I was unable to germinate the seeds from damaged and undamaged flowers because *Perognathus penicillatus* (desert pocket mice) appeared to be eating the seeds. These unexpected results bring up more questions concerning the defenses in *D. wrightii*, which is toxic to many animals.

EDTA Inhibits and Diminishes *Staphylococcus Aureus* Biofilm Formation. Kristen Van Wyk, Butler University, Faculty Sponsor: Gregory Anderson, IUPUI

EDTA Inhibits and Diminishes *Staphylococcus aureus* Biofilm Formation ABSTRACT: Background: Biofilms are bacterial communities wherein resident microbes form a strong bond to each other. Once the biofilm has formed, the bacteria are difficult to remove using standard methods. *Staphylococcus aureus* biofilms are known to be found growing around implants as well as tubing for devices such as catheters and insulin delivery systems including an artificial pancreas. Much research on biofilm eradication has been done using lock solutions. This research involves treating *S. aureus* biofilms with various concentrations of ethylene diamine tetra-acetate, or EDTA, to remove and prevent biofilm formation. Methods: Several different methods were used in order to determine if biofilm formation was prevented or destroyed upon formation. A timed trial was conducted to determine the optimal incubation time with EDTA for biofilm destruction. Using similar methods, the ability of EDTA to prevent biofilm formation was assessed by adding EDTA at the time of bacterial inoculation. Killing of planktonic, or non-

biofilm bacteria, was also performed using the serial dilution of EDTA for qualitative analysis. Finally, live/dead fluorescent stain was used to determine what ratio of bacteria was killed by each EDTA dilution. Conclusions: This set of experiments shows promise that EDTA can be used to affect *Staphylococcus aureus* biofilm formation as well as the destruction of preformed biofilms. These findings suggest that the concentration of EDTA in which the most biofilm was destroyed or prevented was above 25 mM EDTA.

Possible Relationship between in vivo S-Adenosyl-L-Methionine Hydrolase Activity and Quorum Sensing in *Escherichia coli*. Grace Walworth, Millikin University. Faculty Sponsor: Jeffrey Hughes

Recent research has documented inter-bacterial communication through the release of small molecules called autoinducers. These are commonly acyl-homoserine lactones, and their concentration in the environment estimates numbers of neighboring bacteria. This process, quorum sensing, directs bacteria to assemble complex biofilms through which the collective can conduct activities that surpass the abilities of individual cells. Oddly, cells transformed with coliphage T3 S-adenosyl-L-methionine (SAM) hydrolase (SAMase) expression vectors often form large “clumps” of cells and produce large capsules, activities seen in biofilms. This could conceivably be due to the release of large amounts of L-homoserine by SAMase vector transformed cells and the molecule’s subsequent internal rearrangement to form homoserine lactone. In a preliminary effort to explore these observations, *Escherichia coli* harboring the SAMase expression vector pHBBR2 were assessed for their chemotactic ability vs. pUC18-transformed controls on the theory that SAMase-mediated enhanced quorum sensing would impair movement of these cells. Results showed no difference in cell motility in complex or minimal media unless supplemented with glucose, and then results from different strains were contradictory. The results of this early experiment are subject to several potentially conflicting activities including the inhibitory effects of SAMase expression on cell growth and the potential for interference with the chemotactic apparatus through SAMase-mediated in vivo SAM deprivation. This suggests the need for direct assays such as testing the effect of adding homoserine lactone to *E. coli* cultures or examining products released by cells into the media for autoinducer activity.

African Elephants and Their Unwillingness to Navigate Hills. Brock Ward, Butler University. Faculty Sponsor: Robert Dale

As the largest terrestrial animals, African elephants provide insight into the locomotor constraints a large body size imposes. However, elephants do not appear to follow the same pattern of locomotion as other large terrestrial animals. Previous research has indicated that African and Asian elephants never change their footfall pattern to a gait that uses a whole body aerial phase [that is, they don’t run], something unique to these species. However, little research has been done to examine how footfall pattern changes in elephants navigating hills and other slopes. The purpose of this observational study was to examine the footfall patterns and gait changes of several African Elephants (*Loxodonta africana*) ascending and descending the various hills and slopes in their environment. Video recordings of several Indianapolis Zoo elephants were collected over several years and analyzed to observe how their gaits changed when they ascended or descended hills and slopes in their main exhibit. The results of this study should provide insight as to why elephants tend to avoid ascending and descending hills.

Forelimbs, Hindlimbs and Whether or Not Elephants Run. Robert Warren, Butler University. Faculty Sponsor: Robert Dale

Research into the gait of the African Elephant (*Luxodonta africana*) is a new area of study. Researchers are concerned with settling ambiguity as to how the movement of the animal changes with the speed and mass of the animal. Due to the absence of a full body aerial phase, the question still stands whether or not elephants can run. Attempts to reconcile whether or not the animals are running at multiple speeds has produced data suggesting that the fore limbs meet criteria for running, while the hind limbs do not. Previous inquiry has suggested that mature animals maintain one gait style (a lateral sequence gait). In mature elephants navigating difficult terrain and elephant calves, a ‘trot’ type gait has also been observed. The present study will utilize frame-by-frame observational data (video) of the African Elephants at the Indianapolis Zoo, and will attempt to disentangle the variations between the fore and hind limbs of the animal (called the duty factor). Analysis of duty factor will allow further understanding of how the fore and hind limbs interact across a wide variety of speeds and animal masses. It is my hypothesis that at high speeds the animals will exhibit a disparity in duty factor between front and hind limbs. Such a disparity would provide further evidence for differing fore and hind limb functions and would assist in reconciling the running elephant debate.

The Effect of Music on Heart Rate and Ratings of Perceived Exertion. Micah Whitted, Hanover College. Faculty Sponsor: Bryant Stamford

The purpose of this study was to examine the effects of music, specifically slow and fast music, on heart rate and ratings of perceived exertion during moderate exercise. In this study, 6 participants exercised at a moderate intensity on a cycle ergometer. Music speed was the independent variable. The dependent variables were work output and heart rate (HR). These were measured using rotations per minute (RPM) and a polar heart rate monitor. It was hypothesized that during moderate exercise fast music will inspire an increased work output and will cause a higher heart rate than slow music. Pilot data supports the hypothesis. Full data will be presented.

Correlation of Tree Size and Bark Type with Liana and Epiphyte Load in a Temperate Rainforest on Mount Kiera, Australia. Tara Willman, Hanover College. Faculty Sponsor: Daryl Karns

The effects of bark type and tree size on epiphyte and liana load were measured for trees in a temperate rainforest on Mount Kiera, Australia. We hypothesized that smooth-barked trees would have lower liana and epiphyte loads. All data were gathered between September and October of

2009. Common trees used in the study included the Cabbage Tree Palm, the Giant Stinging Tree, the Red Cedar, and the Sassafras. Trees were divided into three size categories (small, medium, and large) as well as three bark categories (smooth, shallow-furrowed, and deeply-furrowed). Data gathered on each tree included bark type, diameter at breast height, number of lianas, cumulative diameter of lianas, bark coverage, and number of epiphytes. Our study showed a negative correlation between number of lianas and more furrowed bark, the opposite of our prediction; smooth trees seem to be the most susceptible to liana growth. Smooth trees also supported larger lianas, possibly meaning that lianas establish themselves later on deeply-furrowed trees. Average liana diameter and tree diameter exhibited a positive correlation. Tree size does not appear to be a determining factor in the number of lianas, although it is a determining factor in liana diameter. This could mean that trees generally acquire lianas only when small, because it is harder for lianas to establish themselves on larger trees. Because trees and their lianas grow together, larger trees tend to have larger lianas, but not necessarily more lianas.

BUSINESS & ECONOMICS

Consumer Choice Tactics for Common Repeat Purchase Products: Using Deodorant and Tissues to Predict and Understand Consumer Behavior. Alicia Dixon, Butler University. Faculty Sponsor: Margaret Padgett

Limited research has been done on how consumers make decisions about purchases for low involvement, common repeat purchase products (e.g. dishwashing soap). This study examined the impact of gender and generational differences (Baby Boomers, Generation Xers, and Millennials) on how purchase decisions are made for 2 common products, deodorant and tissues. I examined four choice heuristics (price, performance, affect, and normative tactics) as well as decision-making time, brand loyalty and involvement level to see if these differed across generation or gender. Participants in the study (120 Butler staff, faculty and students) took part in a simulated shopping experience and then completed a questionnaire which assessed the dependent variables. Results showed that brand loyalty and decision-making time were significantly greater for Baby Boomers than Gen X or Millennials. Additionally, Millennials rated price, normative, and affect decision-making tactics as more important than either Gen X or Baby Boomers. As a marketer it is important to understand how different generations and genders make in-store purchasing decisions for low involvement products so they can market the products effectively.

A Study Measuring Investor/Donor Perception to Microlending Recipient Characteristics of Gender and Geographic Origin. Chelsea Dyer, Butler University. Faculty Sponsor: Richard Fetter

The Consultative Group to Assist the Poor defines microfinance as “the supply of loans, savings, and other financial basic services to the poor” (CGAP, 1). Thus, microlending embodies the age-old adage that, “If you give a man a fish, you feed him for a day, but if you teach him how to fish, you feed him for a lifetime.” Instead of relieving poverty in helpful-but-stopgap measures such as charitable contributions of food or clothing, microlending provides struggling entrepreneurs a plausible chance to succeed by equipping them with the necessary tools of capital and knowledge. Specifically, from a marketing standpoint, how does a microlending organization maximize its potential to entice investors in terms of advertising the immense variety of options offered by the program, including factors such as the geographic location and gender of the potential loan recipients. My study is designed to answer the following questions: Are potential investors more likely to choose men or women? Are they more likely to lend their money to one continent over another? The questions deserve investigation because it can help increase the amount of microlending, reduce poverty, and build free enterprise. The more prepared and informed the microlending organization, the better to match investors with recipients and increase the overall success rate for all parties involved.

Adam Smith's View on the Moral Obligations of a Free Market Society. Justin Schramm, Butler University. Faculty Sponsor: Richard McGowan

The eighteenth century economist and philosopher, Adam Smith, is well renowned for his contributions to Capitalistic Economic Theory. His most famous work, *The Wealth of Nations*, is considered a laissez-faire argument to the accumulation of capital and personal property. It is a little known fact, however, that Smith actually authored a book before the release of his much touted pro-capitalist work, titled *The Theory of Moral Sentiments*. I contend that Adam Smith wasn't interested in the development of a “Rambo-Capitalistic” society, and in fact, was more concerned with the well-being of society and its people. In my presentation, I will compare both of the works by Adam Smith and decipher what they mean in regards to personal property, the economic impact on society, and moral obligations.

CHEMISTRY

Synthesis and Characterization of Carbon Cryogel Microspheres for Use in HPLC. Gregory Blachut & Trevor Gulstrand, Rose-Hulman Institute of Technology. Faculty Sponsor: Justin Shearer

Carbon cryogels exhibit high surface area and chemical robustness, which makes them potential materials for liquid chromatographic supports. Carbon cryogels were synthesized using a base-catalyzed sol-gel reaction followed by freeze-drying and thermal cross-linking in an inert atmosphere. The main goals of this project were to reproducibly synthesize carbon cryogels in a spherical particulate motif with controlled diameters. Reverse-micelles were employed to form micro-reaction vessels that would result in particles with the desired dimensions. Dispersions in several surfactants and peanut oil were attempted. The resulting microspheres were characterized using scanning electron microscopy and light-scattering particle analysis for size and geometry. High performance liquid chromatographic columns with various diameters, 0.250-4.6 mm, were packed and tested. Testing of the packed columns was performed using reversed phase liquid chromatography and compared to octadecyl silane columns.

Development of a Green Method for Amide Synthesis. Megan Darragh, Butler University. Faculty Sponsor: Anne Wilson

The aim of this project is to determine the scope and limitations of using safe, recycled and recyclable solid-support reagents (furnace-activated silica gel and alumina) under microwave heating on the yield of amides in acid and amine condensation reactions. Previous work has indicated that silica gel may be used as a green-alternative catalyst in these reactions, and that yields prove sufficient for varied substrates. Reactions were demonstrated in a CEM MARS 5 microwave system with diverse substrates, and conversion to product was determined by GC-MS analysis. Results show that activated silica gel and alumina are applicable to many different types of substrates, and that the methodology is environmentally conscious and applicable to various situations, including an undergraduate organic laboratory experience. Potential for other green solid support protocols exists.

Adsorption of Pyrethroids from Aqueous Phase using Carbon Cryogel Sorbents. Natalie Freienmuth, Rose-Hulman Institute of Technology. Faculty Sponsor: Justin Shearer

The use of pyrethroid-containing pesticides is increasing in agriculture, commercial pest control, and residential consumer use. Pyrethroids are synthetic compounds similar to pyrethrins, and, while harmless to humans in low doses, are toxic to fish and other aquatic organisms. Previous studies have focused on determining the toxicity of pyrethroids, and interest lies in identifying a method of extracting pyrethroids from aqueous media. This research focuses on the use of carbon cryogels in solid-phase extraction of pyrethroids from aqueous media. Carbon cryogels are a high surface area material that is chemically and thermally inert. Carbon cryogels are synthesized through the polycondensation of resorcinol with formaldehyde in the presence of an alkaline catalyst. The analysis of two pyrethroids that are common in commercially available insecticides; permethrin and tetramethrin were tested using solid phase extraction followed by quantitation using liquid chromatography.

Understanding Antioxidant Activity of Selenium Compounds by Monitoring Production of 8-Hydroxy-2'-Deoxyguanosine. Carolyn Harper, Rose-Hulman Institute of Technology. Faculty Sponsor: Dan Morris

Oxidative damage to the nucleotide base is responsible for many DNA mutations associated with cancer, aging, and a host of other disorders. Thus, prevention of oxidative damage is an important factor in cancer prevention and overall health. Two prevalent methods for determining antioxidant activity are strand breakage and observation of the oxidative DNA damage marker 8-hydroxy-2'-deoxyguanosine (8-OH-dG). A key element of interest for its anti-oxidant properties is Selenium, compounds of which have been shown in multiple instances to prevent the oxidative damage caused by reactive oxygen species (ROS) and reduce tissue damage. Several questions remain unanswered about the mechanism through which selenium compounds prevent oxidative damage. We present results from experiments in which we allowed the metal ions Cu(II), Fe(II) and Cr(III) to react with H₂O₂ to generate ROS in the presence of the mononucleotide 2'-deoxyguanosine-5'-monophosphate (dGMP); a simplistic model for nucleic acid polymers. We monitored the production of the oxidative damage marker 8-OH-dG in the presence and absence of selenium dioxide, sodium selenite and sodium selenate using HPLC with electrochemical detection. Our results suggest that the antioxidant properties of selenium compounds are associated with their abilities to bind metal ions and prevent them from forming ROS.

Enzymatic Analysis of an Acetyl-Xylan Esterase. Matthew Hedge, Butler University. Faculty Sponsor: Jeremy Johnson

Thermatoga maritima is a thermophilic bacteria, which lives at very high temperatures and its proteins remain stable to high temperature. In this project, I determined the substrate specificity of two esterases from this thermally stable bacteria using latent fluorophores and related their substrate specificity to their three dimensional structure. Using the esterases from the *T. maritima* made separating and purifying the esterases easier and permitted mutagenesis of potential substrate binding residues without significantly decreasing the activity of the esterase. The esterase was found to cleave a diversity of esterase substrates rapidly (kcat/KM = 104 M⁻¹ s⁻¹ to 5 x 10⁶ M⁻¹ s⁻¹). These esterases and substrates will then be tested in biological imaging studies to show their utility for cellular visualization.

Comparing the Separation of Mononucleosides using Capillary Electrophoresis, Modified-Capillary Electrophoresis, and Micellar Electrokinetic Chromatography. Karina Keller, Rose-Hulman Institute of Technology. Faculty Sponsor: Dan Morris

Oxidative stress is associated with numerous diseases and clinical conditions. Mononucleosides and their derivatives are an important class of compounds that are markers for oxidative DNA damage, including the widely accepted marker 8-hydroxy-2'-deoxyguanosine (8-OH-dG). These compounds are often present in low abundance within a very complicated matrix, such as urine or a DNA digest, and separation techniques that provide short analysis times with minimal band broadening are required. Micellar electrokinetic chromatography (MEKC) using cholate as the

micellar agent is a promising method for the fast and efficient separation of mononucleosides and the oxidative DNA damage marker 8-OH-dG. We investigated the ability of surface modified capillaries, which can minimize or eliminate the need for a run buffer containing the cholate micellar agent, to perform this separation. We compare the separation of the mononucleosides deoxycytidine (dC), 2'-deoxyguanosine (dG), thymidine (dT) and 2'-deoxyadenosine (dA) using capillary zone electrophoresis (CZE) on a bare silica capillary, CZE using a capillary whose surface has been modified with cholate via electrostatic attraction and MEKC using a cholate micellar agent added to the run buffer. Our results suggest that cholate adheres to the surface of a fused silica capillary and provides a modified surface that results in a separation approaching the quality of MEKC for the mononucleoside mixture.

Development of a Multifaceted Synthesis Project for the Organic Chemistry Laboratory. Stephanie Knezz, Butler University. Faculty Sponsor: John Esteb

In the undergraduate laboratory, students are often unable to connect concepts from class to the experiment being performed. Since this connection is so important, a project has been developed that further encourages the conceptualization of the reactions that are being performed. In this project, all students are given a target molecule to synthesize (1,2-diphenylethanol), and each student must come up with a valid pathway using the reactions learned in lecture. Possible pathways include Grignard reactions of benzaldehyde and phenylacetaldehyde, reduction of stilbene oxide, reduction of deoxybenzoin, and hydration of trans-stilbene. After this pathway has been approved, the students will search the literature to find an experimental procedure similar to one they have proposed and will proceed with the experiment. Analysis by GC/MS and NMR will be used to confirm the formation of the product. Results related to the optimization of the syntheses involved in this experiment will be presented.

Electrochemical Applications of Carbon Cryogels. Daniel Lee & Sharon Wang, Rose-Hulman Institute of Technology. Faculty Sponsor: Justin Shearer

Water pollution by heavy metal ions such as As, Cr, Cu, Pb, and Ti is an environmental concern due to associated health risks. Unlike other types of contamination, heavy metals do not decay, so remediation efforts must be performed to remove heavy metal contamination from the environment. Current research has focused on electrochemical adsorption of Cu²⁺ using carbon cryogel as an adsorbent. The carbon cryogel was produced using a resorcinol-formaldehyde gel that was freeze dried with liquid nitrogen and then carbonized at 800°C. Cyclic voltammetry (CV) experiments were performed in order to determine the efficacy of employing carbon cryogels as a working electrode. We also tested the electroadsorbent capabilities of carbon cryogels by applying a voltage experiment to solutions containing Copper (II) ion.

The Synthesis and Measurement of Ozone Rate Constants for Photooxidized Isoprene Nitrates. Benjamin Nault & Shexia Ma, Purdue University. Faculty Sponsor: Paul Shepson

We describe the synthesis and the ozone rate constant for photooxidized isoprene nitrates (IN). Six IN isomers have been synthesized to determine the individual ozonolysis rate constants at atmospheric pressure and room temperature. From these rate constants, the atmospheric lifetimes for the individual IN isomers will be determined. The rate constants will be established by monitoring the decay of the IN with gas chromatography-electron capture detector in excess ozone to produce a pseudo-first rate constant. This will be compared with an isoprene and NO_x photooxidation experiment conducted in a smog chamber. The implications of the lifetime of INs in the atmosphere will be discussed.

Analysis of the Anthocyanidin Synthase Gene in Onions: Possible Correlation with Onion Color. Ted Seger, Butler University. Faculty Sponsor: Geoffrey Hoops

Anthocyanins are a class of flavonoids, common secondary plant metabolites, that are found in some onions and are associated with red pigments. Anthocyanins are the product of the anthocyanin synthesis pathway. The anthocyanidin synthase (ANS) gene is only one step in this biochemical pathway, but it is thought to be a major contributor to overall onion color as it codes for the protein that catalyzes the reaction converting a colorless substrate to a red pigment. The presence of a mutation in the ANS gene could lead to a malfunction that would explain the absence of red pigment in yellow and white onions. Over the course of the project, a portion of the ANS gene from red, yellow, and white onion cultivars was amplified by the polymerase chain reaction (PCR) in order to screen for mutations. Gel electrophoresis was used to compare the banding patterns for the amplified PCR products. The DNA bands from suspect mutant versions of the ANS gene were removed from the gel and incorporated into a bacterial plasmid vector. The plasmids were shipped off to a commercial DNA sequencing service to be sequenced. The sequence data from each of the onion cultivars was then compared using their exact nucleobase sequences.

Determination of Method Validation for N-Carbamate Pesticides using Liquid Chromatography Mass Spectroscopy. Margaret Spolnik, Butler University. Faculty Sponsor: Olujide Akinbo

Research was done on N-Carbamate pesticides, which are the most common class of pesticides used today, to determine a method using liquid chromatography mass spectroscopy for determination of concentration for N-Carbamate pesticides. This method was optimized from sample preparation to instrument validation to determine a method that could be used on a grape matrix. A method was developed for grape matrix only, but further research will be done to optimize this method for other fruit and vegetable matrices.

Using Polymethylhydrosiloxane in order to Reduce α,β -unsaturated Ketones via Solid State Bound Copper Hydride Catalyst. Zachary Sprigler, Butler University. Faculty Sponsor: Stacy O'Reilly

A new method has been used in order to synthesize a solid state bound copper hydride catalyst from a Cu(II) salt. Polymethylhydrosiloxane (PMHS) was then used in order to reduce the double bond of 2-cyclohexenone. Evidence of a silane intermediate was found along with a possible new intermediate from the PMHS polymer chain.

The Effects of Substituents and Solvents on Microwave Assisted Claisen Rearrangements. Orion Wenrich, Butler University. Faculty Sponsor: Anne Wilson

The introduction of excess acid or base in a microwave reaction of substituted phenyl propargyl ether showed potential to control the product of the reaction. This theory was further examined with moderate success directing towards the benzopyran product. Work was also done in developing a fast and efficient method of generating phenyl propargyl ethers with assistance from a microwave. A brief cataloging of various substituted phenyl propargyl ethers was also performed.

Characterization of Esterase Activity from the Bacteria, *Francisella tularensis*, the Causative Agent of Tularemia. Leigh Weston, Butler University. Faculty Sponsor: Jeremy Johnson

Francisella tularensis is the bacteria responsible for causing the disease tularemia and is listed as one of the top three-bio warfare agents. Among the proteins essential to the virulence and infectivity of *F. tularensis* are multiple esterases, which are enzymes that break down various ester, thioester, and amide bonds. In this project, the catalytic activity, substrate specificity, and structure of a putative thioesterase from *F. tularensis* was studied. Latent fluorophores based on the molecule, fluorescein, were unmasked by the enzymatic activity of the esterase and the increase in fluorescence was measured over time to determine how well the esterase recognized different substrates. The esterase from *F. tularensis* activated a variety of simple esterase substrates with catalytic efficiencies ranging from 5074.6 M⁻¹ s⁻¹ for a simple propyl ester to 1603.4 M⁻¹ s⁻¹ for a tertiary ester. All of the substrates were recognized by the esterase with KM values around 1 μ M, but sterically occluded substrates had significantly reduced kinetic turnover. In addition to the wild type esterase, the kinetic activity of five different variants of the esterase with single amino acid mutations were characterized against two latent fluorophore substrates. The kinetic activity of each of the variants decreased significantly from the wild-type enzyme and indicated that the binding pocket is fairly invariant to substitution. By characterizing the catalytic activity of an enzyme essential to the bacteria's mechanism for infection, potential drug models could be developed that utilize the specific action of the enzyme.

COMMUNICATION: SPEECH & JOURNALISM

Race in Rhetoric: A Textual Analysis of Barack Obama's Campaign Discourse Regarding His Race. Andrea Andrews, Butler University. Faculty Sponsors: Margaretha Geertsema Sligh and Terry Jett

This study is a textual analysis of Barack Obama's nine most noteworthy speeches from 2004 to 2009 during his rise to prominence and presidential campaign. Because Obama was considered an inspiring speaker and because he was the first African American to win either a major party's presidential nomination or a general U.S. presidential election, this study examines how Obama's use of language about his race may have contributed to his success. Previous research has shown that use of six rhetorical devices resonates with the American people: abstraction, democratic speech, conversational speech, valence messages, conciliatory messages and imagery. The study analyzed Obama's speeches for use of these devices in relation to his race. In the nine speeches studied, Obama addressed his race twenty-nine times and used all six rhetorical devices frequently when doing so. Recurring themes he discussed using these devices were the American dream, heritage and family, and unity. His overarching message about his race was that racial differences and a negative history of race relations could be overcome because the U.S. is a land of possibility, and he offered himself as proof of that idea. Previous research shows that the rhetorical devices Obama used to present this message about his race are those that would have helped him connect with his audience and appeal to the public. Thus, Obama's use of rhetorical devices and presentation of a positive message about his race may have helped him win votes to become the first African American president of the United States.

Connecting Social Media, Shutdown of Egypt Internet, and U.S. "Kill Switch" through Rhetorical Criticism. Sara Bailey, Hanover College. Faculty Sponsor: Barbara Garvey

The controversy over social media and whether it is benefiting or destroying our society has become especially important in the news today. As Egypt citizens recently had their Internet blocked by the government because of the information that was being transferred via social networking sites, the events in Egypt have caused many United States citizens to become scared about the possibility of the U.S. President being granted the ability to act in a similar manner if the "kill switch" legislation passes in Congress. When considering the social media controversy that is

relevant in both Egypt and the United States, the different arguments can be analyzed from the perspective of rhetoricians Quintilian, Marshall McLuhan, and John Locke in order to understand how the use and effects of social media ultimately caused Egyptian Internet to be completely shut down during recent protests, which, in return, caused the debate regarding the United States “kill switch” to resurface. With the help of the ideas of the rhetoricians from the different periods, a closer look at the issues of social media is provided which not only helps create a better understanding of these complex, interrelated issues, but also proves the relevance of the ideas of past rhetoricians even today. Overall, with the help of past rhetoricians it can be seen that there are some clear downfalls with social media, and that it is important for the government to take necessary preventative steps while recognizing the importance of not violating individual rights.

Promoting a Student Documentary and Collection of Essays on the Topic of Black Baseball in Indiana. Ariana Brown, Ball State University. Faculty Sponsor: GERALYN STRECKER

Between 1887 and 1947 Major League baseball excluded black players, and left them to form their own leagues, known as the Negro Leagues or Black Baseball. Our group is creating a 30-minute documentary, writing a collection of essays, organizing community events and publishing a website to promote awareness and appreciation of the Negro Leagues. My titles within the group are promotional coordinator and internal communications coordinator. Some of my responsibilities include finding the best way to engage a community in something they might not normally seek out; creating and planning events tailored to be fundable, educational, and enjoyable; organizing and finding the best channels for the information we acquire; seeking funding from philanthropic organizations; and maintaining effective small group communication. I plan to discuss the process and challenges associated with promoting a multimedia student project and the results of our efforts.

The Evolution of Princess: A Fantasy-Theme Analysis of Princess Books for Girls. Julia Carroll, Taylor University. Faculty Sponsor: Jessica Rousselow-Winquist

This paper seeks to explore the impact that the princess movement is having on children’s culture – is it shaping a new generation of girls with better self-image, or is it merely compounding the problem of cultural beauty-obsession? To gain insight, this paper presents a rhetorical criticism of three children’s books that bring to light key themes of the princess vision. The first text – *Princess: The Essential Guide*, by Naia Bray-Moffatt – allows girls to discover the worlds of six classic Disney princesses and their “happily ever after-s.” The second book – *The Princess and the Kiss*, by Jennie Bishop – provides a Christian version of the typical princess story, with a focus on sexual purity. Lastly, *Gigi, God’s Little Princess*, one of many books in Sheila Walsh’s *God’s Little Princess* series, gives a glimpse into the everyday life of a little girl who knows she is a princess. A fantasy-theme analysis reveals that princess books for young girls present the rhetorical vision of an ideal princess as pretty, pure, and pampered, which has created a rhetorical culture of girls who are stunning, sexy, and spoiled.

Codes of Ethics for Mass Media Organizations: Comparing and Contrasting. Natalie Evans & Perry Kazmyn, Butler University. Faculty Sponsor: Anokwa Kwadwo

In this paper, our purpose is to analyze the codes of ethics among mass media organizations. The organizations’ codes we plan to investigate are that of public relations firms, advertising firms, Society of Professional Journalists, and the Radio Television News Digital News Association. We will be comparing the ideals of truth telling, accountability, and conflict of interest within their individual codes of ethics. Utilizing the methods of comparing and contrasting, we will be able to interpret which codes of ethics best outlines the duties and responsibilities of mass media employees. The results highlight what is most important in the codes of ethics for mass media organizations.

Dehumanizing Homosexuality: Silence and the Third Persona in Pope Benedict’s Light of the World. Michelle Ketcham, Butler University. Faculty Sponsor: Casey Kelly

In his 2010 publication, *Light of the World*, Pope Benedict XVI argues that the solution to sexually transmitted disease and promiscuity lie in the “humanization” of sexuality. He constructs the figure of the “male prostitute” as an example of how sexual deviance is the underlying cause of all sex related-health problems. In this essay, I argue that the “male prostitute” is an oblique reference to the immorality of gay and lesbian sexuality. Using Wander’s (1984) concept of the “third persona” – audiences silenced or negated by discourse – I argue that blaming sexual deviance for problems more appropriately remedied by access to contraception, indirectly negates and dehumanizes gay and lesbian identities. I conclude that *Light of the World* masks old prejudices toward gays and lesbians in a modern spirit of earnest debate and deliberation.

Taylor Swift: A Fantasy Theme Analysis. Ann Schuette, Taylor University. Faculty Sponsor: Jessica Rousselow-Winquist

Country star Taylor Swift follows her predecessors by singing of heartbreak and romantic relationships, while combining the styles of country and pop music. Ernest Bormann’s fantasy theme analysis is used to show how Swift presents her rhetorical vision of ideal love. Three themes are evident in her lyrics: (1) singleness is loneliness, (2) experience is hurtful, yet (3) love is rewarding. Swift’s rhetorical vision is impacting popular culture by being relatable to her fans, consisting mostly of young girls. The study of her lyrics leads to revealing her wavering view on men portrayed as the hero and villain. Her goal to educate women of her relational truth towards men is evident. The plot line of her songs begins by highlighting failing relationships, emphasizing singleness is loneliness. Next, they show the hurtfulness that can come from men, highlighting the theme experience is hurtful. Finally, her rhetorical vision is concluded by finding ideal love with a man and portraying it as rewarding.

Airborne: Misleading Rhetoric in Advertising. Sarah Soltis, Butler University. Faculty Sponsor: Carol Reeves

Airborne is a supplement that is heavily advertised as having the capabilities to support the immune system. Airborne contains a blend of 16 vitamins, minerals and herbs – including Zinc, Echinacea, and Vitamin C and is sold by over 45 retailers in the U.S. and Canada with sales totaling more than \$100 million per year. However, Airborne's efficacy lacks scientific backing, and the lack of rigorous studies that prove the supplement's efficacy is masked by clever and misleading advertising, intended to lure the consumer into purchasing the product. Airborne, like many other products, uses unproven claims and scientific sounding evidence to promote product sales and appeal to consumers.

Friend or Foe? Facebook's Effect on Social Connectivity among College Students. Cate Valentine & Elizabeth Mook, Valparaiso University. Faculty Sponsor: Matthew Ringenberg

Online social networks have been present in our society since the first notable sites were developed in 1995 and have now attracted more than 90% of American teens and young adults. This study measures the effect that social networks have on Valparaiso University students' real life connectivity through social interactions and campus organizational involvement. The study uses a sample of 1994 VU graduates as the control group and current VU students as the focus group. Through an online survey, participants are asked questions regarding their Facebook and Internet use, their campus involvement, and how they saw Facebook being utilized by student organizations. The study examines how the amount of time spent on Facebook correlates with students' involvement in campus organizations, clubs, etc. and also with the quantity of leadership positions students take within these groups. Based on the findings of the study, we consider how campus groups use Facebook for publicity and promotion to the student body and make a determination of how these groups should utilize these methods in the future.

Communicating During Crisis: A Case Study of BP and the Gulf Oil Spill. Aubrey Villines, Butler University. Faculty Sponsor: Rose Campbell

Crisis communication is an integral aspect of public relations that can have either positive or negative repercussions, depending on how an organization responds. Effective and honest crisis communication can protect assets and shape positive public perceptions that may prevent an organization from failure. Communication scholar Timothy Coombs asserts that the best crisis communication practice is to respond quickly, accurately, and consistently (Coombs, 2010: 28). Other scholars offer empirically tested supplementary techniques, which emphasize preparedness and social responsibility. The present study applies models of best practices for crisis management to analyze the effectiveness of British Petroleum's (BP) response to the 2010 Gulf of Mexico oil spill. A content analysis of 164 articles from three newspapers, The Times Picayune, The New York Times, and The Herald (London), was conducted to examine BP's crisis communication and also to compare differences in coverage of the crisis among the three newspapers. Research questions are posed regarding the types of BP strategies employed and differences between domestic (U.S.) and BP's home country (UK) news coverage. Preliminary results reveal that BP's response incorporated both best practices of crisis communication, as well as crisis responses that could be categorized as unethical. Such unethical responses included evasion of responsibility, denial, and scapegoating, while effective crisis communication tactics consisted of disseminating messages in a clear, concise manner and updating the public on developments regarding the crisis. Further results and implications for international crisis communication practices are described.

Apple--Revolution, Individuation, & Innovation: Fantasy Theme Analysis. Nathanael Wheeler, Taylor University. Faculty Sponsor: Jessica Rousselow-Winquist

This paper examines the soaring success of Apple through Ernest Bormann's fantasy theme analysis. The rhetorical vision of Apple, through a series of fantasy themes, has led to the company becoming an increasing success. The vision is clear, believable and most importantly accepted. Proof of this is found in the devout loyalty of Apple consumers; reaching the level of a quasi-religion. As long as these fantasy themes and ultimately rhetorical vision continue to chain out, Apple will remain an exceptional success story.

The Reentry of Third Culture Kids (TCKs) into Their Passport Culture. Julia Whitacre, Grace College. Faculty Sponsor: Paulette Sauders

With an increasingly globalized world, more and more children are being raised in host cultures other than their parents' home culture(s). TCKs often experience reverse culture shock when reentering their passport culture. The transition can be especially stressful during college or university years. This paper explores some of the primary challenges facing TCKs, as well as ways to counteract the negative effects of reentry while maximizing the positive benefits of being raised as a TCK. The paper focuses primarily on the experience of missionary kids (MKs) (children of parents involved in religiously affiliated work) and includes first-hand accounts of their experiences.

EDUCATION

Morgan's Raid: Building an Educational Game from the Ground Up. Holden Hill, Phil Parli-Horne, Joshua Hurst, Dennis Stepp, Ryan Thompson, Trent Ferry, Sam McClure, David Rickey, & Caitlyn Rickey, Ball State University. Faculty Sponsors: Paul Gestwicki & Ronald Morris

How do you design and develop a game centered around teaching fourth grade students? Perhaps more importantly: how do you make that game

fun? With three semesters of work devoted to this task a group of students from many different disciplines have worked together to create a game devoted to the six-day journey of John Hunt Morgan through the state of Indiana during the Civil War. This presentation highlights the process of game design, beginning with a pair of physical prototypes and continuing through to a digital prototype containing the best mechanics developed over the course of a year. It will also highlight the struggles with balancing a game to be fun and engaging for a student while also forcing them to think about their actions and how it affects the world around them.

University Branding: Student Experience. Jacob Allan S. Murphy, Bellarmine University. Faculty Sponsor: Curt Bergstrand

With increasing Competition for higher education institutions to increase enrollment, there has been a trend to market colleges and universities as products, each developing a brand to promote and sell. The problem with education becoming product oriented is that it may lead to a loss of quality of educational services offered. This study Surveys approximately 100 students at a small Midwestern liberal arts university and attempts to gather students thoughts before admittance and match those thoughts up to their actual experience since attending the institution.

ENVIRONMENTAL STUDIES

Examination of Northern Saw-whet Owl (*Aegolius acadicus*): Fall Migration Patterns in North Central Indiana. Benjamin Cloud, Manchester College. Faculty Sponsor: Jerry Sweeten

While migration patterns of Northern Saw-whet Owls (NSWO) (*Aegolius acadicus*) are known to occur throughout the Ohio River Valley, little has been described about their movement in North Central Indiana. The objectives of this research were to analyze when this species migrates through this region and compare migratory patterns to previous years. Research was conducted during the fall migratory period from 15 October to 19 November 2010 at Koinonia Environmental and Retreat Center in southern Kosciusko County, Indiana. The banding location included mixed conifers and deciduous trees. Three 7 meter by 2 meter mist nets were arranged in a triangular pattern across two open paths with an audio lure that played a male call positioned in-between each of the three nets. Once captured, sex and age was determined for individual owls by comparing mass, wing cord, and bill size. After birds were measured, each was fitted with a 3A or 4 aluminum band. During the migratory period, a total of twenty-nine individuals were caught, including one foreign recapture. The peak migratory week was from 31 October-6 November, when 72% of owls were captured. There was a significant difference for both mass and wing cord between males and females ($P = 0.05$). Through this study biologists will have a more precise understanding of NSWO migration as well as information to monitor trends in annual population fluctuations.

Microhabitat Selection of *Reithrodontomys megalotis* in Central Indiana. Jessica Rodkey, Valerie Clarkston, Rob Chapman, & Matt Kraushar, Purdue University. Faculty Sponsor: Patrick Zollner

The eastern-most range of the Western harvest mouse (WHM) occurs in the central regions of Indiana making it a species of concern in the state. Therefore, it is important to understand their local habitat requirements. Previous live trapping at Purdue Wildlife Area documented the presence of this species at four locations. During the 5-6 years since that trapping one of these sites became overgrown with woody invasive plants while the other three sites retained characteristics of native prairie-like vegetation including two aged prairies and one control prairie. We conducted live trapping during fall 2009, spring 2010, fall 2010, and spring 2011 which revealed the continued presence of WHM at the prairie like sites but their absence at the site changed by woody invasive plants. Subsequent to live trapping, brush-hogging was carried out in the woody site and a prescribed burn was implemented in both non-control prairies. Detailed analysis of vegetation around nests and feeding sites of WHM before and after the burns showed a positive correlation with dense debris and a thick prairie grass community including Big Bluestem, Little Bluestem, Switch grass, and Indian grass. But, a negative correlation was found between WHM numbers and the occurrence of woody plant species.

FOREIGN LANGUAGES

El sabor de los tacos: el uso de palabrotas como un espejo cultural. Adam Auter, Wabash College. Faculty Sponsor: Dan Rogers

I spent the 2010 spring semester studying in Valencia, Spain and during my stay I discovered that swear words are deeply rooted within the diction of nearly every Spaniard. Many of their obscenities have lost nearly every shred of the emotional charge they once carried, and their use is now acceptable and arguably expected in nearly every social context. These observations impelled me to analyze how swear words function within a language and what they reveal about the culture that creates and maintains them. With that said, the purpose of my investigation is to identify the link between swear words and the prevailing tensions within a given society. I specifically target Spain and the vulgarities that have been used most abundantly since the democratic transformation that occurred following Franco's death. With the support of historical events and cultural transitions, I will show that the sexist nature and habitual use of swear words in Spain reveal that within its patriarchal society exists a new social hierarchy that employs sexual supremacy as the yardstick of power and success. This presentation will be given in Spanish.

The Existence of Parallel Worlds in “La Moustache.” Myles Trapp, Butler University. Faculty Sponsor: Eloise Sureau-Hale

One of the most difficult challenges to quantum physicists in our time is the quantum measurement problem. In the 1920s, the work of the Danish physicist Niels Bohr revealed that with current knowledge of a physical system one can generate probable outcomes for the movement of individual particles. However, when an observer attempts to measure the movement of the particles or record them in any way, the probabilities collapse into a single definite outcome. In 1957, the late Hugh Everett III, a student of the eminent physicist John Archibald Wheeler, proposed an interpretation of quantum mechanics commonly known as the many-worlds hypothesis. Everett suggests that essentially, all possible outcomes do occur but they unfold in parallel universes. I explore the application of this theory to the 2005 French film “La Moustache” by Emmanuel Carrère. The protagonist of this story, Marc, asks his wife one day what she would think if he shaved his mustache. She replies that she might not recognize him (seeing as he’s worn one for the past fifteen years). Marc goes along with the deed, but soon afterwards he finds himself in a startling parallel world in which he never had a mustache. I discuss the ways in which the film correctly and incorrectly portrays the many-worlds interpretation of quantum physics.

GENDER STUDIES

Defining Feminism through Little Women and Gone With the Wind. Esther Bixby, Grace College. Faculty Sponsor: Paulette Saunders
Margaret Mitchell, a rebellious woman, created the timeless Scarlett O’Hara – the southern social scalawag during the Civil War. Louisa May Alcott, a feminist, created Jo March – a tomboy of the North during the Civil War. Although both stories take place during the same time period, the differences between Jo and Scarlett are drastic. However, this is understandable since *Gone with the Wind* was written in 1936, and *Little Women* was written in 1868, nearly 70 years before. Both young women have decidedly unfeminine traits and exhibit values and behavior unacceptable in their social circles, as well as to their readers at the time of publishing. In this paper, I will explore and compare the different meanings of femininity during the publishing time of *Gone With the Wind* and *Little Women*, as well as during the time period in which the stories take place. I will utilize my research on these particular time periods in the North and South, as well as providing textual evidence from the stories, in order to fully describe the significance of Scarlett and Jo’s acts of social suicide.

Perceptions of Health, Maturity, and Social Competence as a Function of Gender. Alan Cagle, Butler University. Faculty Sponsor: Amanda C. Gingerich

Broverman and Broverman 1970 found evidence suggesting that sex-unspecified adults and stereotypically male gender roles were rated much higher than female gender roles on scales of health, maturity, and social competence. In a pilot study, student researchers repeated this procedure on a college campus, and found that participants attributed high scores of health, maturity, and social competence, stereotypically masculine traits to a man, stereotypically feminine traits to a woman. Interestingly, a person described as a healthy, mature, socially competent “adult” was given androgynous behaviors and traits. These results motivated the following research question: “If the biological sex of an individual is provided, but is described as with androgynous traits, would that person still be rated highly on levels of health, maturity, and social competence?” To study this, I created a survey of 18 items (six items assessing each– health, maturity, and social competence). Participants read a list of 20 gender traits describing an individual whose biological sex was specified. For example, in the man-feminine condition, participants would know that the person being described is biologically a man, but the traits used to describe him would be consistent with stereotypically feminine gender roles. My comparison of interest was between ratings of the individuals described in the woman-androgynous and man-androgynous conditions. Pairwise comparisons show that androgyny was statistically significant higher than the other 3 gender roles portrayed by the given traits, on all three dependent measures.

Abolish Hate Crimes with Tolerance and Acceptance Training, Not Prison. Kasey Dunagan, Butler University. Faculty Sponsor: Brooke Campbell

In the September 29th, 2010, ABC News story, “Victim of Secret Dorm Sex Tape Posts Facebook Goodbye, Jumps to His Death,” Emily Friedman discusses the first in a string of five suicides that took place over a time span of three weeks in order to question if what roommate and fellow Rutgers student Dharun Ravi did to victim 18 year old Tyler Clementi was a hate crime. This is problematic because by labeling an act as a hate crime, crime against gays and other people who deny hetero-normativity actually increases rather than decreases. In a desensitized society such as America, one needs to be objective and look into ways to better society as a whole with sensitivity training and education for different rather than by locking away the problem and hoping it goes away on its own.

Women and Trust. Shakinna Evans, Sarah Poehler, & Adriann Larusso, Indiana Wesleyan University, Marion. Faculty Sponsor: Katti Sneed
The problem is that women who have been in relationships often have difficulty with trust because of past experiences. Battered women were incorporated into this study because of the possible trust issues those women may have after being in abusive relationships. The purpose of this study is to measure women’s trust issues after having been in relationships. This study compares two groups of women, those residing in battered women’s shelters and those not. With this study, insight will be gained regarding women’s ability to trust after having been in healthy, or non-

healthy relationships. The results will hopefully guide counseling programs for women who have been abused. A quasi-experimental design will be used with a post test-only and comparison group to conduct the research. A trust scale will be used to survey the women.

Statistical Investigation of Gender-Segregated Pursuit of Science Degrees among Students at Earlham College. Alma Gracic, Rachel Leeman-Munk, Xinyu Chen, Son Van, Earlham College. Faculty Sponsor: Anand Pardhanani

The goal of this study is to identify key reasons that lead to gender-segregated choices of majors among science students at Earlham. Although the gender-gap between the physical sciences and the life sciences is a well-documented nationwide trend, we are interested in studying whether there are additional factors at Earlham that mitigate or exacerbate the problem. We will look at the graduation data from the past five years. We will also carry out a statistical study by designing a survey and gathering data from a random sample of Earlham students. We will use statistical inference methods to compare our data with published information and to infer any statistically significant associations we find within our data.

Unbecoming the Enemy. Caitlin Jackson, Butler University. Faculty Sponsor: Brooke Campbell

Taking seriously the Combahee River Collective "A Black Feminist Statement" that "Eliminating racism in the white women's movement is by definition work for white women to do" (1977), the focus of this research will be on the methodology of white feminists eliminating privilege based on race and how this methodology can also be used to eliminate other privileges, for example based on class and sexual identity. Primary resource information will be gained from a Butler Demia Feminist Majority Leadership Alliance-led discussion group composed of students and faculty of diverse identities.

Who Says She Should Love the Way You Lie? Kiely Keesler, Butler University. Faculty Sponsor: Brooke Campbell

"If she ever tries fucking to leave again, I'ma tie her to the bed and set this house on fire," is just one of the horrifying lines sung by rapper Eminem in his song "Love the Way You Lie." Although in recent history, pop-culture as a whole has glamorized violence and other illegal behavior in order to make money, Eminem takes it to the extreme. In "Love the Way You Lie," Eminem glorifies domestic violence in order to create a catchy and marketable song; however, the song perpetuates and encourages the continuation of domestic violence. This paper examines the influence of "Love the Way You Lie" on victims and perpetrators of domestic violence, the fight against domestic violence, and society's views of domestic violence in general.

Run to the Hills Yourself, Iron Maiden. Casey Natalino, Butler University. Faculty Sponsor: Brooke Campbell

"I do have naturally high self-esteem, I've come to a place where I can honestly say that I love my body and am happy with being fat." It is not often that people, let alone women, get up the courage to say those words. Nomy Lamm was strong enough to say them in her essay, *It's a Big Fat Revolution*, but is quick to follow with, "But occasionally, when I look in a mirror and I see this body that is so different from my friends', so different from what I'm told it should be, I just want to hide away and not deal with it anymore" (2). If Lamm, a self-proclaimed revolutionary, cannot always fight the feeling that fat is ugly, then do the rest of the women of the world even have a chance at feeling beautiful? Hopefully the answer is yes, but one might pose the question, why is it so difficult for women to feel beautiful? Naomi Wolf's answer to that question would be "the beauty myth." In her essay *The Beauty Myth*, Wolf compares female beauty standards to the iron maiden, a medieval torture device that trapped and killed its victims inside, but was painted like a beautiful woman on the outside. Women are trapped in these iron maidens through makeup, hair products, stilettos, and the list goes on, but one could argue that the most influential standard women are held to is the pressure to be thin.

Bishop Eddie Long and His Followers: A Critical Look at the Black Church and the Role of Institutional Religion in Black Political Thought. Tia Osborne, Butler University. Faculty Sponsor: Brooke Campbell

It is widely held that the relationship between the Christian church and the African American community has been one of common struggle for racial equality. However, for many Black LGBTQ identified individuals, feminists, and atheists it is easy to see the ways in which the Black Church itself is complicit in re-creating homophobic, patriarchal, and intolerant notions of "blackness". In my paper, I use the sex "scandal" involving Bishop Eddie Long of New Birth Missionary Baptist Church as a point of departure to further question how these notions of "blackness" obstruct skeptical inquiry and the goals of Black anti-racist politics.

The Makings of an African American Woman. Kazmyn Perry, Butler University. Faculty Sponsor: Brooke Campbell

I will be presenting a paper I wrote that describes the plight and frustration that comes with being an African American woman in the United States. The paper offers a point of view that often goes unexamined.

Perceptions of Homosexuality on the Valparaiso University Campus. Jennifer Pokorny, Jennifer Johnson, Brittney Smiejek, Valparaiso University. Faculty Sponsor: Matthew Ringenberg

Views of homosexuality have been a major issue for many years and still are to this day. As stated in the Declaration of Independence, all citizens should be granted equal rights and respect. However, many still are struggling to offer their acceptance to those of diverse populations, especially

to those who identify themselves as members of the GLBTQ community. This lack of equality has escalated to a nation full of discriminating views, attitudes and stereotypes. While all ages have portrayed negative attitudes towards members of the GLBTQ population, it was most visually prevalent among college students at college campuses. Because of the prevalence in college, this study was targeted towards students of both heterosexual and homosexual orientation at Valparaiso University. The study was generated in this manner in order to obtain varying perspectives on the topic of homosexuality. With the knowledge gleaned, results were expected that there is not an overall acceptance of the homosexual population as there is for the heterosexual population. The study was working towards improving the awareness and advocacy for the homosexual population on the Valparaiso University campus. With or without an overall accepting population, it is imperative that the homosexual community be treated with integrity and respect.

“I am Finding Myself”: (Dis)Covering and Rediscovery of the Black Woman through Tyler Perry Films. Jama Riley, Indiana University/Purdue University at Indianapolis. Faculty Sponsor: Jennifer Thorington Springer

In his 9 major box office films, the increasingly well-renowned playwright, producer, writer, and actor Tyler Perry addresses poignantly and comically issues that affect the black community, with special attention to black family and relationship dynamics. By means of direct language and unrestrained (no-holds-barred) humor, Perry inarguably challenges the stereotypical media representations of the black male as ignorant, insensitive, and selfish; however, this seems to be done at the expense of the Black American female- who is more often than not cast as stereotypically angry, materialistic, and wanting in moral character and emotional balance— problems which he resolves by having female protagonists engage in recognizing, getting, valuing, and keeping a good man. This paper considers female characterization in the films of Tyler Perry, evaluating the characters and identifying problematic trends in their development while giving due regard to such questions as: Is Perry balanced in his portrayals of Black women? Is it practical to think one can give a “realistic vantage point” into the everyday life of a people without denigrating them? Is it possible to present the intricacies of the Black woman and the challenges of loving her without miring her in the very stereotypes from which she struggles to free herself? What challenges does the black male face in his coverage of his counterpart? What problems does Perry’s portrayal bring to bear? Can Perry or any other Black male do her justice in media works, or does he cause her more harm than good?

HISTORY

Black Baseball in Indiana. Daniel Carpenter, Ball State University. Faculty Sponsor: GERALYN STRECKER

For the past semester I have been a part of a small, inter-disciplinary group of students researching the historical development and importance of black baseball in Indiana from 1860 to 1970. Our group has collaboratively written a book of essays and produced a documentary film on the subject. Our book and documentary are breaking ground in the research of black baseball in Indiana. Although the Negro Leagues are a growing topic of interest in the field of baseball research, little is known about the history of black baseball in Indiana. I am a member of the editorial board for the book. Due to my specific role in the project, I will focus my presentation on the historical aspects of black baseball in Indiana. I feel that this is an important focus because of the general lack of knowledge the people of Indiana have of the history that took place in their back yard. Indiana did not play a minor role in the development of black baseball. In many ways, the state is responsible for the growth of the Negro Leagues and many of the greatest black baseball players to ever set foot on the diamond. Through telling the history of black baseball in Indiana, I hope to stress the importance of that history and the pride that Indiana, as a community, can take in it.

The Identity of the Vestal Virgins in the Construction of Roman Identity. Stephanie Chevront, Butler University. Faculty Sponsor: Christopher Bungard

Roman identity has been defined by what the Romans did: their political games, their military conquests, and their amalgamation of various religions. These identities are built upon the assumption that identity can only be defined by what one is; however, identity can also be defined by what one is not. As a result of my research, the constructed image of the Roman priestesses, known as the Vestal Virgins, seems to underscore aspects of the Roman identity by providing a contrasting, yet related identity. In reading ancient authors, it was clear that the authors were connecting the Vestal Virgins with the idea of Rome. After reading scholars such as Robin Lorsch Wildfang, Mary Beard, and Adriadne Staples it was clear that the scholarship concerning the Vestal Virgins argued that the Vestals were either an integral part of Roman society or a group that defied all attempts to be normally categorized. By using the theory of “the other,” introduced by Edward Said, my project reconciles the unique characteristics of the Vestals with their importance within Rome. As a result, a more comprehensive interpretation of the Vestal Virgins is provided. As the “other,” the Vestals provided a contrast that strengthened the Roman identity. Specifically, this paper explores the recorded prerequisites for a girl to become a Vestal, the rite of captio, the Vestal’s ability to write a will, and the public punishments of Vestals in conjunction with the Roman social structure of potestas and family and the political structure of the Roman state.

Does the Benefit of All Include Women? The Formalization of Medical Education and its Effect on Women during the Progressive Era.

Anne Porter, Butler University. Faculty Sponsor: Vivian Deno

Americans utilize the extensive system of medical proceedings in everyday life through doctor appointments, hospital visits, and the highly

debated medical insurance companies. However, most of the consumers of medicine in America are unaware of the history of the field of medicine, when it started, how it came about, and most importantly, who were included in the study. The formalization and advancement of medical training occurred during the Progressive Era as Johns Hopkins set the precedent for medical school education based on scientific knowledge and experience. This paper examines the discourse of the extent to which women were able to penetrate and challenge the gender barriers in the newly developing field based on scientific investigation and laboratory science by looking at the ways in which women used scientific investigation and the medical profession to reverse social inequalities and demonstrate women's intellectual abilities through histories on the development of Johns Hopkins Medical School, and the careers of female physicians during the Progressive Era. Where other have argued that the formalization of medical training and the establishment of model medical schools hindered female practitioners, I argue that the emerging emphasis on scientific models of medicine catalyzed the change in attitudes towards female scientists and doctors.

Jewish Businesses in Nazi Germany. Melanie Ramsey, Butler University. Faculty Sponsor: Richard McGowan

The rise of Adolf Hitler and the Third Reich brought many changes to Germany. In the first years of their power, Hitler and the Nazis worked to alter the German people's view of the world, reform the demographic landscape of the country, and mobilize the nation for war. The motivations of the new German government transformed the business landscape in many unalterable ways. In particular, the nature and very existence of businesses owned by Jews was transformed during the first years of the German Reich from 1933-1939. Kristallnacht, or the Night of Broken Glass, on the night of November 9-10, 1938 marked the first instance of open government aggression against the Jews and their businesses. Over the next few years, there were three possibilities of what could happen to a Jewish owned business. Firstly, many businesses were simply shut down due to the death or relocation of their owners. Another possibility for the fate of Jews businesses was the acquisition of the firm by an Aryan owner, either through a legal sale or an illegal theft of the company. Lastly, some businesses were sold to friends who were the legal owner of the company during Nazi rule and were then given back to the rightful Jewish owner at the conclusion of the war. The three possibilities for the fate of Jewish businesses demonstrate the German business environment was significantly altered from the period prior to Nazi rule until after the conclusion of World War II.

Roman Fort Construction: The Benefits of Standardization. Dane Rowles, Ball State University. Faculty Sponsor: Christine Shea

Much work has been done on the archaeology of Roman forts. My goal is to look at a few examples of the layout and archaeology of these forts from the late Republic to early or middle Empire eras of the Roman military in order to come up with a standardized design which would be adhered to by Roman engineers. In addition, I intend to shed some new light on fort construction of the era by considering period sources on the Roman military or on architecture in general. However, I believe that many translations which have been reused over the years dating back to the turn of the century tend to often utilize language which is no longer useful to modern scholarly research. Therefore, it will be my task to translate these original sources in order to obtain more useful information which may shed more light on this subject.

Shallow Roots: An Analysis of Filipino Immigrant Labor in Seattle from 1920-1940. Krista Sorenson, Butler University. Faculty Sponsors: Ageeth Sluis & Vivian Deno

"Shallow Roots" is an attempt to determine why Filipinos existence, despite being the second largest Asian immigrant group in the United State, has been ignored by white Americans. It investigates how Progressive Era Americanization reforms, colonial and immigrant laws, public perception, and the lives of Filipino immigrants in Seattle from 1920-1940 prevented Filipinos from gaining an important foothold in the American culture, and community. It is also a response and an addition to the history of a group whose presence in the histories of this country has been virtually overlooked by most historians.

Healing on the Fourth Hill: The Use of Space and Landscape at the Pantokrator Monastery and its Hospital in Constantinople. Tyler Welford, Ball State University. Faculty Sponsor: Christine Shea

In the 12th century, John II Comnenus and his wife Irene set out to construct the Pantokrator Monastery on the eastern slope of the fourth hill of Constantinople. According to its monastic charter, written by John II Comnenus, the monastery supported a very sophisticated hospital, which tended to the sick of the capital without charge in the name of Christian philanthropy. Various scholars such as Anastasias Orlandos and Basileios Tsagres have tried to understand the layout of the hospital from the information in the monastic charter and subsequently map a reconstruction. This approach has been criticized for ignoring the lack of archaeological data at the time. Some physical remains of the monastery survive in present day Istanbul as the Zeyrek Mosque, originally being the three churches of the monastery. The space around the Zeyrek Mosque is littered with cisterns and other possible remains of the monastery and its hospital. The archaeological remains and the literary sources combined invite questions about the arrangement of the hospital in the monastery and the departments inside the hospital. Moreover it allows more overarching questions of the use of space in the urban setting of Byzantine Constantinople to be touched up in relation to the notions of gender, utility, and the 'proper' spiritual function of the monastery. The hospital of the Pantokrator monastery has been cited by scholars as surprisingly modern and is, therefore, an extremely important institution in the topic of Byzantine medicine.

INTERNATIONAL STUDIES

Colonialism and Albert Camus' Absurdism. Kassandra Adams, Butler University. Faculty Sponsor: Robert Oprisko

French-Algerian philosopher, Albert Camus' focus of existentialism, known as "The Absurd," is conceptualized as the search for meaning in life but the inability to find it. In his works *The Stranger* and *Exile in the Kingdom*, Camus takes this notion and applies it to the idea of colonialism as a concept in which certain citizens, such as him for example, can be left in search of the country to which they truly belong bringing about issues of identity and one's meaning in life.

Rebuilding after Conflict: An Examination of Refugee Camp Design in Jordan. Jessica Barnes, Ball State University. Faculty Sponsors: Jody Rosenblatt-Naderi & John Motloch

This project examines refugee camp design for the people displaced by the Israel-Palestine Conflict who are now residing in Jordan. In the past, refugee communities have had little or no formal design. However, by utilizing the principles of landscape architecture, these populations can rebuild their communities in ways that empower and promote community vitality. Well-designed communities encourage responsible stewardship of land, greater human health, and quicker economic recovery. Likewise, well-designed communities can connect to the area's natural systems and landscape for better water management, utilization of passive heating and cooling systems, and reduced electrical needs. This project develops a "prototype" for a healthy refugee community and a "method" for applying the prototype to the landscape near Amman, Jordan. The "prototype" addresses cultural concerns specific to the Palestinian community, local climate and landscape, eco-balanced community design, and development strategies. The "method" addresses the theoretical application of the prototype to the landscape near Amman, Jordan, showing a case study of how a community might use the recommendations from the prototype. The political and economic atmosphere of the area makes the care of refugee populations precarious—it is hoped that better and more sustainable design will help alleviate some of the pressures these communities place on their host countries while promoting better health, improved economic growth, and stronger community networks for the refugee community.

Speak Softly but Carry a Big Can of Paint. Rosemary Booth, Butler University. Faculty Sponsors: Ageeth Sluis & Siobhan McEvoy-Levy
Graffiti was first noted on the walls in Pompeii and since then it has been a common feature on walls around the world. Using Paulo Freire's *Pedagogy of the Oppressed* as a framework, the U.S./Mexico border fence (in conjunction with Chicago's Pilsen neighborhood which serves as a contact zone similar to that of the U.S./Mexico border) and the Israeli wall will be analyzed as popular graffiti sites. These sites have been chosen due to their political importance in the areas that they are meant to divide. Also, the importance of street art as a positive and alternative form of protest and response to the various injustices that youth around the world face will be analyzed. Finally, graffiti's use as an act of spatial and structural intervention and response will be explored. This paper will use primary sources in the form of personal and other people's photographs of graffiti and secondary sources in the form of books and articles about the history of graffiti and community reactions to the art form in order to construct an analysis about graffiti as activism and a potential peacebuilding mechanism.

The Spinning Wheel: Khadi as Gandhian Development Strategy. Quinn Clark, Butler University. Faculty Sponsor: Chad Bauman
Khadi is the name for cloth made from cotton, silk, wool, or a mixture of the three that has been spun and woven in India. Mohandas Gandhi proposed a thorough development program based on spinning and weaving khadi, and he transformed this trade into a strong symbol of self-reliance. Khadi became a means to simultaneously subvert economic dependency on foreign goods, namely the goods of the British, and economically empower the villages, where the majority of India's poor historically and currently reside. Currently, khadi represents an opportunity to extend employment and livelihood to the villages, and it has garnered the financial support of the Asian Development Bank (ADB). Khadi receives substantial government subsidies, and the sector's operations are facilitated by the semi-governmental organization called the Khadi and Village Industries Commission (KVIC). Market performance of the program over the last half-century has inspired some concern when it is compared to the financial assistance granted to the program. The study relied heavily on interviews by academics and field experts, though observations of khadi establishments and KVIC offices were conducted. Pricewaterhouse Coopers conducted a market report that prompted the ADB to grant a loan of \$150 million USD. That report was examined because it contains crucial market research and expertise and the rationale for the loan. It was found that sales are, and have been, the weak link in the value chain, but innovative private firms have found increased sales by marketing khadi as a fashionable and philanthropic product.

Catalan National Identity and Independence and the Effect of Francoism. Megan Daley, Butler University. Faculty Sponsor: Antonio Menendez

After the defeat of the republicans in the Spanish Civil War, the Spanish head of state, Francisco Franco spent nearly 40 years suppressing and restricting the region of Catalonia. The effects of the Franco regime on Catalan nationalism have resulted in a stronger and more adamant call for independence by modern Catalan separatists. Between 1939 and 1975, Francoism continually restricted the linguistic, cultural, and individual rights of Spain's autonomous regions, with special attention paid to Catalonia and Basque Country. In an effort to create a more homogenized Spain, Franco attempted to destroy all traces of individual cultures and languages. Although these rights were eventually returned to the Catalan people with the death of Franco, the continual attempts to erase their national identity only increased the sentiments for independence, feelings

that continued after Spain's return to democracy. This paper will demonstrate the effects of the Franco regime and how it sowed the seeds of modern Catalan national identity. Catalan nationalism can be attributed to years of abuse and restrictions suffered by Catalans under Francoism and the feelings of bitterness that still remain today. This paper will cite specific examples of Francoist restrictions and the Catalan reaction through songs, literature, memoirs, government documents, and modern newspapers. Indeed, although many assumed that with the death of Franco and an increase in regional freedoms the call for Catalan independence would eventually die down, it has persisted.

Post 9/11 Social Conflict and Cooperation. Jonathan Gainer, Butler University. Faculty Sponsor: Robert Oprisko

By utilizing Georg Simmel's theories of conflict and cooperation, we can better understand the impact, specifically 9/11, but to a larger extent, recent cultural/religious with the Middle East clashes, have had on social cohesion and group identity in the United States.

Integrating into American Culture from Outside. Haley Harms, Butler University. Faculty Sponsor: Robert Oprisko

How native cultures, specifically the Spanish-speaking peoples of Mexico and Cuba, keep their identity in American culture once they immigrate from their home country to the United States. Do those who immigrate from Mexico and Cuba intertwine the American culture within their own cultures and traditions? How do they decide which American traditions to identify with and which to incorporate into their lives and the lives of their families? Are there differences between how Mexican-Americans, Latin-Americans, and Cuban Americans identify themselves within American culture? On the flip side, what is the American perception of those who immigrate from Spanish-speaking countries? Does this perception change based on what country Spanish-speaking peoples immigrate from?

The Law, Liability, and Legitimization of Punishment: The Rebel's Challenge. Robert Maclin Sweeney, Butler University. Faculty Sponsor: Robert Oprisko

I will be examining the construction, evolution, and implementation of punishment within societies through the lens of Camus' Rebel in order to engender a fuller understanding of the implicit paradox of punishing a body for a crime. I will be using Montesquieu's "The Spirit of Laws" and Foucault's "Discipline and Punish: The Birth of the Prison" in order to gain an understanding of the creation and evolution of laws. I will be using Camus' "The Rebel" as a guideline to understanding the punishment's affect upon an agential being. By researching this I hope to create a better understanding of the penal system in today's society as well as elucidate the inherent flaws in the system. The implication of this is that a more effective crime-combating system will develop and evolve from the current, mostly ineffective, penal system of contemporary society.

The Effects of Biculturalism on the Individual. Needa Malik, Butler University. Faculty Sponsor: Robert Oprisko

This paper will be exploring the effects of biculturalism, sometimes referred to as dual-culturalism on an individual's life. We will examine the individual based on their emotional and intellectual well-being to formulate a psychological perspective. One aspect of the paper will focus on conflict between the families living in the diaspora, often between immigrant parents and their first-generation children. The focus of this examination is the duality of being that the bicultural individual faces and coping mechanisms in different cultures. I will examine this topic through exhaustive examination of the literature and by conducting primary qualitative research we can come to a conclusion about the effects of biculturalism. I will focus on literature concerning Asian immigrants living in the diaspora, specifically South and East Asian. Due to a heightened trend towards globalization, an increased amount of people are faced with this duality of being. Because of the vast amount of people that this topic affects, it is important to understand the effects of this phenomenon.

Tanzania: Women in the Media and Politics. Missi Menke, Butler University. Faculty Sponsor: Margaretha Geertsema Sligh

I will be focusing on Tanzania and its history. To begin, I will give a background history of the beginning of the country, for example, or what kind of political systems it has had and how they transitioned into the next phase. I will also include in this history the status of women in the country during this time and how that transitioned as well. After describing the history up until its current situation, I will begin my focus on women in politics and women in the media. This will include women's rights and equality laws in the government, how many women are actually in political seats, and whether or not there are required quotas for women to be in the government. From the media aspect, I would like to research how women are portrayed as well as their participation in the media itself. Also, I would like to determine whether women were at the root of any progress made in their own rights and equalities with feminist movements or whether it was implemented by the government for example with gender quotas and how this was portrayed in the media. By the end of this paper, hopefully the reader has a sense of the general history of the country and paths it has taken, as well as the progress and history of women in politics and their involvement/participation in the media.

Ending the Cycle of Child Sex Slavery in Cambodia. Carmen Murphy, Butler University. Faculty Sponsor: Xiaoron Han

Many of the underlying causes of sex trafficking have been exacerbated by the tyrannical reign of the Khmer Rouge, making Cambodia a unique case for study. The predominant religion is Theravada Buddhism, a sect whose teachings contribute to the cultural subordination of women. The attitude of filial piety in Cambodia gives young girls the responsibility for taking care of the family. By utilizing these topics to determine why this travesty occurs and how best to combat it, I posit that the international community has the resources to provide education and rehabilitation

and the legal ability to prosecute perpetrators to end this assault on human rights. If young Cambodian women become literate and gain skills for employment, they will no longer resort to or be coerced into illegitimate professions. In rehabilitation from sex trafficking, education is therefore necessary to provide women with the skills to develop an independent living and protect themselves once reintegrated into society. Often girls who are rescued out of slavery return to prostitution because rehabilitation programs fail to give an alternative. Sustainable freedom recognizes that victims of sexual slavery need a place that provides medical care, basic education, vocational training, a support system that remains in place after reintegration, and restores their self worth through counseling and the pursuit of justice through criminal courts. Slavery is illegal in every nation and is prosecutable under international conventions. If laws are enforced, sex predators, without the benefits of ease and accessibility, will no longer be interested in Cambodia.

Taiwan: Forming its Own Identity. Clinton Poletti, Butler University. Faculty Sponsor: Robert Oprisko

The People's Republic of China has long considered Taiwan an inalienable part of its domain. This notion is justified by the fact that Taiwan's population is almost entirely comprised of ethnic Chinese and also by the fact that Taiwan's history is closely intertwined with China's. Subsequently, reunification has been the PRC's goal ever since Kuomintang fled to Taiwan in 1949. Taiwan, however, has not been so willing to reunify with the mainland, instead seeking to maintain the status quo. Many Taiwanese, in fact, advocate for seeking complete independence from China. China's claim that a shared cultural history and ethnicity can act as a means to justify reunification is a poor one. Identity is based on social experience rather than culture heritage or ethnicity. Overall this paper will attempt to answer the questions: what are the characteristics of identity and how does the Taiwanese people's identity differ from the Chinese?

The Concept of Public Space in Central America. Edward Stein, Butler University. Faculty Sponsor: Gabriela Muniz

The idea of public space in Central America is a much different concept than what we possess in the United States. There is much less personal space, as urbanization throughout Central America has created a vacuum which funnels people towards any opportunity to live a decent life. As such, the streets are filled with everyday reminders both of the cultural history in the region as well as the pressures of living today. I will present a photo essay documenting different uses of space: we will examine how differences in transportation, commerce, public sentiment, monuments, and festivals/celebrations play a role in creating the modern culture of many Central American countries. We will discuss assumptions of how urban life is practiced through comparative methods: do we efficiently use our public resources in the United States? Do the countries of Central America do a better or worse job? We will get a sense of how different cultural beliefs manifest themselves in this section of the world.

Patriotism and Nationalism and How It Is Effected By Globalization. Brian Wanbaugh, Butler University. Faculty Sponsor: Robert Oprisko

This research project will examine the relationship between patriotism and nationalism and how those feelings affect feelings of internationalism, and vice versa. Previous research has shown that there is indeed a relationship between the set of feelings, with normally a more internationalist person having lowered feelings of nationalism. However, previous research has not included the concept of culture in its definition of internationalism, which is the major difference between this project and previous research.

The Impact of Future Technology on the Middle Class of America. Michael Wang, Butler University. Faculty Sponsor: Robert Oprisko

Future technology, such as 3-D Printing, will revolutionize manufacturing and completely transform the lives of the working class in the U.S. This innovation will require minimal human interaction and, in effect, wipe out jobs in manufacturing. With this in mind, we plan to study the effects of an out of work middle-class on American society and plan to apply our research to anticipate how a sudden unemployment spike would affect the lives of all Americans. Since this moment has not arisen as of yet, this research project will be purely hypothetical. But with my inspection of a jobless working class, we hope to find evidence to support what we foresee as a frightening future for the lives of many. The global implications of the achievement in manufacturing technology will not only affect developed nations, but also those that have struggled to keep up with economies of scale in the past.

LITERATURE

Farhad's Fiction. Farhad Anwarzai, Butler University. Faculty Sponsor: Ania Spyra

Fiction written by Farhad Anwarzai.

The Great Web: Analyzing and Dismantling the Human Superiority Complex. Farhad Anwarzai, Butler University. Faculty Sponsors: Lee Garver, Joseph Colavito, Angela Hofstetter, & Jason Goldsmith

The belief that humans are superior to all other living organisms is a long-held belief. In the West, religion largely influences the notion that man

is “higher” than the animals. Science, in many ways, also shares this ideology and works to promote the progress and well-being of human beings over other organisms. But at no other point in western history is a human being’s place in the world so challenged than in the Victorian era. When Charles Darwin describes the relationship between humans and other species as mutable, scientists and religious fundamentalists react with fear and bitterness. Thanks to Darwin, man—the European man, the Christian man—is no longer held superior to animals. Darwin disputes an anthropocentric perception of the world, a perception that grounds Christianity and, surprisingly, the science of the time. He dismantles the Great Chain of Being, the *scala naturae*, the strict teleological hierarchy that has bound European thought for centuries. Darwin’s contributions trigger a revolution in both Victorian science and literature; many writers begin to speak out against man’s cruelty towards animals. This paper will argue—according to the works of Darwin, Ouida, Anna Sewell, and several contemporary Victorian scholars—that man is not the most complicated species and not the most evolved. In many ways, including intellectual capacities, humans actually appear “lower” than other animals. And, when it comes to sympathizing with other creatures (including other humans), man is arguably the least intuitive, the least moral, and the most savage of all animals.

Suicide in Shakespeare. Katie Arnt, Butler University. Faculty Sponsor: William Walsh

William Shakespeare’s tragedies end in the death of a character; in *Antony and Cleopatra*, *Othello*, and *Romeo and Juliet*, the title characters meet their end by taking their own lives. Suicide is a common theme in these four plays; more importantly, however, suicide in these four plays presents another side to the tragic deaths. Though suicide is tragic, Shakespeare presents it as necessary to reap positive consequences. The suicides in *Cleopatra*, *Othello*, and *Romeo and Juliet* are tragic but ultimately constructive and necessary. The suicides are constructive in that they either redeem or give dignity to the characters, as is the case in “*Antony and Cleopatra*” and “*Othello*,” or they are instrumental in enacting the realization of the gravity of other characters’ foolishness and pettiness, as is the case in “*Romeo and Juliet*.” Within my paper I will analyze the behaviors of the title characters within each of the three plays, and outline the ways in which their suicides were constructive to them personally or were constructive to the world of the play, beginning with “*Antony and Cleopatra*” and ending with “*Romeo and Juliet*.”

It’s Just Eating Babies: A Text World Theory Approach to Understanding the Effectuality of Swift’s *A Modest Proposal*. Jennifer Benner, Grace College. Faculty Sponsor: Paulette Sauders

In Text World Theory, one of the key principles is that the interaction between the reader and the text is processed through a series of conceptual metaphors. In these metaphors, the reader uses his or her preexisting knowledge structures, or idealized cognitive models, in order to evaluate and interpret hypothetical situations, beings, and events. The degree of variation between what one already understands and the text that is being interpreted is proportional, then, to the subsequent need for suspension of disbelief. The level of accessibility then determines the ability of a text-world to absorb a reader. In Jonathan Swift’s “*A Modest Proposal*,” accessibility is a key factor in the effectuality of the satire. It is the element of realism that makes his eating-children suggestion so distinctly penetrating. Swift accomplishes this realism through his use of specific world-building elements, micro- and mega-metaphors, and target-audience implication.

Sexuality and Satire in *Dracula*. Julie Bickel, Butler University. Faculty Sponsor: Lee Garver

There are many claims which state that Bram Stoker’s *Dracula* draws upon many elements horrific to Victorian culture, such as racism, xenophobia, feminism, and homoeroticism. There are likewise biographical aspects to *Dracula*. But what about the usage of monsters to personify and satirize societal fears of Stoker’s day, such as sexual promiscuity, homoeroticism, and gender role reversal? I will assert that vampirism—its existence, how it is spread, the characters it affects and how it affects them—in *Dracula* is Stoker mocking contemporary gender roles. First, Count Dracula can be seen as a fictional, monstrously distorted version of Oscar Wilde in his homoerotic tendencies. Second, Lucy and Mina’s respective descents into monstrosity poke holes into the idea of the New Woman and the image of the traditional submissive wife/mother-figure. Mina, the three weird sisters, and Dracula himself each blur the lines between the ideas of “male” and “female.” Their images of distorted gender roles do not deal merely with homo- and bi-sexuality, but also with social norms: the male is dominant over females; women must remain quietly in their domestic sphere. For the first portion of my paper, I will quote Stoker’s words from *Dracula* and give a few words from outside sources on Stoker’s personal life. Throughout the second portion of my paper, I will give my support through formal textual analysis. By comparing and contrasting typical Victorian social and sexual gender roles with those portrayed in *Dracula*, I will show that Stoker truly did satirize contemporary cultural ideals.

The Feminine Tragedy. Annette Bochenek, Butler University. Faculty Sponsor: William Walsh

In William Shakespeare’s *Hamlet* and *Othello*, the heroes meet their demise, but also influence the downfalls of their lovers. The ways in which the heroes treat their lovers—Ophelia and Desdemona, respectively—demonstrate the formula of peace turning into pandemonium within the Shakespearian tragedy. Ophelia is the weaker of the two women because she is dependent upon the men of the play, never forms her own opinions, and is influenced easily. As *Hamlet*’s downfall continues, Ophelia is dragged into the tragedy through the lack of guidance. Unlike Ophelia, Desdemona is more rebellious in nature, and her ability to make her own decisions raises the suspicions of *Othello* and leads to her downfall. She becomes a victim to *Othello*’s love and chooses to hide behind the false image of *Othello* being a perfect husband, which is her main tragedy in the play. As *Hamlet* and *Othello* grow into tragic figures, they influence the women who love them, and play a strong role in their

demise. Although Shakespeare's tragedies focus on the drama in the life and death of the hero, the untold or secondary story lies with the women of the play, who reinforce the men's downfall into chaos.

Women as Material and Women as Spiritual in English Literature. Carina Brown, Grace College. Faculty Sponsor: Paulette Sauders
Throughout English literature of the Middle Ages and Renaissance, there was an apparent shift in thinking: women went from being viewed as the more "sinful" gender to being viewed as the last bastion of purity and righteousness in the sinful human race. Using feminist criticism, new historicism, research on the historical context of several works (such as *Volpone*, *The Faerie Queene*, *Hamlet*, and Chaucer's "The Wife of Bath's Tale"), and close examinations of the language and themes in those works, this paper will attempt to discover whether there was any consistency about the views of women during the Middle Ages and English Renaissance. Using the aforementioned methods and types of research, this paper will attempt to discover when and how the society's shift in thinking took place, or even if there were varying views of women at one time.

Sin and Forgiveness within Society. James Cesare, Indiana University-Kokomo. Faculty Sponsor: Ann Cameron
Nathaniel Hawthorne's *The Scarlet Letter* is a book with many powerful themes, such as sin and forgiveness in society. By examining the text closely and discussing the views of several critics, I try to come to a greater understanding of what Hawthorne is communicating about sin and forgiveness within *The Scarlet Letter*. Each critic varies in their thesis of what the text says about sin. The first critic, Budick believes that Hawthorne has created a pattern of social shame. Still another critic, Donohue, states the text of *The Scarlet Letter* is evidence that Hawthorne didn't believe in individual sins. However, I disagree with all critics in my paper to the extent I try to transcend their hypotheses through the text of *The Scarlet Letter*. My thesis is that Hawthorne is, through ambiguity of sin within the story, communicating a message that all humanity sins and the only way to overcome sin is for everyone to bring his or her sins into the open and forgive each other. The text contains several scenes, character behaviors, diction, and situations that I bring out to support my claim. Every character within the scarlet letter represents sin becoming manifest, only through different means and with different effects according to the character's situation and make up. As the story progresses their actions and the consequences of them show that the only way to defeat sin and its detrimental effects is to bring it out into the open and to forgive.

Dissecting Dr. Jekyll. Maddie Eckrich, Butler University. Faculty Sponsor: Lee Garver
The phrase "Jekyll and Hyde" paints a very specific image in our minds of one person constantly and physically alternating between two extremes: a sensible, rational doctor and a wild, evil man. When we rip off the outer layers of Stevenson's novella, we find a man, pressured by Victorian society to hide his shameful tendencies, wallowing in failure as his vices slowly overpower him. Both Masao Miyoshi and Joyce Carol Oates understand the effects that Victorian society has on Dr. Jekyll; the middle-class of this period tended to be rather strict and harsh in terms of propriety, morality, and uprightness. A sinful man, no matter his station, could easily find his reputation ruined. Miyoshi and Oates therefore claim that Jekyll's sole purpose in experimenting with the division of personalities rests with these pressures the doctor so heavily feels. Jekyll fully believes that the potion or concoction he created is the controlling factor of this experiment, yet closer examination of this potion reveals that it is quite possibly a placebo drug. If so, Jekyll and Hyde are, in fact, one person. Eric T. Olson and Irving Massey surely believe so; to them, Jekyll and Hyde have more in common than not, revealing a hidden sense of oneness in the novella. And if Jekyll's potion is indeed a placebo, if Jekyll and Hyde are truly one person, it is quite likely that the good Dr. Jekyll must be held accountable for all the horrendous actions of his dear Mr. Hyde.

The Dig. Eric Ellis, Butler University. Faculty Sponsor: Ania Spyra
I spent my childhood asking questions—typically silly questions like "Why is the sky blue?" But on a few occasions, I tasted more profound questions on the tip of my tongue. "Who is God?" and "Does He really exist?" In my poem, "Digging", I explore those ideas reflectively—pondering the complex nature of childhood and divine presences (or perhaps the lack thereof). There is something to be learned from the seemingly inconsequential moments of our youth; the answers that evade us in our conscious waking thoughts as adults can be found in plain sight. Sometimes it just takes a little poetry.

Intervening in Mortal Affairs: The Gods of the Aeneid and Paradise Lost. Brian Gross, Butler University. Faculty Sponsor: Christopher Bungard
The influence of Vergil in John Milton's *Paradise Lost* has been widely documented, and noted even since the book's debut in 1667. Milton's own career parallels Vergil's, even writing in Latin for some of his career. This link between the two writers being established, the particular convergences of their respective poems reveals both Milton's intention by mimicking Vergil's style and Milton's interpretation of Vergil's original intentions. While it is futile to try to decipher Vergil's original intent, understanding Milton's inspiration can reveal much about his perceived role within this genre generally and can demonstrate his intended role for his immortal figures specifically.

Wilde's Moral Reaction to *A Rebours*. Brian Gross, Butler University. Faculty Sponsor: Lee Garver

Essays concerning the relationship between *The Picture of Dorian Gray* and *Against Nature* acknowledge the influence Huysmans had on Wilde, as noted by Dorian Gray's "corruption" through the unnamed book he reads. However, the staggering similarity between the chapter eleven of *The Picture of Dorian Gray* and key sections of *Against Nature* is largely ignored or oversimplified as an allusion, while ignoring the implications of Wilde imitating Huysmans so closely. I intend to prove this is an extremely important point of convergence, and that it is indicative of Oscar Wilde's reception of Huysmans' novel and interpretation of aestheticism. Whereas others state that both *Des Esseintes* and *Dorian Gray* are examples of aestheticism incarnate, I intend to prove that, while this is true, Wilde's inclusion of morality in chapter eleven indicates a critical view of Huysmans' view. In essence, Wilde adds the mortality that he finds lacking in *Against Nature*. To prove this, I will first need to develop in detail exactly how Wilde imitates *Against Nature*, finding a section within it to compare against chapter eleven. Having established a very clear corollary between the two, I will then demonstrate exactly what is unique to chapter eleven. In doing so, I will be able to ascertain exactly what Wilde feels is important in considering aesthetic literature, giving a more revealing look at Wilde's relationship to Aestheticism and relaying a deeper understanding of the meaning of *The Picture of Dorian Gray*.

Unaccustomed Earth: Distance Duty and Domesticity. Abby Guthrie, Hanover College. Faculty Sponsor: Dee Goertz

Are "our common actions in reality simply the sackcloth covering which hides the cloth-of-gold – the meaning of the pattern" as Lawrence Durrell imagines, or can the quotidian reveal rather than conceal? In "Unaccustomed Earth," Lahiri's characters perform concrete, everyday duties to reveal how they negotiate the larger immaterial duties to family; initially Ruma and her father conflict in how they will enact their familial duty to one another, and these tangible realities symbolize their changing relations, with Ruma's father's strong values eventually altering and directing those of his daughter. Judith Caesar writes that in Lahiri's stories, "plot is almost incidental to the story's meaning, which resides in the images, metaphors, interconnecting patterns, and emblematic moment." For Lahiri, the enactment of duty is tied to images, metaphors and patterns of distance; the most emblematic moments in the story played out not in plot, but in correspondence, gardening and movement in the home space. The images associated with these tasks become objective correlatives for the emotions that surround the issue of distance between Ruma and her father.

Hyiding the Homo: Repressed Homosexuality and the "Divided Self" in Robert Louis Stevenson's *Strange Case of Dr. Jekyll and Mr. Hyde*. Britlynn Hansen-Girod, Butler University. Faculty Sponsor: Lee Garver

In my paper I will analyze the text of Robert Louis Stevenson's *Strange Case of Dr. Jekyll and Mr. Hyde* and argue that Dr. Henry Jekyll's interest in separating the two natures ("good" and "evil") within himself is spurred by his need to conceal his homosexuality. First, I will discuss how the pressure to adhere to social morals and maintain the virtuous reputation that high Victorian society demanded of middle-class, professional men, forced Jekyll to suppress his true self, creating within him two different identities. Jekyll's desperate desire to indulge his homosexual nature while maintaining his status as a wealthy, respected doctor drove him to conduct dangerous experiments on himself, temporarily allowing him to live as Dr. Henry Jekyll, respected doctor during the day, while indulging in activities considered "deplorable" by Victorian moral standards as Edward Hyde by night. Second, I will relate this claim to the concept of "Bunburying" introduced in Oscar Wilde's *The Importance of Being Earnest*. I will discuss how in both *Strange Case of Dr. Jekyll and Mr. Hyde* and *The Importance of Being Earnest* the male protagonists felt the need to create alternate identities in order to cope with the constricting moral values Victorian society imposed on men.

Science, Technology, and Society in *Fin de Siècle* Britain. Spenser Isdahl, Butler University. Faculty Sponsor: Lee Garver

My research seeks to understand contemporary views on science and its practitioners in Britain during the late Victorian/early Modern era, also known as the *Fin de Siècle*, through the lens of the literature produced during that time. By examining three texts, those being Bram Stoker's "Dracula," Robert Louis Stevenson's "Strange Case of Dr. Jekyll and Mr. Hyde," and H.G. Wells's "The Island of Dr. Moreau," I argue that, in this period of radical advancement of scientific knowledge and technological power, one of the great fears was not of the new technologies, but of the scientists who created them.

Pursuing the Ideal Writer's Group: A Didactic Study of Models Both Historical and Contemporary. Andrew Jones, Grace College. Faculty Sponsor: Paulette Saunders

Though we may recognize certain great authors for their uniquely refined and deeply idiosyncratic work, we often overlook the influence (both positive and negative) of other writers upon their colleagues. Groups of writers have gathered for centuries with the intention of critiquing, praising, editing, or simply listening to each other's literary progress and process. Indeed, the tradition of communal literary evaluation persists even to this day. This article explores several historical writers' groups—primarily the Inklings, the Bloomsbury Group, and the Scriblerus Club—as well as many contemporary examples and recommendations of such communities in an attempt to come to a methodological and practical conclusion as to what traits will or will not contribute to the utility and the productiveness of said communities. It will use first-source historical testimonies of the aforementioned groups, researched and popular consensus in periodicals and scholarly publications, and personal interviews conducted by the author to come to a well-informed, well-reasoned, and ambitiously practical paradigm that should not only be appreciated as a compendium of researched analysis, but a useful agenda for writers interested in forming their own communities.

Creative Writing. Ros Lederman, Butler University. Faculty Sponsor: Ania Spyra

Ros Lederman will be presenting an excerpt from her Honors thesis, a memoir of her education.

Poetry. Laura Little, Butler University. Faculty Sponsor: Ania Spyra

A small collection of poetry, written by Laura Little, exploring the complexity of our human experience.

The Purpose of Satire in Media and Literature. Natile Marlar, Grace College. Faculty Sponsor: Paulette Sauders

This paper will compare and contrast, using literature and media, the effects, purposes, and views of satire in these different forms and throughout time. Through defining satire and examining various articles, studies and satirical forms, I will compare and contrast the ways satire's effect on society is differently or similarly viewed, and the similar or contrasting purposes of the satirical form through literature such as *Modest Proposal* and *Huckleberry Finn* as opposed to media forms such as *The Onion*, *Tosh. O.*, and *Community*. This paper is written to seek answers to the question of satirical purpose, view, and effect. Society is known to partake in the comedic, satirical form of information and entertainment. I will discuss how this has stayed the same and/or changed through televised satire and past literary satire.

Harry Potter an Orthodox Christian. Mira McKary, Butler University. Faculty Sponsor: Jon Porter

The Harry Potter series has gripped the imagination of many, while conjuring up serious controversy on the side. To some, it demonstrates the rewards of perseverance, love, friendship, and the contrast between good and evil. On the other hand, Harry Potter has been described as a dark text, written to encourage children to dabble in black magic. But could this be a misunderstanding? Literary research indicates that the character of Harry Potter embodies the ideals of a Christian. The intent of this paper will be to study Harry Potter as an Orthodox Christian. As a Christian, Harry's life mission is to make the conscious decision to choose good rather than evil. In *Harry Potter and the Philosopher's Stone*, Harry declares that he will never go the dark side. He pours his life into the mission love, repentance, and sacrifice. Fate does not exist. Christians work with God in synergy to consciously choose good over evil. This is precisely what Harry has demonstrated throughout the series. Even outside the context of religion, Harry Potter demonstrates certain similarities with Orthodox Christians. Orthodoxy is ancient tradition wrapped around faith, family, culture, community, and food. Similarly, for Harry *Diagon Ally* opens the doors to his family, culture, community and unique food. Harry Potter utilizes magic as an expression of religion rather than a mechanism to do evil. In such respects, the magical community is similar to the Orthodox community. This paper will discuss Orthodoxy and compare Harry Potter to Orthodox Christianity.

Circulating Post-Modernism. Daniel Melin, Butler University. Faculty Sponsor: Brynnar Swenson

Zines were self-produced small magazines that were circulated in the late 80s and early 90s. They used found objects and collage in order to express a message of both personal expression and dissatisfaction with popular culture. Through subverting materials found in magazines, books, and other media, zines challenged the world at large, and did so with no intention of turning a profit. However, as time went on, eventually they came to be subsumed by the very things they rebelled against. This presentation will give a brief history of zines, explain their significance, and discuss how they both succeeded and failed in their attempt to change the world.

Seminar on Harry Potter. Angela Mion, Butler University. Faculty Sponsor: Jon Porter

This paper is part of the Honors Seminar on Harry Potter. J. K. Rowling's seven book Harry Potter series presents imaginative material for engaging topics of perennial interest: good and evil, virtue and vice, friendship, personal identity, the use and abuse of technology, and so on. The book series functions across a number of genres, boarding school literature, coming of age story, fantasy, quest, mystery, social and political parody. As such, the books take many of the features of our world and experience and highlight them, exaggerating certain features for effect or drawing attention to particular narrative threads and themes, providing a useful lens through which to engage real-world issues. Formal paper topics include symbolism in the Houses, Harry as a true hero, modern enchantment, rebellion and rule breaking, the disillusionment of art, Ron's role, and Dumbledore's authority. A survey of Butler students' opinions on the popular series, as well as answer questions posed by the students, will be discussed.

Paranormal Intervention in Shakespearean Tragedies. Amy Nicholas, Butler University. Faculty Sponsor: William Walsh

Upon first glance, *Macbeth* and *Hamlet* do not have much in common, apart from being Shakespeare's two most well-known and arguably best tragedies. *Macbeth* usurps, and *Hamlet* is usurped. However, the plays have more in common after deeper examination. In both, supernatural characters make up an integral part of the play. Without their introduction, it is likely that the rest of the action of the play would not have occurred because these paranormal characters provide the main character with the information that sets the action of the play in motion. The similarities between the Weird Sisters in *Macbeth* and King Hamlet's Ghost in *Hamlet* as paranormal entities might end there on the surface, but when examining their effect on the respective heroes, more similarities emerge. The Weird Sisters in *Macbeth* and King Hamlet's Ghost in *Hamlet* reveal the true natures of the characters through their paranormal traits, from their instructions, and how their interventions affect the heroes of the play.

Creative Writing: The Art of Horror. Joanna Parypinski, Butler University. Faculty Sponsor: Ania Spyra
In this presentation I will be reading from my own pieces of creative writing in the horror genre.

Seminar on Harry Potter. Joanna Parypinski, Butler University. Faculty Sponsor: Jon Porter

This paper is part of the Honors Seminar on Harry Potter. J. K. Rowling's seven book Harry Potter series presents imaginative material for engaging topics of perennial interest: good and evil, virtue and vice, friendship, personal identity, the use and abuse of technology, and so on. The book series functions across a number of genres, boarding school literature, coming of age story, fantasy, quest, mystery, social and political parody. As such, the books take many of the features of our world and experience and highlight them, exaggerating certain features for effect or drawing attention to particular narrative threads and themes, providing a useful lens through which to engage real-world issues. Formal paper topics include symbolism in the Houses, Harry as a true hero, modern enchantment, rebellion and rule breaking, the disillusionment of art, Ron's role, and Dumbledore's authority. A survey of Butler students' opinions on the popular series, as well as answer questions posed by the students, will be discussed.

Shakespeare and Cervantes Are Dead: The Construction of Fiction and Reality in Hamlet and Don Quixote. Joanna Parypinski, Butler University. Faculty Sponsor: Terri Carney

Both written in the early 1600s, Shakespeare's Hamlet and Cervantes' Don Quixote share common themes that cross the cultural boundaries of their respective countries. While these two renowned works have been widely studied in the last few hundred years, they pose a question that has not been cohesively addressed: how is reality created in literature, and how does literature influence reality? Furthermore, if the two are so entwined in both the structure of books and the structure of our perceived world, how can we distinguish between fiction and reality? A study of Hamlet and Don Quixote will show that in both works, a fictionalized reality is created by the eponymous character through his own madness and the author's use of metafiction. This broken barrier between appearance and reality in Shakespeare's and Cervantes' worlds demonstrates that literature is created through the same narrative structures as reality, which is itself a shared fiction.

The Savior. Logan Richard, Butler University. Faculty Sponsor: Ania Spyra

My presentation will be a reading of a short fiction piece I wrote about a young woman at a bachelorette party and the insecurities stirred up by an unusual present. After reading it I will talk about my process of developing the idea, character, and plot the process of making it into a tangible story.

Literature and Technology. Bo Roseberry, Grace College. Faculty Sponsor: Paulette Sauders

In today's society, technology is a part of everyday life. Most people own and use cell phones and computers, and have access to the internet and e-mail. Using these technological advances have triggered a new language, dubbed by many as "text-speak", which involves dramatic shortening of words and disrespect for grammar, spelling, and punctuation. This presentation will research the effect that the advances in technology has had on literature as well as people in school today.

An Analysis of the Values and Ideals of American Society as Indicated and Influenced by Popular Educational Literary Canon.

Liane Schmersahl, Grace College. Faculty Sponsor: Paulette Sauders

As psychologists debate whether an individual is defined by nature or nurture, so educators, scholars, sociologists and historians must wonder how a society is defined. In an age of increasing globalization and constant at-your-fingertips information, the factors influencing modern society are endless and incalculable. But though it is quite impossible to analyze and quantify every influential aspect in our world, for New Historicist critics, literature provides illuminating, rich perspective on not only the values, needs, and ideals of society, but on its very development and motion as well. It seems, then, that an analysis of the educational literary canon in any given society will expose the values, needs, and ideals of that society. For American youth, the College Board has compiled that canon, listing 101 recommended books for college-bound readers. Understanding that high school students, the list's intended audience, compose the upcoming generation, it seems that the books read by that collective audience may influence the upcoming society. Through in-depth analysis of the books listed, I will attempt to define America's educational and societal values as they are instilled in high school students through recommended literature and estimate how those values will continue to shape future American society.

Books That Matter. Chelsea Sutton, Franklin College. Faculty Sponsor: Dedaimia Whitney

The Books That Matter project will result in a publication collecting book recommendations written by faculty and staff at Franklin College, who were asked to write a paragraph describing a book that made a difference in their lives--one that taught them an important lesson or made a lasting impact in some way. Because the contributors all come from different backgrounds and disciplines, the selections of book recommendations are also widely varied. The purpose of the project was to demonstrate the importance of literature to both specialists and non-specialists alike, and to introduce new members of the Franklin community to the intellectual life here.

Authentic Hybrids: Hybrid Nationality and the Formation of Personal Identity in Hugo Hamilton's *The Speckled People*. Jarred Turner, Butler University. Faculty Sponsor: Ania Spyra

My aim in this essay is to explore the role of hybridity in personal and national identity and to address the issue of authenticity concerning one's identity. Questions that pervade such a topic are: Can authenticity be assigned to identity either personal or national and does existing in the form of a hybrid exclude one from ever being authentic? I will rely on the definitions of both hybrid and nation to formulate a conceptual definition of an authentic identity. This essay will endeavor to show that authenticity is largely a mythologized concept when referring to identity. I focus on these themes and questions as they are represented in Hugo Hamilton's memoir *The Speckled People*, through the main character's struggle to find his own sense of identity despite having a mixed ethnic background. I conclude that the term hybrid has no bearing on one's self conceptualized identity but rather only in the way others perceive an individual's identity.

Death Swallowed Up in Victory: Christian Redemption in *The Picture of Dorian Gray*. Jarred Turner, Butler University. Faculty Sponsor: Lee Garver

In my paper, I make two claims about the nature of Christianity in Oscar Wilde's *The Picture of Dorian Gray*. First I argue that the idea of the individual soul that is found in the novel is consistent with the Bible's depiction of the soul. Second I argue that the end of the novel illustrates the Biblical model of redemption of the soul by using art as a metaphor. I support the first part of my thesis- that the idea of the individual soul that is found in the novel is consistent with the Bible- primarily by close reading and textual analysis. I closely compare passages from the text with passages from the Bible and point out parallels. I also take into account Wilde's personal religious beliefs in order to clarify the religious elements in the text. I endeavor to show that the novel does deal with the soul of man as defined in the Bible and that the portrait embodies this soul. I support the second part of my thesis- that the ending of the novel illustrates the biblical model of redemption- by once again comparing the text with passages from the Bible. I demonstrate that the events in the final moments of the novel mirror the acts of redemption in the Bible.

Hybridity and Authenticity in Hugo Hamilton's *The Speckled People*. Lynn Vogel, Butler University. Faculty Sponsor: Ania Spyra

"Ireland has more than one story. We are the German-Irish story... We don't have just one language and history... We are the speckled people" (Hamilton 283). This insight is taken from Hugo Hamilton's *The Speckled People*, a memoir in which Hamilton recounts his experience growing up as a German-Irish child in 1950's Dublin. With a German mother and Irish father, Hugo is taunted as a Nazi and bullied for his perfect Gaelic speech. Hugo's father believes in the idea of authenticity and restoring the pre-colonial Irish culture and to achieve this goal, he uses his children. Hamilton grows up in a contradictory world in which his father only allows Gaelic—which I will also refer to as Irish—or German in the house while outside his home most people speak English, and this creates conflict and confusion for Hugo. In this presentation, I will be exploring the theories of hybridity and authenticity, and I will be analyzing these concepts in relation to the memoir *The Speckled People*. I will argue that the character of Hugo as well as his father Jack Hamilton contribute to popular theory about hybridity and authenticity. Hugo's struggle with hybridity and his father's obsessive search for the authentic Irish culture illustrate the idea that hybridity is a concept that should be embraced in postcolonial Ireland and that the authentic Irish culture does not exist.

Unmasking the Dark Knight: *Fin-de-siècle* Themes Lay Foundations to Society's Favorite Hero. Grace Wallace, Butler University. Faculty Sponsor: Lee Garver

The history of Gotham's dark knight stretches all the way back to his first comic book appearance in 1939. Different decades throughout the years have twisted the general storylines and characters to match society's taste; the 1950s saw a more light-hearted and comical approach, whereas Tim Burton's theatrical adaptations of the storyline are darker and more gruesome. In general, however, the character of Batman has remained an ordinary man living a life of dual identities—the rich playboy Bruce Wayne versus the mentally and physically skilled masked hero. Something about the character has appealed to audiences over generations, and something continues to appeal even now as Christopher Nolan's movies top the charts of the highest grossing superhero films of all time. What is it about this man behind the mask that humankind finds so fascinating? The secret of Christian Nolan's success with his Batman saga as one of modern day's most popular superheroes is riddened within the literature of an older generation—the Victorian era. It is under the repressive cloak of such a rapidly changing urban society that the literary figures of Henry Jekyll and Sherlock Holmes, both antecedents of Bruce Wayne, seek to justify the good and evils of character through the themes of dual nature and addiction. It is something about the character—their need to overthrow the repressive blanket to allow for the dual self within—that both Victorian and modern society sympathize with and find fascinating.

Creative Process and Visual Arts. Robert Warren, Butler University. Faculty Sponsor: Ania Spyra

This presentation will explore the creative process as it pertains to producing and editing visual art. The process of shooting, editing, and arranging a body of work will be discussed. Examples will include photography utilized for student art publications as well as for local news publication.

I and We: A Study of Dual Identities in Irish Literature. Alison Weir, Butler University. Faculty Sponsor: Ania Spyra

John C. Turner's theory of self-categorization argues that it is possible to maintain two identities, personal and social, simultaneously. As a test of Turner's theory, I will be using the works of the Irish authors Colum McCann, Anne Devlin, and Hugo Hamilton to demonstrate how one's personal identity can become muddled and lost when one devotes their life to a cause. I will argue that social identity can become all-consuming, pulling at the threads that once composed an individual and cause a severe imbalance of personhood. I will prove that the conflict in Ireland over the years, from British occupation to the present day division of the country between the North and South, has forced those involved in the conflict to become their cause; to devote their lives to their political alignments and in doing so leave their personal identities behind.

Reconciling Deconstruction with the Christian Worldview. MariJean Wegert, Grace College. Faculty Sponsor: Paulette Sauders

In this paper, I will discuss how deconstruction can be a valid and useful literary theory for a reader with a Christian worldview. As a theory of criticism that maintains that there is no "transcendental signified" or center from which everything else can be determined, deconstruction seems to negate God's central role when interpreting literature. For a Christian reader, it would appear to be difficult to utilize such a theory without conceding the essential claim of God's sovereignty. According to the theory of deconstruction, when divisions are found in a single entity claiming a place as a "transcendental signified," that entity becomes deconstructed or dethroned. In the postmodern world, a deconstructed God is a dethroned God. However, the God of the Bible proves to be many-faceted and unique, with many names and varied characteristics, while remaining unified, sovereign, and powerful. I wish to argue that the God of the Bible can be "deconstructed" but not dethroned, thus allowing the possibility for deconstruction to be a creative and valuable theory of criticism for a Christian reader.

Seminar on Harry Potter. Rachel Wendte, Butler University. Faculty Sponsor: Jon Porter

This paper is part of the Honors Seminar on Harry Potter. J. K. Rowling's seven book Harry Potter series presents imaginative material for engaging topics of perennial interest: good and evil, virtue and vice, friendship, personal identity, the use and abuse of technology, and so on. The book series functions across a number of genres, boarding school literature, coming of age story, fantasy, quest, mystery, social and political parody. As such, the books take many of the features of our world and experience and highlight them, exaggerating certain features for effect or drawing attention to particular narrative threads and themes, providing a useful lens through which to engage real-world issues. Formal paper topics include symbolism in the Houses, Harry as a true hero, modern enchantment, rebellion and rule breaking, the disillusionment of art, Ron's role, and Dumbledore's authority. A survey of Butler students' opinions on the popular series, as well as answer questions posed by the students, will be discussed.

Tolkien and the Oxford English Dictionary. Andrea Whitacre, Anderson University. Faculty Sponsor: Kevin Radaker

This paper shows the connections between Tolkien's early work on the Oxford English Dictionary (OED) and the use of language in his fiction, especially *The Lord of the Rings*. The tone and narrative of his novels share some similarities with the wry humor of many OED definitions and the structure of the entries. In his time at the dictionary office, Tolkien also sharpened his natural aesthetic appreciation of words, developed his taste for the archaic, and indulged his tendency toward creative etymology. The relationship between *The Lord of the Rings* and the OED is detailed and complex, each influencing the other by contributing new words, shades of meaning, etymology both historical and creative, reinterpretations, and answering definitions. Tolkien's years of work as a contributor to the mammoth dictionary had a great influence on his later career, including his fiction and the world of Middle-earth.

Fiction's Role in Comprehending Holocaust Fact: Vindicating Jerzy Kosinski's *The Painted Bird*. Matthew Wright, Butler University.

Faculty Sponsor: Hilene Flanzbaum

Jerzy Kosinski's *The Painted Bird* finds itself at a strange place in the Holocaust literary canon—more specifically, it is most often found outside of it. On its publication in 1965, *The Painted Bird* was accepted and critically lauded as a shockingly revelatory account of Kosinski's own experiences of his childhood during the war. It drew heartfelt acclaim from essayists like Cynthia Ozick and even survivors such as Elie Wiesel. It wasn't until journalistic inquiries on the part of Geoffrey Stokes, Eliot Fremont-Smith, and subsequently Joanna Siedlecka that serious questions, accusations, and even refutations of *The Painted Bird*'s historical veracity started to crop up. Since then, the novel's reputation (and that of the late Jerzy Kosinski) has begun to take a slide. For many, *The Painted Bird* somehow no longer seems appropriate to address as a Holocaust text now that it's been stripped of its historical veracity. Taking the history out of Holocaust discourse may seem counter-intuitive given that the Holocaust is so pivotal an event in human history, but is historical fact the only means by which the Holocaust can be understood? *The Painted Bird* may not be a personal account of the events of the Holocaust, but its outlook on human cruelty and mob mentality combined with the shocking horror it can provoke in the unprepared (or even prepared) reader is as appropriate a fit for the Holocaust as any text that describes the event itself.

An Argument for Cosmopolitanism: Creating National Identity in Brian Friel's *Translations*. Olivia Yoch, Butler University. Faculty Sponsor: Ania Spyra

The subjectivity of national identity stems from the difficulty of defining nation and identity. In Brian Friel's play *Translations*, Owen—an Irish

employee of 1833 colonial Britain—exhibits both Englishness and Irishness. Owen speaks Irish Gaelic and English, suggesting two conflicting national identities. I will explore how his position as translator for the British Ordnance Survey anglicizing Gaelic place-names emphasizes the subjectivity of national identity as related to language. Jonathan Culler explains Jacques Derrida's theory of simultaneously existing potentialities of meaning, which imply the possibility of conflicting outcomes. While text is always potentially two or more meanings, it cannot be resolved into both states at once. Owen's national identity is prone to this same paradox, and impending nationalistic violence at the end of *Translations* suggests resolution of the paradox is impossible. If we cannot resolve paradoxes of conflicting outcomes in national identity, neither can we ignore them. Though Owen is unable to reconcile his Irishness and Englishness simultaneously, his attempt delays the violence created in adopting one identity by excluding another (creating hierarchy). Identity construction based on principles of nonhierarchical hybridity as suggested by Paul Murphy and on cosmopolitanism as per Martha Nussbaum offers a solution. Nussbaum's cosmopolitanism allows for different sources of meaning which may, by virtue of one source encompassing another, create an identity containing several outcomes simultaneously. Constructing identity as a citizen of humanity rather than a citizen of a nation offers a solution to the tendency to meet contradictory identities with violent nationalism.

MATHEMATICS & COMPUTER SCIENCE

A Software Engineering Toolset for Industrial Strength Multi-Language Applications. James Allen & Jason Norris, Butler University. Faculty Sponsor: Panos Linos

A major concern in industry today is the ability to analyze and modernize complex software applications that are written using more than one programming language. With this in mind, we have developed an innovative prototype tool called MMT (Multi-Language Metrics Tool) to facilitate such modernization (see <http://ceaser.butler.edu>). MMT is the result of an on-going funded research project which involves various Butler students and has resulted in various joint publications. We are currently extending MMT to handle large-scale industrial-strength Multi-Language Software (MLS) systems. More specifically we are adding design pattern detection functionality as well as web service analysis on to the classic MMT. To this end, we are in the process of building a parser to detect and analyze web services and design patterns. We will extend the graphical user interface (GUI) of the MMT to facilitate the presentation of detected web services and design patterns.

A Study on the Efficiency of Trash Collection Routes Using GPS Data and ArcGIS in Richmond, Indiana. Gustavo Espinoza & Katherine Marshall, Earlham College. Faculty Sponsor: Mic Jackson

In Richmond, Indiana, a commitment to improve the quality of trash pick up services coupled with stringent budget cuts led the Richmond Sanitary District to evaluate the efficiency of the current trash collection routes. A method of data analysis was developed to process large quantities of data, create usable information, and clearly communicate results of the study. Global Positioning System (GPS) units aboard city trash trucks recorded the details of the city's trash routes. Python programming language formatted raw data from the GPS units and calculated useful information including stop duration, speed, and total distance traveled for each route. The results of these calculations were transformed into maps using ArcGIS. These maps, displaying trash routes overlaid on Richmond streets and alleys, effectively display the large amount of data gathered by the GPS units. These results enable the Richmond Sanitary District to better visualize trash collection routes, quickly identify inefficiencies, and model more efficient routes.

Student Time Analysis. Hilary Hauguel, Franklin College. Faculty Sponsors: Dedaimia Whiney & Justin Gash

I conducted a study in which I was able to breakdown how students spend their time based on gender, year in school, and major. For two weeks, 111 students logged everything they did in a day under specified categories and then submitted them electronically. Most importantly, I wanted to know which majors spend more time dedicating themselves to their work and which have more free time. Through the process, I have been able to determine other information such as sleep patterns, work habits, and extracurricular participation.

Tactical Decompositions of Symmetric Configurations. Michael Hill, Butler University. Faculty Sponsor: Rebecca Wahl

Point-line configurations, or finite incidence geometries, have been studied for over a century. Their connections with many various areas of mathematics and science have assured their continued study. Configurations are particular examples of designs. Design theory has been an indispensable tool of statistical analysis and, recently, applications to coding theory and chemistry have been established. We will show an algorithm used to obtain a tactical decomposition using the Martinetti paper *Sulle configurazioni piane n3*. A 103 configuration is an incidence geometry given by ten points and ten lines. The points and lines must be arranged so that each point is on three lines, each line contains three points, two different lines intersect at most once and two different points are connected by at most one line. The incidence matrix of a 103 configuration is a 10x10 matrix of 0's and 1's such that each row and each column of the matrix contains exactly three 1's. We think of columns as representing points and rows of the matrix as representing lines. If the incidence matrix has an entry 1 in row i and column j of the matrix, this means point j is on line i . The incidence matrix of a particular configuration is unique up to reordering of the rows or columns, since this reordering corresponds to simply renaming the points and lines. A tactical decomposition of a design is a special decomposition of the incidence matrix of a design. Tactical decompositions are obtained by analyzing the relationships between vertices.

Investigating F5t: A Gröbner Basis Generating Algorithm. Andrew Newman, Franklin College. Faculty Sponsor: Justin Gash
Grobner Basis algorithms are an important field of study in computational algebra with applications in cryptology. Not surprisingly, there have been several algorithms developed to try to generate Grobner Bases for ideals of multivariate polynomial rings faster than the original Buchberger algorithm. Buchberger’s algorithm suffers from creating many S-polynomials that ultimately reduce to zero in computationally expensive “normal form” computations. Faugere’s F5 algorithm seeks to reduce the number of S-polynomials that reduce to zero by keeping track of extra pieces of information and by using procedures that “look ahead” in the algorithm to eliminate useless polynomials. In this presentation, we will look at the F5t algorithm that was developed by Dr. Justin Gash as a modification to Faugere’s original F5 algorithm. Unlike Faugere’s F5 algorithm, F5t provably terminates. Creating an implementation of F5t (and really F5 along with it) in Sage was the primary goal of the project. In the end the Sage implementation of F5t was comparable in output and timing to the implementation of the original F5 algorithm.

Resistance and Revolution: Mathematical Modeling of Grassroots Political Movements. Son Van, Xinyu Chen, Alma Gracic, & Rachel Leeman-Munk, Earlham College. Faculty Sponsor: Anand Pardhanani
The use of Internet resources to organize and promote grassroots political activism has been in vogue since the earliest days of the net. As networking technologies continue to grow in power and in spread, they are rapidly becoming the most effective and efficient means for political organizing, particularly for those with the least political power and financial resources. In this project our goal will be to develop mathematical models that predict the efficacy and outcomes of grassroots political campaigns carried out using social networking technologies such as Facebook. In particular, we will focus on data and information related to the Israeli/ Palestinian grassroots movements and the recent Egyptian grassroots uprising. Technologies such as Facebook and Twitter are said to have played a major role in planning, strategizing and executing the grassroots actions, particularly in Egypt. In our project we will study a range of mathematical models based on epidemiology. We will develop strategies to adapt these models to our particular political contexts, together with techniques to estimate values of key parameters in our models. We will verify our models using available data from various political movements.

Modular Magic Sudoku. Ellen Weld, Ball State University. Faculty Sponsor: John Lorch
A modoku square is a Sudoku square with symbols in Z_9 whose subsquares satisfy the “magic” property that each row, column, and diagonal add to 0 in Z_9 . The total number of modoku squares was determined to be 32,256 by using a symmetry group, called the modoku group, which includes grid symmetries as well as relabelings that preserve the magic property of the modoku square. Additionally, it was found that modoku squares can be separated into two different orbits under the action of the modoku group. A rough outline of the presentation is to introduce modoku squares and their properties, define the modoku group and determine its structure, and finally make a count of the modoku squares using the modoku group.

MEDIA STUDIES

Symbolism in Commercials: The Importance of Audience Interpretation. Alyse Craig, Hanover College. Faculty Sponsor: Bill Altermatt
Commercials are designed to persuade viewers to purchase a product or to support a cause; however, could these same commercials have the potential to impact viewers’ lives and serve as models for thought, behavior, interpersonal relationships, and values? For instance, could the “Old Spice: The Man Your Man Could Smell Like” and “Axe: Snake Peel” commercials serve as models for masculine idealism and behavior? Participants watched these two commercials and were asked to construct a narrative describing the commercial and to reflect on the commercial’s meaning. Research explores the symbolic functions of these commercials as revealed through the ways in which viewers relate to the commercials and interpret the commercials’ meaning. As viewers are constantly bombarded with commercials over the course of their lives, the lasting impact of a commercial may be more a function of its symbolic rather than its persuasive qualities.

Understanding Apartheid: The District 9 Effect. Daniel Domsic, Butler University. Faculty Sponsor: Margaretha Geertsema Sligh
Director Neill Blomkamp, born in South Africa, is one of the first directors to have a science fiction film nominated for the Best Picture Oscar. His film, District 9, is about an alien race that is forced into a refugee camp near Johannesburg. Behind a veneer of science fiction action and suspense is a strong allegory for apartheid – the legal segregation of people in South Africa. The questions are: how relevant is District 9 in today’s film culture and how exactly does it depict South African apartheid? How did it manage to make an impact worldwide while retaining its value? Viewers need to understand and accept the underlying ideas of globalization and cultural imperialism that are imbedded in the film. Director Blomkamp was able to break into the U.S. market and make a huge impact with quality work, while bringing a meaningful message. Through an in-depth analysis of the science fiction thriller District 9 and its means of production, as well as comparison to South African history and media, it will be proven that the film is a modern day example of a globalized production that redefined international standards with a meaningful history lesson on apartheid.

Positive Influence of Online Social Networking Sites. Amber Hauser & Erin Moeller, Valparaiso University. Faculty Sponsor: Matthew Ringenberg

In our research, we observed the positive influences of being an active member of a social networking site on the lives of traditional, full-time Valparaiso University students (aged 18-23). We have gathered samples from prevalent, diverse student systems on Valparaiso University's campus, being the populations of the fraternity Phi Mu Alpha, the men's and women's Ultimate Frisbee teams, and three social work classes under the direction of Dr. Matthew Ringenberg. Before each survey was administered, we informed each of the groups of the same procedures concerning confidentiality and the application of the surveys to our research. In our research, we addressed the adverse reputation that social networking sites have acquired throughout their existence by extracting evidences of positive reinforcement and influence. We also observed the negatively biased view that consumers are fed from the media regarding online social networking sites. We gave attention to how developments in the ever-growing population of active members of online social networking sites affect our generation and potentially generations to come.

Living It Big Time: The Rise to Fame of Big Time Rush and Persuasive Campaign That Got Them There. Erika Hefler, Hanover College. Faculty Sponsor: Bill Bettler

This paper examines the rise to fame of the Viacom created musical act Big Time Rush as well as the persuasive campaign that was utilized by the media giant in order to allow the group to successfully infiltrate the market. It also includes a discussion of the rise and following expansion of the tween demographic as developed by the Walt Disney Company which led to the creation of the competing Big Time Rush brand through Nickelodeon, a Viacom owned network. Several persuasive elements are discussed including the Yale-Five Stage Developmental Model, the use of convergent media, and the employment of specific persuasive techniques in both the television and CD advertising campaigns. Finally, there is a brief discussion of the importance of the tween demographic and the economic powerhouse that the group is becoming.

How ESPN Revolutionized Sports Media. Josh Neuhart, Grace College. Faculty Sponsor: Paulette Sauders

The world of mass communications has changed rapidly with technology over the last few decades. The world of sports media communications is no different. ESPN has been at the forefront of sports media practically since its inception, becoming a household name in its young 31-year existence. The ability of ESPN to capture the sports media market has allowed the organization to revolutionize the way sports consumers intake sports news. This paper seeks to research the effect ESPN has had on the way and the amount that consumers take in sports, particularly through the channels of the Internet and television.

Relationship Development and Relationship Repair of Female Characters in Film, 2000-2009. Kelsey Riddle & Natasha Guffey, Hanover College. Faculty Sponsor: Bill Altermatt

This content analysis of film focuses on the platonic and romantic relationships experienced by female characters. Top-grossing films of 2000-2009 were compared with other films from 2000-2009 that passed the pop-culture Bechdel test of feminist films. The Bechdel test states that a film must (a) have at least two female characters with names (b) who speak to each other (c) about something other than a man. The two lists of films were used as a proxy for their audience- top-grossing films were aimed mainly toward men while the Bechdel films were aimed mainly toward women. The content analysis focused on only the main female character(s) in each film. Each significant relationship experienced by the female character was examined. It was hypothesized that the behaviors and relationships of the characters would be significantly different in each list of films. In female-male romantic relationships, in the event of a rift, it was hypothesized that the Bechdel films would follow the "work-it-out" theory, and thus show the method of reconciliation, while the top-grossing films would follow the "soulmate" theory and would not show the reconciliation, as discussed in Franiuk and Pomerantz (2002). This content analysis was conducted to demonstrate the differences between how relationships are displayed to men versus how they are demonstrated to women in popular film media in the United States.

Black Baseball in Indiana. Paul Weller & Aaron Mikel, Ball State University. Faculty Sponsor: Geralyn Strecker

As a part of Ball State University's Virginia Ball Center, our group is educating others about Indiana's significant role in Negro League baseball. Aside from the other presenters of our group, I will be focusing on the struggles of creating a documentary of such large proportion. I will focus on our group's pre-production steps, interview process, goals for the documentary, and possible outlets for our creative work. My main role in the documentary is as editor. With the help of our Director of Photography, Aaron Mikel, I will describe overarching themes and the difficult task of trimming a work down to manageable size. As with any work, the leaner a product is, the better it will be.

Using Online Social Networks as a Marketing Tool: How the Coca-Cola Company Encourages Consumers to 'Open Happiness.'

Braden Worrell, Hanover College. Faculty Sponsor: Bill Bettler

My paper researches the utilization of social networks as a highly effective and persuasive marketing technique for reaching consumers, demonstrated in this paper by the Coca-Cola Company. I used quantitative research methods for this study through analysis of social media, consumer psychology, and communication in advertising. I found that social media is one of the most prevalent and rapidly growing forms of

communication today and businesses that apply this medium in their marketing approach will have a greater and persuasive impact on their market.

PERFORMING ARTS

Offenbach's Satire: *Orpheus and the Underworld through a Lens of Politics*. Weston Bonczek, Butler University. Faculty Sponsor: James Briscoe

Offenbach was a composer who, for a large portion of his career, aimed to entertain without engaging the mind; and yet, despite his intended aims, he ended up affecting not only the music of Europe but the politics of the region, as well. Apart from being a composer, he became a not-so-subtle critic of the French monarchy as well as commentator on the direction of music. Offenbach's opera "Orpheus and the Underworld" was a risky deviation from his regular compositional format in an attempt to make some profits after a long bout of financial despair. The opera was a blatant satire of Napoléon III and his court that he cleverly got approved by the royal censors. Offenbach, a controversial character due to many of his decisions, was not afraid to bring matters he found questionable in society to the forefront of his music. Despite his disdain for the more "complex" composers such as Wagner, Offenbach did not shy away from deep messages behind his work.

A New Receptivity toward a Postmodernist Opera: *John Adams's Nixon in China*. Casey Brege, Butler University. Faculty Sponsor: James Briscoe

John Adams's 'Nixon in China' (1987) depicts contemporary subject matter and social values via current historical figures, presenting audiences with a musical archetype of postmodernist American culture. The opera traces President Richard Nixon's pioneering visit to the People's Republic of China in February 1972, rendering the event as modern myth via the musical structure and historical allusion of the grand opera genre. The American and Chinese diplomats are immortalized as embodiments of their societies at large while experiencing the platitudinous struggles and failings of the individual. The recent resurgence in popularity and critical acclaim of Nixon in China since its 1987 premiere is a testament to the paradigm shift occurring in American opera during the early twenty-first century, and the increasing applicability of Adams's compositional idiom to the human condition as it is perceived in modern American society. The post-minimalist idiom has come to symbolize the cyclical political discourses portrayed on stage during Adams's opera, and the consumerist repetition that characterizes and drives late postmodern American culture. Thus, a shift in critical reception of Nixon in China is not only a matter of increased artistic acceptance, but also indicative of an increased musical relevance in conjunction with an evolution of cultural consciousness.

A Study of Record Labels and Musical Tastes in Indiana from 1940 to 1950. Kole Christian & Stephanie Lehman, Franklin College. Faculty Sponsor: Kevin R. Burke

The project is a study of the significance of the localized music industry in Indiana from 1940-1950. Our primary source is a recent estate collection of 78 rpm records donated to Franklin College, which contain some long forgotten record labels: Grecophon Records (Gary, IN); Peerless Records, distributed by Gennett Records (Richmond, IN); King Records (Cincinnati, OH); and Top Tune Records (Gary, IN). The methodology considers such variables as popular genres, sales, and the music that was accessible to Indiana residents at the time. The exploration will show how these variables both impacted and reflect unique local tastes. Some interesting examples include the prevalent Greek-American musical community and regional R&B artists in the Midwest. These factors point to the prominence small record companies had in the mid 20th century before record labels grew to their current size. Furthermore, the unique communities of musical tastes uncovered in this study are an important part of Indiana's history.

No ti for mi: A Comparison of Solfège Systems from Antiquity to Present. Marcella Columbus, Butler University. Faculty Sponsor: Rusty Jones

Solfège is an essential device in learning to sing a melody. It has been employed since the Medieval era; however, there is a large difference between the solfège used then and the solfège taught today. In the Medieval era they only sang "ut" (equivalent to "do") on three different pitches: C, G or F. This hexachordal system did not have an equivalent to "ti" in modern solfège. If C is "ut", one continues with: D-re, E-mi, etc, all the way up to A-la. If at this point one needs to continue up to the note B, it is necessary to modulate to the scale where G is ut, and therefore the note B would be "mi". The scale with F-ut would not be used, because in F-ut there is B-flat and not B, because the notes F to B create a tritone, which was considered problematic in the Medieval era. A theorist during the sixteenth century named Thomas Morley teaches this system in *A Plaine and Easy Introduction to Practical Music*. In it, he sometimes switches from C-ut to G-ut to F-ut multiple times within a single composition, forcing a person to sing the same syllable for two different pitches in a row. This would never be done in the modern system. This presentation compares the similarities and differences between these two systems of solfège.

Réminiscences de Don Juan: Mozart's *Don Giovanni* through the Mind of a Romantic Virtuoso. Ryan Greene, Butler University. Faculty Sponsor: James Briscoe

Piano virtuoso and composer Franz Liszt composed *Réminiscences de Don Juan* in 1841, a Romantic fantasy based on themes from Mozart's *Don*

Giovanni. A great majority of Romantic music builds upon the classic; Liszt's interpretation of Don Giovanni is no exception. *Réminiscences de Don Juan* uses a late classical opera and intensifies the character of Don Giovanni with an emotionally deeper, exaggerated Romantic identity. I intend to examine the material Liszt used from Don Giovanni, how he organized the material, and how his own material and modification of original material portray the character and fate of Don Giovanni in a Romantic light.

The Banjo in Bluegrass: An Early Example of Cross-Cultural Music Fusion. Katelyn Holub, Valparaiso University. Faculty Sponsor: Linda Ferguson

The style of music known as bluegrass, associated with Bill Monroe, Earl Scruggs, Doc Watson, and Allison Krauss became widely known in the mid twentieth century, and remains popular in our own time. In the twenty-first century some musicians are fusing bluegrass with other styles, including jazz, to create a new style appropriately called newgrass. Bluegrass music is noted for its unique combination of instruments and distinctive vocal style, which originated in the Appalachian Mountains. Fiddles combine with banjos, acoustic and resonator guitars, mandolins, and upright basses to produce a distinctive sound now associated with the American South. Moreover, bluegrass is one of the earliest examples of cross-cultural music exchange, with its fusion of Scotch-Irish fiddle and folk songs with African banjo and rhythms. How did the white Appalachian people initially acquire and integrate the banjo into their instrumental music tradition? This paper explores how the African-derived banjo playing style was introduced to the Anglo-descent mountain people, and also how the African-descent banjo tradition was modified by the mountain people in early bluegrass music.

Delilah: Playwriting to Change the Image of an Iconic Villainess. Amalia Howard, Butler University. Faculty Sponsor: Owen Schaub
I wrote a play exploring the biblical character Delilah of the story "Samson and Delilah", creating a treatment of her as a tragic figure while comparing and contrasting my production to other plays, movies, and operas in which she is portrayed as a femme fatale. I will present for a short time on what first made me become interested in changing the image of an iconic villainess, and then go into my execution of the script, how it differs from other cultural references, the final product, and audience reactions to it. I will show pictures and perhaps video of the production and possibly read excerpts from the script. I will finalize with a summary of how this project helped me grow as an artist and how I think this sort of work could benefit the theatre industry as a whole.

Design and Aesthetic in Debussy's Music: The *Première Rhapsodie* for Clarinet and Orchestra. Samantha Johnson, Butler University. Faculty Sponsor: James Briscoe

In Claude Debussy's *Première Rhapsodie* for clarinet and orchestra, the composer is beyond the realm of "music just for listening", but has become a designer, an architect of musical structure. During the early 1900s, Debussy began to develop a different outlook for his compositions. *La Mer* (1903-1905), a piece for orchestra, begins to exhibit Debussy's new focus on and compositional purpose of design and structure during his late compositional career. The *Première Rhapsodie*, written from December 1909 to January 1910, is an example of this late compositional style. This thesis will explore the philosophy of his style and attempt to discover the influences from the composer's personal life, society, and musical attitudes at the Conservatoire de Paris.

***Kind of Blue*: How Miles Davis Became an American Jazz Icon.** Matthew Karnstedt, Butler University. Faculty Sponsors: James Briscoe & Matt Pivec

In 1959, Miles Davis, along with bandmates John Coltrane, Bill Evans and others (who were all jazz giants in their own right), embarked on a musical journey that resulted in the most popular and influential jazz album of the late 1950s. Miles had already been on the scene for fifteen years, but *Kind of Blue* solidified his status because of its originality, beauty, and diversity and it created in Miles Davis an icon of American contemporary jazz. The album was host to the creative genius of not only Miles and his constant push for innovation, but also to the harmonic complexities of Bill Evans and one of the greatest jazz tenor saxophone players ever in John Coltrane. But for the album's success in the jazz world, and perhaps as a result of it, *Kind of Blue* not only made Miles a legend to jazz musicians and fans, but also made Americans and people around the world recognize Miles as a foremost symbol of American Jazz.

The Independent Voice of the Flute in *Pierrot Lunaire*. Shireen Korkzan, Valparaiso University. Faculty Sponsor: Linda Ferguson
Arnold Schoenberg's melodrama for female voice, *Pierrot Lunaire*, Op. 21 (1912) includes eight accompanying instruments, played by five performers. The twenty-one poems, delivered in Sprechstimme style, are arranged in three sets of seven. The instrumentation varies in each piece, though the flute is the most prominent of the instruments, especially in the first set. Here, the flute is played in all but the third song, which uses a piccolo instead. The flute is also the only instrument to solely accompany the singer in any of the twenty-one songs; this occurs in the seventh poem. Upon closer inspection of its part in comparison to the other instrumental and vocal parts, the flute part stands out distinctively, both accompanying the voice while also carrying an independent line. At some points, the flute line seems to be heard as the solo line itself. This paper examines the role of the flute in the first set of seven songs in Schoenberg's *Pierrot Lunaire* and analyzes its distinctive voice in the expressing of these poems.

New Horizons in Form and Emotional Breadth: Chopin's *First Ballade*. Annalia Linnan, Butler University. Faculty Sponsor: James Briscoe
Fryderyk Chopin's first Ballade represents a critical point in his development as a composer. According to his biography from the Grove Music Online database, Chopin wrote the piece between 1834 and 1835 to "find ways of [applying] the acquisitions of the early Paris years...to the needs of (relatively) more extended forms." By combining Classical roots with Romantic grandeur and expression, Chopin's first Ballade created a new musical experience for both himself and his listeners. In this presentation, I would like to analyze Chopin's first Ballade through various psycho-social and historical perspectives. As the first large-scale work by one of music history's most best-known pianists, this lecture will benefit not only fellow musicians but students and members of the community interested in creativity and artistic expression.

Luther's *Ein' feste Burg* in Meyerbeer's *Les Huguenots*. Matthew Maske, Valparaiso University. Faculty Sponsor: Linda Ferguson
Giacomo Meyerbeer's grand opera, *Les Huguenots* (1832-1836), tells a tale of the conflict between French Protestants and Catholics in the sixteenth century, particularly focusing on the private side of a public conflict, in which the Huguenots (French Protestants) were slaughtered by the Catholics. To express an element of this conflict, Meyerbeer utilizes pre-existent music to represent certain ideologies within the characters. Most notable is Martin Luther's chorale tune *Ein' feste Burg ist unser Gott* (A Mighty Fortress is Our God), which Meyerbeer attaches to the staunchly Protestant character of Marcel. Marcel's pride in his Protestantism is invoked when his master, Raoul, prepares to marry a Catholic woman. This paper explores how the Lutheran chorale tune is employed by Meyerbeer in support of the drama, to characterize the Protestant perspective against the Catholics.

John Barry: Transcending the Golden Age. Laura McNutt, Butler University. Faculty Sponsor: Michael Schelle
From his childhood in the family theater business to his composition of scores for over one-hundred films, John Barry truly lived a life full of musical purpose and innovation. In the scores for films such as the James Bond movies and Chaplin, Barry employs musical traditions and aesthetics from the Golden Age and combines them with modern techniques to create music that not only appeals to a wide demographic but that unites styles from multiple decades.

The Individual Transcendent: Charles Ives's *Concord Sonata* and Henry David Thoreau's *Philosophies*. Erin Nichols, Butler University.
Faculty Sponsor: James Briscoe
Charles Edward Ives has been widely regarded as one of the leading composers of art music of the twentieth century. He possessed an uncanny modernist's power to weave into his music the ideals of American life, which were based on memories from his childhood in Danbury, Connecticut. His interest in the American Transcendentalist movement led him to compose his Second Piano Sonata: *Concord, Mass., 1840-1860*, commonly known as the *Concord Sonata*. The piece is full of juxtapositions and dualisms that signify his desire to find the innate goodness of humankind amidst the difficulties of the time. Ives's career spanned the nineteenth and twentieth centuries, therefore crossing between Victorian morals and modern inclinations to question everything. He sought to bring about a new approach to composing music to fit with these philosophies. This approach was paramount to his prominent role in shaping and reflecting American transcendentalism. Four of the leading American Transcendentalists were Bronson Alcott, Nathaniel Hawthorne, Ralph Waldo Emerson, and Henry David Thoreau, and the *Concord Sonata*, in four separate movements, reflects on each of these men, their personalities, and their philosophies in unique ways. "Thoreau," the final movement, is a tribute to the transcendental ideals that Ives and Thoreau shared. Ives writes in his *Essays Before a Sonata* of desiring to depict Thoreau's thoughts on a fall day at Walden Pond, where the wind could shift and the mind was not bound by the limitations of historical habit.

The Role of the Lyric Pieces in the Nationalism of Edvard Grieg. Emily Prough, Valparaiso University. Faculty Sponsor: Linda Ferguson
Edvard Grieg (1843-1907) is esteemed as the "greatest composer Norway has fostered." He is so acclaimed due to his great efforts to create a distinct repertoire of Norwegian national music. Beginning in 1867 Grieg composed sets of character pieces for solo piano called *Lyric Pieces*. Over a period of thirty-four years, he produced sixty-six pieces appearing in sets of six or eight, in ten volumes. Each set exhibits variety in mood and programmatic elements. Grieg looked to the surrounding countryside and everyday life for inspiration; the *Lyric Pieces* thus draw on natural elements and Norwegian folk melodies for their programmatic content. These pieces became very popular during Grieg's lifetime, both in Norway and beyond. This collection of *Lyric Pieces* represents an important part of Grieg's leadership in Norwegian nationalism, at the same time that it contributes an important body of piano repertoire. This paper explores Grieg's path to Norwegian nationalism as expressed in the *Lyric Pieces* over a long period of his compositional life.

The Western Fascination with the Exotic: *The Mikado*. Andrew Riehle, Butler University. Faculty Sponsor: James Briscoe
The Mikado, an opera in two acts, features music by Arthur Sullivan and libretto by W. S. Gilbert, the ninth of fourteen collaborations from this dynamic compositional duo. The first production of *The Mikado* opened in London in 1885, where it ran for 672 performances. Although *The Mikado* is a comedy, it deals with themes of death and societal cruelty. The notoriety of this and many other of Gilbert and Sullivan masterpieces can be largely attributed to the duo's tactful use of unique characters to express culturally relevant themes with Sullivan's iconic music and Gilbert's witty lyric. Gilbert and Sullivan capitalized on the British fascination with Japan during this Victorian era by portraying Japanese culture, style, and government in a fictional, picturesque version of Japan throughout the course of the operetta.

The Impact of Theatre Artist Dario Fo on Contemporary Theatre Practices. Raphael Schwartzman, Butler University. Faculty Sponsor: Owen Schaub

I will present a critical analysis of the life, performance history, and theatre practices of Italian theatre director/writer/actor and political satirist Dario Fo. Research will include Fo's influences of Italian *Giullari* and *Commedia dell'Arte* traditions, his leftist political satire and activism, and the impact that his improvisational, audience-centered, essentially "popular" theatre has had on contemporary theatre practices.

Creating Imitative Counterpoint for Solo Violin in J.S. Bach's *Fuga in C Major, from Sonata III*. Natasha Sharma, Butler University. Faculty Sponsor: Rusty Jones

The fugue is a complicated compositional technique that few have mastered as thoroughly as Bach. With multiple voices required, few composers would challenge themselves to writing a fugue on any single instrument, other than keyboard. Bach demonstrates his incredible understanding of music in his *Sonata II, Fuga in C Major (BWV 1005)*. This movement represents the longest fugue in Bach's repertoire. This raises the question: why did he write it for the violin? With only four strings, the instrument restricts what types of passages can be played idiomatically. My project undertakes a detailed harmonic and structural analysis, in addition to historical research, to show how Bach overcomes the contrapuntal inadequacies of the violin through the use of compositional techniques including: compound melody, double stops, complementary rhythm, stretto and inversion to create multiple voices in *Fuga in C Major*.

The Hybrid Musical: The Story of *Oklahoma!* as a Broadway Opera. Allison Summers, Butler University. Faculty Sponsor: James Briscoe
Rodgers and Hammerstein's masterpiece "*Oklahoma!*" is undoubtedly one of the most influential American musicals in history. What made this musical different, you may ask? It is essentially a result of "*Oklahoma!*"'s groundbreaking fusion of plot, character and motif; its creative "book-musical" storyline derived from its theatrical roots; its catchy melodic content and the unconventional yet unprecedented ties it holds to its operatic predecessors.

Socialist Realism and Soviet Music: The Case of Dmitri Shostakovich. Michael Tirman, Butler University. Faculty Sponsor: James Briscoe
Dmitri Shostakovich is considered one of the greatest composers of the twentieth century. Living under the dogmatic rule of the Soviet regime, the composer was forced to compose music that was not only artistic and progressive, but music that also fit into the ideals of Socialist Realism. Throughout Shostakovich's life, he was considered a Stalin apologist and a loyal Soviet citizen. In 1979, Solomon Volkov published *Testimony*, the controversial memoirs of the composer. Its publication in the West sparked a myriad of debates about his true intentions as a composer. Unfortunately, the debate has become so polarized that the study of the composer has become a discussion of his supposed loyalty to the communist party's status quo. This paper explores the music of Dmitri Shostakovich to discern some idea of who the composer truly was and what motivated him at various stages of his life.

Sacred or Scandal? The Early Critical Reception of Verdi's *Requiem*. Joy Von Holle, Valparaiso University. Faculty Sponsor: Linda Ferguson

On May 22, 1874, Giuseppe Verdi conducted the premier performance of his *Messa da Requiem* in the Church of San Marco in Milan before a very enthusiastic audience. In fact, it was so well received in Italy that Verdi was immediately asked to bring the piece to Paris, a request which turned into a tour of Paris, London and Vienna in 1875. But the *Requiem* was not such an instant success everywhere. Some critics gave scathing reviews and some concertgoers refused even to attend a performance. Some journals praised the work as a great monument of church music. Others reviewed it coolly, praising the composition only with the caveat that it was not, and could never be, church music, despite its liturgical text. Perhaps some even knew of his wife's letters, in which she complained of his tendencies towards atheism. Whatever the reason, Verdi's audience could not come to a consensus about the *Requiem*. What then is the *Requiem* really, and what caused such a mixed reaction to it? Was the opposition upset about the personal life of the composer or his career? Were they reacting purely to the style of the music itself? This study explores the early critical reception of Verdi's *Requiem* and how the public reacted to an unbelieving opera composer writing a piece of sacred music.

Der Leiermann: Thanks for the melancholy, Franz. Pete Weldy, Butler University. Faculty Sponsor: Rusty Jones

Franz Schubert's *Die Winterreise*, published in 1827, signified a shift from the musical idioms of the previous two centuries. His rejection of the status quo marked him as the first in a long series of romantic composers. *Der Leiermann*, the last song in the aforementioned cycle, concludes his *Liederkreis* with overtones of melancholy. The dismissal of conventional forms and progressions make this particular work stand apart from others in the cycle. Schubert, whose brilliance is undisputed, might have easily concluded with a swell of musical complexities. Instead, Schubert reverts to an elegant, albeit melancholy, simplicity, and the organ-grinder, of whom Wilhelm Müller's poem speaks, moves down a path which Schubert himself was taking. The piece's musical nuances poetically parallel the text, and my research illuminates not only the theory in the song, but also the theory by which Schubert was seemingly living his life.

Musicalizing Shakespeare: The Language of Britten's *A Midsummer Night's Dream*. Drew Wright, Butler University. Faculty Sponsor: James Briscoe

Benjamin Britten's unique musical language allows him to create a dream world setting for Shakespeare's *A Midsummer Night's Dream* that re-contextualizes the play and gives it a new voice. That is, Britten's music puts Shakespeare's text into a world of pure fantasy and mystery. Britten and Peter Pears, who collaborated on the libretto, made no changes to the language of Shakespeare's text, but removed the first act of the play in its entirety, removing the connection to a recognizable world and beginning the opera in the fantastical world of the Faeries. Night, sleep, dreams, and the mental state of dreaming are the focus of several of Britten's works, including the *Serenade for Tenor, Horn and Strings*, the *Nocturne*, and his opera *A Midsummer Night's Dream*. In the *Serenade* and *Nocturne*, Britten lays the musical and conceptual groundwork for the fully realized dream world of *A Midsummer Night's Dream*.

PHARMACY & HEALTH SCIENCES

Impact of Distractions on Post-Exercise Appetite. Chelle Bentz, Hanover College. Faculty Sponsor: Bryant Stamford

The purpose of this study was to investigate the effects of cognitive distractions on post-exercise appetite. In this study three female subjects completed four exercise sessions on a Monark cycle ergometer: vigorous cycling (7.5 METs) with distraction; vigorous without distraction; moderate (5.0 METs) with distraction; moderate without distraction. The independent variables were the type of exercise—moderate or vigorous—as well as the distraction and non-distraction trials. The dependent variable was the subjects' post-exercise appetite and their heart rate and ratings of perceived exertion (RPE). Heart rate (using a Polar heart rate monitor) and RPE (using Borg's 6-20 RPE scale) were measured every 3 min during exercise. It was hypothesized that appetites will rate higher on a hunger scale from 0-10 (0 being "sick" (very full) and 10 "empty") due to being distracted during exercise. It was also hypothesized that HR and RPE will be higher in the vigorous distraction sessions. Pilot data did support the hypotheses involving HR and RPE. The pilot data did not support the hypothesis involving appetite. Data continues to be collected and complete data will be presented.

Assessment of the Impact of Nutrition and Exercise Recommendations on Health Fair Participants. Michelle Berg, Butler University. Faculty Sponsor: Jane Gervasio

Background: Obesity is a fast-growing problem in the United States, as information on the benefits of quality nutrition and routine exercise are underutilized. Pharmacists can play a vital role in educating and equipping patients with information to properly develop healthy habits, safely lose weight, and successfully manage or prevent chronic disease states. Objectives: Primary: To estimate the impact pharmacy students can have at various health fairs throughout Indianapolis through the provision of educational fitness and nutrition materials and body composition assessments. Secondary: To assess the impact of follow-up phone calls as a resource to patients' achievements of personal health goals. Methods: Primary: Performed BMI and body fat percentage assessments on various health fair participants. Following assessment, provided patient counseling with nutrition and fitness educational handouts. Secondary (optional enrollment): Weekly follow-up phone calls for 30, 60, or 90 days were performed to assess the progress participants had made to meet their health goals. Results: A total of 80 participants were assessed at eight different health fairs throughout Indianapolis. On a scale of 1 to 10, with 10 being the best, 84% of participants ranked the helpfulness of the event at an 8 or higher. Additionally, of those completing the final survey of the follow-up program, the average perceived benefit was 8.21. Conclusion: Pharmacists play a vital role in providing nutrition and physical activity education materials, assessing patient BMI/body fat percentage, and counseling on necessary lifestyle changes to improve overall quality of life.

Pharmacists Conducting Discharge Medication Reconciliation to Decrease Hospital Readmission Rates. Scott Booziotis, Tim Matthews, Adam Melaragno Butler University. Faculty Sponsor: Medication errors play a major role in the number of hospital readmissions every year. One in five hospitalizations is complicated by post-discharge adverse events, some leading to preventable readmissions. To assess whether medication discharge reconciliation, pharmacist identified clinical interventions, patient education, and discharge counseling can reduce thirty-day hospital readmission rates. Adult internal medicine patients discharged from Methodist Hospital will be included. Patients being discharged to an external long term care facility will be excluded. The medical record and discharge summary of each patient selected will be reviewed to assess the opportunity for intervention in the following scenarios: unscheduled warfarin monitoring follow-up appointments, medication noncompliance due to expense, unnecessary medications, failure to reinstate home medications, incorrect dosing regimens, inappropriate drug selection upon discharge, and drug interactions. The numbers and types of clinical interventions prior to discharge will be documented. Thirty-day readmission rates of study patients will be compared to the hospital's overall thirty-day readmission rates, which will serve as the control group. Readmission rates will be determined by Methodist Hospital medical records. Descriptive statistics will be used to describe the frequency of interventions made and barriers to medication therapy. A binomial test of proportions will be used to compare hospital readmission rates of study population to total hospital readmissions. If hospital readmission rates are significantly decreased in the study population, there may be a role for pharmacists to provide medication reconciliation for all patients prior to discharge.

Patient Satisfaction with Clinic-Initiated Assistance in Medicare Part D Enrollment. Haley Bradshaw, Katherine Senger, & Stefanie Lystlund, Butler University. Faculty Sponsor: Emily Papineau

Although prescription drug coverage is available through Medicare Part D plans and offers potential medication cost-savings, many Medicare patients find the plan selection process confusing and either select a plan that is suboptimal for their needs or fail to select a plan altogether. Patients may also be unaware that they may be eligible for extra help to pay for these Medicare Part D plans and their medications. To determine patient perception on quality of care received during a Medicare Part D enrollment event held at a family medicine clinic. Patients of the Community Family Medicine Center and members of the general public who were Medicare-eligible for 2011 were invited to attend a Medicare Part D enrollment event. Patients received personalized assistance with reviewing and selecting available Part D plans for 2011. Patients were also screened for their eligibility for financial assistance. Surveys were offered to all participants to assess patient satisfaction with the event. The statistical analysis was conducted using Statistical Package for Social Sciences, version 18.0 (SPSS Inc., Chicago). Results: Of the 61 participants who attended the event, 88.5% (n= 54) said they intend to return next year. Forty-one participants (67.2%) enrolled in a Medicare Part D plan, and 10 patients (16.4%) applied for financial assistance. Fifty-eight participants (95%) either agreed or strongly agreed that the enrollment assistant made the process less confusing. The results of this research indicate that patient perception supports Medicare Part D enrollment events held in healthcare clinic settings.

Eat This Not That. Anna Chambers & Jami Boyle, Hanover College. Faculty Sponsor: Bill Bettler

The purpose of this study was to create a book that provides a lifestyle and dietary guide to living on Hanover College's Campus. In order to do this, each dining facility and the foods they served were assessed for nutritional value along with the common foods that students' consumed within their living facilities. The premise behind the dietary guide is to swap highly caloric dishes for healthier options to help readers lose weight and maintain a healthy lifestyle. The book is highly personal to Hanover College's campus and student body. Within it the authors use slang that is specific to Hanover students. By combining disciplines, the authors used their knowledge of various subjects in order to make not only a dietary guide but also a compelling and visually stimulating book. This book was published and placed in Hanover College's bookstore and has made a great impact on the college's campus. For 18-21 year old Americans, 5% more college students are overweight than those in that age group who are not enrolled in college. Statistics like this along with the growing obesity rate show that weight gain in college is a serious issue. Although the book has only reached the campus of a small private school, the authors believe that books such as this fashioned to meet the needs of other campus' could make a huge impact on the high amount of weight gained by college students.

Pgp Functional Studies to Evaluate the Effect of Cyclosporine Emulsion Formulations on Reversal of Resistance in the Multidrug Resistance Cancer Cell Line MES-SA-Dx5. Katie Cich, Butler University. Faculty Sponsor: Nandita Das

A major hurdle in cancer chemotherapy is multi drug resistance (MDR), where tumor cells can develop resistance to a variety of anticancer drugs which differ in their chemical structure and mechanism of action. A leading cause of MDR is the over-expression of transmembrane proteins that act as "efflux pumps," which prevent anticancer drugs from reaching their site of action. P-glycoprotein (P-gp) is an efflux protein believed responsible for the failure of a variety of anticancer drugs. Cyclosporine has been found to be effective in inhibiting P-gp, but the mechanism is still unknown and usually is effective at reversing MDR at very high doses. This research project is based on designing emulsion formulations containing both anticancer drugs and cyclosporine, with the rationale that both oil-soluble and water soluble molecules can be incorporated in the biphasic systems. Additionally, emulsified cyclosporine may be effective against MDR cell lines at concentrations much lower than the clinical applications to date, allowing for potentially lower doses and reduced toxicity in vivo. To investigate the question whether cyclosporine exposure affects the quantity or functionality of P-gp, cell uptake studies with Rhodamine 123, a fluorescent dye which acts as an efflux pump substrate and serves as a measure of P-gp functionality, and western blots to study the amount of P-gp expressed as a function of cyclosporine concentration have been performed. We have found that the quantity of P-gp remains unchanged following cyclosporine exposure, but the effect on P-gp functionality remains unclear based on the experiments conducted to date.

Evaluation of Adherence to an ICU Electrolyte Replacement Protocol. Ryan Clark & James Hornaday, Butler University. Faculty Sponsor: Wes Garmon

Electrolytes are essential for many physiologic and metabolic functions. Electrolyte imbalances occur frequently in the intensive care unit (ICU). Hypokalemia is reported to occur in up to 20% of hospitalized patients, which can lead to many adverse effects including fatal arrhythmias. Hypophosphatemia may cause conditions such as glucose intolerance, respiratory failure, and reduced cardiac output. In the ICU, patients require continuous adjustment and monitoring of electrolytes to maintain goal serum concentrations. It is important to identify and treat these imbalances quickly in critically ill patients. Our institution has developed an electrolyte replacement protocol to assist with treatment of such imbalances. The purpose of this retrospective observational study is to evaluate the use of an established ICU electrolyte replacement protocol at Methodist Hospital in Indianapolis. The goal study is to determine the extent to which the protocol was followed and its effectiveness in correcting electrolyte deficiencies. This is a retrospective, observational chart review in which approximately 150-200 ICU patient records will be analyzed from 6/1/09 to 9/30/09. Only patients age 18 years and older, staying greater than 24 hours in the ICU and who had the electrolyte replacement protocol ordered were selected for this study. Patients who received continuous renal replacement therapy (CRRT) were excluded. The study will

assess the following parameters: demographics, drug therapy, nutrition therapy, electrolyte concentrations, and electrolyte administrations.: To date no studies have evaluated the ICU electrolyte replacement protocol at Methodist Hospital. This study will assess the safety and efficacy of this protocol.

The Healthy Butler Family: Involving the Family Unit for Healthy Living. Amy Coffing, Dusti Houser, & Emily Kosirog, Butler University. Faculty Sponsors: Carrie Maffeo & Isabel Hagedorn

As healthcare costs continue to rise, companies are looking for new ways to save costs. Previous studies have shown employers who initiate health promotion programs save money, increase productivity and can prevent serious health conditions. Families are a vital to a patient's health care choices. Involving families may decrease the amount of time employees spend caring for ill family members, thus saving money and improving productivity. The primary outcome is to assess the effect of a supportive environment on health-related quality of life of work support versus a combination of work and home support. The secondary outcome is to assess the effect of clinical health measures of work support versus a combination of work and home support. Participants will have their lifestyles evaluated through questionnaires and clinical measures at an initial visit and a three month follow up. Improvement is measured through comparing initial and follow-up results. Both the "work site support" and the "combination" groups complete the Short Form Health Survey (SF-8), Simple Lifestyle Indicator Questionnaire (SLIQ), and the Health and Work Performance Questionnaire (HPQ). These appointments and questionnaires, supplemented with other promotional programs for healthy living, evaluate the impact of family support and work site support on everyday health. The goal of this study is to improve the overall health of employees and to assess the effect of family involvement on healthy living.

Pharmacists' Perception of the Overuse in Oral Opioids. Keny Craig & Josh Winbeaugh, Butler University. Faculty Sponsor: Kimberly Beck
Opioids are a class of analgesic medications that are controlled substances governed by the FDA. Because of the ancillary effects of the medications upon receptors in the human body dependency is often an adverse event to be concerned with. There is also concern of withdrawal from the same receptor agonism after ceasing long-term treatment. For these reasons, it was important to gauge community pharmacists' perceptions of the potential and actual overuse or abuse of these drugs.

Perinatal HIV Transmission in Indiana. Timothy Dawson, Butler University. Faculty Sponsor: Carol Reeves

Despite enormous scientific advances in the prevention of mother to child transmission of HIV, there has been a four hundred percent increase in these transmissions in Indiana over the past three years. This is especially disheartening given the fact that in countries with significant access to resources for the treatment of HIV, the simple lack of knowing the mother's HIV status has been the main reason for continued mother to child transmission. The aim of this study was to determine the main barriers that continue to prevent pregnant women in Indiana from being tested for HIV. Qualitative interviews were conducted with HIV experts in the Indianapolis area including health care providers, public health workers, and social workers. There was a consensus among these professionals that a lack of education, poor communication skills, and stigma surrounding HIV all contribute to lower than optimal testing rates. Information obtained in this study should aid in future efforts to reduce mother to child transmission of HIV, as well as shed light on ways to improve the treatment of other stigmatized health conditions.

Caloric Expenditure of High Intensity Interval Exercise. Scott DeMoss, Hanover College. Faculty Sponsor: Bryant Stamford

The purpose of this study was to determine the relative caloric expenditure of a High Intensity Interval Exercise (HIIE) bout versus a steady state exercise bout with the same total work output. This study was designed to determine if the potentially greater excess post-exercise oxygen consumption (EPOC) attributed to HIIE training will result in a greater caloric expenditure than a submaximal exercise session. The high intensity/maximal exercise sessions consisted of alternating periods of work and rest, which were referred to as intervals. Three different high intensity treatments were used, each with different minute work rates between 750 and 1500 kg-m/minute. However, all three treatments had the same total work output of 7500 kg-m. The steady-state/submaximal exercise session consisted of a 25-minute cycle ergometer ride at a constant, steady pace with a total work output of 7500 kg-m. All exercises were completed on a Monark cycle ergometer and were monitored with the use of a Parvomedics metabolic cart and a Polar heart rate monitor. It was hypothesized that the HIIE bout would exhibit a greater caloric expenditure than the steady state exercise. Data collection is currently in progress; however, pilot data did not provide any conclusive data as to the outcome of the study.

Pharmacists Conducting Discharge Medication Reconciliation to Decrease Hospital Readmission Rates. Jason DeYoung, Scott Booziotis, Adam Melaragno, & Tim Matthews, Butler University. Faculty Sponsor: Alex Ansara

Medication errors play a major role in the number of hospital readmissions every year. One in five hospitalizations is complicated by post-discharge adverse events, some leading to preventable readmissions. To assess whether medication discharge reconciliation, pharmacist identified clinical interventions, patient education, and discharge counseling can reduce thirty-day hospital readmission rates. Adult internal medicine patients discharged from Methodist Hospital will be included. Patients being discharged to an external long term care facility will be excluded. The medical record and discharge summary of each patient selected will be reviewed to assess the opportunity for intervention in the following scenarios: unscheduled warfarin monitoring follow-up appointments, medication noncompliance due to expense, unnecessary medications, failure

to reinstate home medications, incorrect dosing regimens, inappropriate drug selection upon discharge, and drug interactions. The numbers and types of clinical interventions prior to discharge will be documented. Thirty-day readmission rates of study patients will be compared to the hospital's overall thirty-day readmission rates, which will serve as the control group. Readmission rates will be determined by Methodist Hospital medical records. Descriptive statistics will be used to describe the frequency of interventions made and barriers to medication therapy. A binomial test of proportions will be used to compare hospital readmission rates of study population to total hospital readmissions. If hospital readmission rates are significantly decreased in the study population, there may be a role for pharmacists to provide medication reconciliation for all patients prior to discharge.

Probiotic Utilization and Safety at Methodist Hospital. Nicole Dores, Butler University. Faculty Sponsor: Jane Gervasio

The World Health Organization and the Food and Agriculture Organization of the United Nations define probiotics as "live microorganisms which when administered in adequate amounts confer a health benefit to the host." In recent years, probiotics have been promoted for use in various gastrointestinal disorders. Trials show some benefit for the use of probiotics for diarrhea and most studies and trials have found probiotics safe for human use, reporting no severe adverse effects. However, patients who are at highest risk of complications from probiotics, such as those with immunosuppression or the critically ill, are often excluded from these studies. Also, there are a number of case reports regarding infections caused by probiotics particularly in these high risk patients. This study is a retrospective chart review including all patients prescribed and dispensed probiotics while at Methodist Hospital, Indianapolis, IN from May 2009 through April 2010. The purpose of this study is to investigate the appropriate use of probiotics to determine their safe administration.

Videos in Pharmacy Practice Lab: Effects on Student Performance. Nikita Eagleson, Butler University. Faculty Sponsor: Angela Ockerman

A 1982 article in the American Journal of Pharmaceutical Education identified the need for supplemental teaching tools within pharmacy practice labs. Studies in various fields of education have shown the benefits of "dual coding" (use of two different sensory pathways, i.e. visual and auditory, to enhance retention/understanding). No studies appear to have been done looking specifically at the use of videos to improve performance on a particular pharmaceutical lab skill. To determine what effect, if any, the addition of a Class A pharmacy balance video had on student performance. The study objective was met by analyzing performance on the balance competency during the RX421 midterm. Laboratory professors provided the number of students required to repeat the balance competency after the midterm in the fall of 2009 and after the midterm in the fall of 2010. Unlike the 2009 class the students in the 2010 class had the opportunity to watch the video during RX351 (prerequisite) when the balance was first introduced and it was also available on blackboard before the assessment. Students in the 2009 lab had access to only a handout on the balance (n=118). Twenty-nine students had to repeat the assessment due to unsatisfactory performance (24.6%). Students in the 2010 lab had access to both a handout and a video on the balance (n=112). Three students had to repeat the assessment (2.8%). Video supplementation has a positive effect on student performance when added to traditional lecture and written handout.

Effect of Chronic Exercise on MDMA-induced Hyperthermia. Jeremy Ebert & Karen Thatcher, Ohio Northern University. Faculty Sponsors: Sandra Hrometz & Jon Sprague

3,4-methylenedioxymethamphetamine (MDMA) induces a potentially fatal hyperthermia that involves free fatty acids (FFA) and the activation of mitochondrial uncoupling proteins (UCP). FFA uptake into skeletal muscle (SKM) requires specific transport proteins, including fatty acid translocase (FAT/CD36). FAT/CD36 expression is known to be augmented in SKM contraction including chronic exercise and direct electrical stimulation. Based on previous findings demonstrating the essential role of FFA in MDMA-induced thermogenesis, the aims of the present study were 1) to determine the contribution of FAT/CD36 in MDMA (20 mg/kg, s.c.)-mediated thermogenesis using forced swimming (two consecutive hours per day, five days per wk for six wk) as a chronic exercise model to increase FAT/CD36 expression; and 2) to examine the effects of the FAT/CD36 inhibitor, SSO (sulfo-N-succinimidyl oleate) on MDMA-induced thermogenesis in chronic exercise and sedentary control rats. As expected, MDMA administration resulted in hyperthermia for both sedentary and chronic exercise animals. However, MDMA-induced hyperthermia was significantly potentiated in the chronic exercise animals compared to sedentary animals. Additionally, chronic exercise significantly reduced body weight, increased FAT/CD36 protein expression levels and FFA uptake. The FAT/CD36 inhibitor, SSO (40 mg/kg, ip), significantly attenuated the hyperthermia mediated by MDMA and FFA uptake in the chronic exercise animals. Chronic exercise did not alter SKM UCP3 protein expression levels. In conclusion, chronic exercise potentiates MDMA-mediated hyperthermia in a FAT/CD36 dependent fashion.

Service Learning: Assessing the Impact of a Project in Advancing the Service Learning Experience of Pharmacy Students. Eric

Fairbrother & Sumit Patel, Butler University. Faculty Sponsor: Trish Devine

Service learning, an educating tool utilized over the past 20 years, involves students continuing their education outside of the classroom by generally assisting at underserved facilities in the local and sometimes greater community. To evaluate if incorporating a project into service learning that involves students having a one on one client history interview with a patient enhances the student's experience social behavior, values, understanding, self esteem, personal development, attitude, perception of impact, empathy and communication skills. A randomized survey based study that also incorporates a reflective writing analysis component. The specific assignment of interviewing a patient and then

preparing a presentation about the interview will be randomly assigned to students in one of two PX200 courses. A Likert scale based survey will be given to both sections of the PX200 course at the beginning and the end of the semester using Survey Monkey. Reflective writing papers will be submitted by students after completing fifteen hours of the service learning experience in both classes. Blinded evaluators of the students' papers will use a standardized grading rubric to assess students' experiences. Currently, there is inadequate literature on the various assignments given in service learning experiences and what specifically desired outcomes occur in pharmacy students as a result of these projects. Developing different assignment options and understanding their possible benefits could potentially be a powerful tool for educators.

Impact of Addition of Angiotensin-Converting Enzyme (ACE) Inhibitors to Statins Following Myocardial Infarction.

Jeffrey Filotei, Stephanie Heath, John Mulvaney, & Julie Koehler, Butler University. Faculty Sponsor: Julie Koehler

Although the benefits of ACE-inhibitors in high coronary risk populations have been well established, recent clinical trial data has questioned whether ACE-inhibitors significantly reduce cardiovascular risk in patients who are being aggressively treated with statin therapy. To examine the impact of adding an angiotensin-converting enzyme (ACE) inhibitor to statin therapy on morbidity and mortality in patients following myocardial infarction (MI). A retrospective cohort study of patients in the MEDSTAT MarketScan® database who had a MI (ICD-9 410.x1) between January 1, 2004 and December 31, 2006 was conducted. Patients had to be fully insured from 6 months prior to the initial hospitalization to 6 months following discharge to be included in the study. The patients also had to stay in the hospital for at least 3 days after being admitted for an acute MI and had to fill a prescription for a statin within 30 days of being discharged. Exclusion criteria included medicare or medicaid enrollment, ACE-inhibitor or statin use prior to acute MI, subsequent cardiovascular event within 30 days of the primary incident and premature discontinuation of statin and/or ACE-inhibitor. Propensity matching techniques will be used to adjust for baseline differences in terms of patient demographics, co-morbid conditions, cardiovascular risk factors, disease severity, and medication use. As the outcome is assessed in terms of time-to-event data, Kaplan-Meier analysis or Cox-proportional hazards model will be used to examine the impact of adding ACE-inhibitors to statin therapy.

The Effects of Dietary Cholesterol Loading and Saturated Fat Loading on Serum Cholesterol. Shawna Finney, Hanover College. Faculty Sponsor: Bryant Stamford

Saturated fat intake is known to be a greater determinate for serum cholesterol levels than is dietary cholesterol intake. However, there is insufficient evidence to determine the effects of excessive loading of both saturated fat and dietary cholesterol over a shorter period of time. Thus, the purpose of this study was to determine the impact of dietary cholesterol and saturated fat loading on serum cholesterol. This case study involved a healthy 22 year old female. Dietary cholesterol and saturated fat was monitored through controlled diets, and fasting blood tests were performed to collect serum cholesterol levels. It was hypothesized that dietary cholesterol loading would not increase serum cholesterol, while saturated fat loading would increase serum cholesterol. While data collection is still in progress, preliminary pilot data has revealed that both dietary cholesterol loading and saturated fat loading have the potential to increase serum cholesterol levels.

A Retrospective Cohort Analysis: Rhabdomyolysis Incidence of Four Selected Statins. Scott Fisher, Ashlen Christie, & Nicholas Petro, Butler University. Faculty Sponsor: Jason Rane

Statins, the most prescribed class of medications in the United States, are clinically associated with myopathies. Existing studies have focused on the general incidence of myopathies, or the incidence of death from rhabdomyolysis, but have not determined the exact incidence of rhabdomyolysis. The purpose of this study is to examine if lower doses of specific high-potency statins are associated with a lower incidence of rhabdomyolysis. Data from patients meeting inclusion criteria will be extracted from a database of insurance company claims from 2002 to 2006. NDC numbers will isolate subjects based on their therapy and the outcome of rhabdomyolysis will be determined by ICD-9 codes. Therapies being studied include daily doses of pravastatin 80mg, simvastatin 40mg, atorvastatin 20mg, and rosuvastatin 5mg, which are all considered to provide an LDL reduction of ~40%. Patients receiving other forms of LDL-lowering therapy will be excluded. The primary outcome is the incidence of rhabdomyolysis for each of the four statin therapies. These incidences will be compared to determine if a statin provides a higher or lower incidence of rhabdomyolysis. Existing studies have focused on the incidence of statin-induced myopathies based on patient characteristics, patients receiving combination therapies, or in patients with co-morbid diseases, but have not compared the relationship of rhabdomyolysis to statins used at similar therapeutic potency. In addition, very few studies have examined rosuvastatin, the newest and most potent member of the statin class. This study evaluates these characteristics, making this study unique.

Impact of Panopto Lecture Capture on Student Outcomes in Butler Pharmacy Courses. Kalyn Gleichman, Kari Edison, Amanda Dec, & Kate Bunten, Butler University. Faculty Sponsor: Jeanne VanTyle

Panopto (Panopto, INC; Pittsburgh PA) is a learning technology which allows for asynchronous learning among its users. Benefits of lecture capture technology have been investigated in many educational institutions. This study evaluated use and outcomes in the Butler University College of Pharmacy and Health Sciences professional programs. To evaluate the objective benefits and quality enhancements which Panopto can add to traditional educational methods and evaluate student perceptions of the impact of this technology on learning styles, conceptual understanding, retention of knowledge, application of material, achievement in courses and course attendance. The objective was met by

combining Panopto usage statistics from the Butler University Information Technology Department with student surveys using a web-based survey system, SurveyMonkey (SurveyMonkey.com, LLC; Palo Alto Ca). A link to the survey was provided by email to COPHS professional phase pharmacy students. Consent to participate was obtained prior to the start of the survey. Questions in the survey ask students about their perceptions of how Panopto affected attendance, supported their learning, assisted understanding of concepts, and/ or increased exam grades. Question design included Lickert scales and short answer response. All data is reported as the anonymous aggregate. Descriptive statistics were used in this study to examine relationships. When appropriate, t-tests were used to compare student responses with faculty responses from a separate survey. Information from the survey will help determine the usefulness of Panopto to students in the pharmacy program at Butler University and will lead to potential improvements in lecture capture usage.

Aspirin for Primary or Secondary Prevention of Cardiovascular Disease in Diabetes Mellitus. Daniel Goetsch, Jesse McDonald, Scott Gentry, Butler University. Faculty Sponsor: Alison Walton

To assess the percentage of patients with type 1 and type 2 diabetes appropriately utilizing aspirin for primary and secondary prevention of cardiovascular events according to new ADA recommendations. A retrospective chart review was conducted at the St. Vincent Primary Care Center (PCC) in Indianapolis, Indiana. Data was obtained from the electronic medical records of 200 patients with type 1 or type 2 diabetes with a clinic visit between January, 2010 and September, 2010. Patients under 21 years of age, pregnant, at an increased risk for developing diabetes, or allergic to aspirin were excluded from the study. Data collected included parameters necessary to calculate a Framingham 10-Year Risk Score. Study results will be presented as frequency distributions displaying the percentage of patients properly adhering to new ADA guidelines concerning the use of aspirin. Results from this study will help health care practitioners better identify the potential misuses of aspirin for the prevention of primary and secondary cardiovascular events in patients with diabetes mellitus. By increasing the awareness of the inappropriate use or underutilization of aspirin, practitioners at the St. Vincent PCC will be able to optimize health care for patients with diabetes.

Creating a Publishable Knowledge-Based Home Study Continuing Education Program on the Topic of Infertility. Maureen Grimm & Ashley Pascavis, Butler University. Faculty Sponsor: Carriann Richey

Continuing education is a requirement for licensed pharmacists in the United States to ensure that pharmacists remain current and provide accurate information to their patients. Through Accreditation Council for Pharmacy Education's (ACPE) website Pharmacists' Learning Assistance Network (PLAN), a continuing education activities database, there are minimal continuing education programs available regarding infertility. In a search for knowledge based homestudy continuing education activities about infertility in 2010, two programs were available fitting these search criteria, neither of which were focused on the treatment options. Based upon limited educational opportunities we have found available to community pharmacists about infertility, a program needs to be developed to fill this void and provide the best patient education possible. To develop a publishable knowledge-based online ACPE accredited continuing pharmacy education program. A literature review will include primary and tertiary literature sources as well as text references. The requirements for publishing and achieving accreditation from ACPE will be researched in order to comply with standards and obtain desired ACPE accreditation. An assessment will be performed at the conclusion of the continuing pharmacy education program to determine that participating pharmacists have gained sufficient knowledge on infertility and infertility treatments. Multiple choice questions will be utilized to assess improved knowledge of key information. This project will provide an opportunity for pharmacists to expand their knowledge about a topic which may be unknown to them. This project has the potential to increase pharmacist knowledge, improve patient care and education, and improve general pharmacist-patient relationships.

The Impact of Health Care Reform on Patient Care: Helping Pharmacy and the Industry Transition. Joel Hahn, Chris Page, & Sarah Lynne Gates, Butler University. Faculty Sponsor: Erin Albert

In March 2010 the House and Senate reconciled health bills to pass the Patient Protection and Affordable Care Act (PPACA) and the Health Care and Education Reconciliation Act (HCERA) which both focus on improving the health care system through a number of transformations. This project will provide an analysis of the long term health system transformation and those initiatives intended to improve patient quality and safety. To identify and report on the long range safety and quality transformations of health care reform that will affect pharmacy and the industry. Our analysis will focus on three areas including: the medical home and accountable care organizations, comparative effectiveness work with a focus on the Agency on Healthcare Research and Quality, and the Center for Medicare and Medicaid Intervention's research on payment delivery models. The research will primarily be a qualitative literature review of legislation and organizations in order to better understand what reform means for each of these areas, the industry, and business partners. To better understand how legislation and quality organizations will affect the industry and its ability to predict and meet the needs of partners in the value chain. Changes will also give pharmacists a chance to expand their skills and become more actively involved in improving patient care and reducing costs.

The Immersion Experience: Pharmacy Camp 2010. Phylcia Harris, Butler University. Faculty Sponsor: Kristal Williams

High-school students often decide what career and/or degree to pursue based on their interests and previous exposures, which are often times limited in nature. Generally, students may know, from a global perspective, what field they want to pursue in higher education; however, the specific focus area of their career choice is often unknown. Despite the development of immersion programs and increased workforce exposure in

public school systems, exposure to the field of pharmacy is often overlooked or limited. The goal of this project was to design and implement a pharmacy-centered program that would increase high school students' exposure to and awareness of the different aspects and careers in pharmacy. A 5-day interactive program was designed by the study investigators, conducted with the assistance of Butler University faculty, and implemented with the sponsorship by the Metropolitan Indianapolis-Central Indiana Area Health Education Center (MICI-AHEC). A baseline verbal assessment of careers in pharmacy was conducted on day 1 of the camp. Activities were designed to parallel the knowledge, skills, and attitudes taught to pharmacy students and practiced by pharmacist, and the daily career responsibilities and tasks of pharmacists in various pharmacy settings. Eighteen students participated in the 1st BUCOP/MICI-AHEC pharmacy camp. Based on the comments received from the students' reflection statements and during their interview with a Butler University Public Relations representative, the camp fulfilled its purpose and goal. Some of the participating high school students stated, "This [camp] opened my eyes to see there's more than just retail pharmacy."

Assessment of Falls and Medications that Potentiate Falls in the Nursing Home. Ashley Harrison & Katrina Coffey, Butler University. Faculty Sponsors: Cathy Ramey & Laurie Pylitt

Falls are a serious problem in the elderly population leading to decreased mobility, decreased quality of life, and increased healthcare costs. Past studies have identified medications potentiating falls and the consequences of the falls, but have lacked an action plan that educates caregivers about ways to proactively prevent falls in patients who are determined to be at risk. The primary objective is to analyze patterns of medication use in the elderly nursing home population that may have contributed to falls. As a second goal, an education component will be constructed for caregivers to aid in the prevention of the fall. A quality indicator report looking at residents at Hoosier Village and University Place will be generated to find patients who experienced falls. Following identification of residents experiencing a fall, a retrospective chart review will be performed to assess medication therapies at the time of the fall. Descriptive statistics will be evaluated to look at the medication classes, number of medications, timing of the medications, and demographics of patients' experiencing a fall. An education component outlining fall prevention strategies will be constructed. This study will highlight medications that predispose elderly nursing home patients to falls, and alert caregivers to precautions that they can take to minimize fall risk and optimize care in the elderly.

Medication Therapy Management in a State Medicaid Managed Care Facility-MDwise Solution. Ashley Harrold, Elena Mourad, & Kelly Henderson, Butler University. Faculty Sponsor: Bruce Hancock

A significant public health issue in the U.S. is the inappropriate use of medications that contributes to more than 1.5 million preventable, medication-related adverse events each year and accounts for \$177 billion in morbidity and mortality. This impact can be minimized by using a structured service model for medication therapy management (MTM) in which pharmacists work collaboratively with patients and health care providers to identify and resolve medication-related problems and empower patients to assume greater responsibility in their healthcare. The goal is to implement a MTM design for MDwise members that will improve the quality and efficiency of healthcare provision and increase cost savings. Literature was searched to identify the designs of other state Medicaid MTM programs that achieved similar desired results. Interviews with stakeholders were held to specify the need for these services to ensure their provision would produce the utmost benefit. PerformRx will be utilized to electronically select eligible candidates and to focus the interaction on key components that will most efficiently optimize patient outcomes. Pharmacy students completing their experiential rotations will provide MTM services telephonically. Clinical and economic outcomes will be tracked and statistically analyzed to determine the program's value. This MTM design will prevent medication errors, improve reliability of healthcare delivery, enhance medication adherence, decrease healthcare costs, and motivate patients to actively manage their disease states. It will also grant students the opportunity to utilize and expand upon their clinical knowledge by providing cognitive services in which they have been specially trained.

The Influence of Beta-2 Receptor Polymorphisms on Beta-arrestin Dependent Desensitization. Alex Isaacs & Chad Lesczynski, Butler University. Faculty Sponsor: Medhane Cumbay

The objective of this study is to assess how beta-2 receptor polymorphs affect the treatment of asthma attacks. Polymorphic variants of the beta-2 receptors have been shown to induce different rates of desensitization. However, the underlying mechanism for the difference in drug-induced desensitization among the polymorphic variants of beta-2 receptors is unknown. A crucial factor for beta-2 receptor desensitization is the binding of beta-arrestin proteins. We hypothesize that polymorphic changes in the beta-2 receptor alter its ability to interact with beta-arrestin proteins, which alters the rate of beta-2 receptor desensitization. To study the interaction between beta-2 polymorphs and beta-arrestin, it is necessary to generate the polymorphic variants. The mammalian cells expressing the beta-2 receptor polymorphs will be synthesized along with beta-arrestin fused to green fluorescent protein. We will be able to measure the interactions between beta-2 receptors and beta-arrestin by visualizing and quantitating the movement of beta-arrestin using a confocal microscope. In this study, we hope to provide a better understanding of the impact of genetic variation on beta-2 receptor signaling throughout the body.

Are Community Dwelling Medicare Beneficiaries with Dementia Undertreated for Depression? Jenni Johnson & Jessica Kane, Butler University. Faculty Sponsor: Priscilla Ryder

There is evidence that individuals with dementia are undertreated for pain due to not being able to adequately assess their pain. As a whole,

depression has been undertreated in elderly populations, contributing depressive symptoms to aging. To date, no studies have been done to assess whether demented elderly are undertreated for depression. To ascertain and compare the likelihood of treatment for depression in demented and non-demented community dwelling Medicare beneficiaries. This retrospective longitudinal study is a secondary analysis of the Medicare Current Beneficiary Survey (MCBS), a nationally representative survey, and associated Medicare claims, using data from 2001-2006. We identified a cohort of community-dwelling beneficiaries with depression and stratified them into two groups: those with and without dementia. Individuals with depression and dementia were identified using self-reports and claim ICD-9 diagnosis codes. Treatment was defined as 2 or more counseling sessions from a psychiatrist, psychologist or licensed therapist, 2 or more reports of antidepressant use or both. The primary outcome is treatment for depression and the secondary outcome is adherence to the Beer's Criteria in the prescribing of depression medications. The goal of this study is to increase screening for depression in demented elderly, increase diagnosis of depression and dementia and increase awareness of the undertreatment of depression in demented elderly, thereby increasing the quality of life in the elderly with dementia.

Impact of White vs. Wholegrain Wheat Bread on Fasting Blood Glucose. Paige Jones, Hanover College. Faculty Sponsor: Bryant Stamford
As the number of diabetics is continuing to rise, diets low in the glycemic index have been studied as a way of controlling Type 2 diabetes. Studies have shown that the implementation of a low glycemic index diet results in lowering of fasting blood glucose over a prolonged period of time. However, for the purpose of this study, the acute effects of low and high glycemic index foods on fasting blood glucose were observed to see if they have a similar effect on fasting blood glucose. It was hypothesized that blood glucose would be higher after consumption of white bread as compared with wholegrain wheat bread. Five college-aged subjects with no history of diabetes were required to fast overnight. The following morning, the subject's fasting blood glucose was obtained. The subject was then given a specific amount of white or wholegrain wheat bread to consume. Post consumption, the subject's blood glucose was obtained at 15, 30, and 60 minutes. Although data collection is still in progress, full data will be presented. Pilot data and initial findings have indicated that blood glucose increased more after the consumption of the wholegrain wheat bread, which contradicts the hypothesis.

The Incidence of Vancomycin Induced Red Man Syndrome and the Feasibility of Changing Standard Infusion Time to Two Hours in Pediatric Patients. Lindsey Kirk, Rachel Mals, Jessica Smith, & Danielle Brown, Butler University. Faculty Sponsor: Chad Knoderer
Red Man Syndrome (RMS) is an adverse reaction associated with vancomycin resulting in flushing, itching, hypotension and tachycardia. The standard vancomycin infusion time in adults is 2 hours and only 1 hour in children. The incidence of RMS in pediatric patients has not been thoroughly studied. To determine the incidence of RMS in pediatric patients and the feasibility of changing the standard infusion time to two hours. Data was collected from patients admitted to the hospital from June 2009 through December 2009. Patients were excluded if they were older than 18 years at the start of vancomycin therapy, neonatal patients, patients in the neonatal intensive care unit or hemodialysis patients. The charts were retrospectively reviewed to determine the incidence of RMS. A subgroup of patients was then randomly selected from the entire study population to determine feasibility of changing the standard infusion time. Patients were divided into critical and non-critical based on nursing units. Feasibility was determined by the free IV time, compatibility, and sites available for infusion. Results: A total of 818 patients were included in determining the incidence of RMS (423 non-critical, 395 critical care). A subgroup of 150 patients (75 non-critical, 75 critical care) was randomly selected to determine the feasibility of changing the infusion time. Increasing the vancomycin infusion time has been demonstrated to decrease RMS incidence. By reviewing incidence and feasibility, this study may provide sufficient data supporting changing the standard vancomycin infusion time to two hours in all pediatric patients.

Impact of Ankle Bracing on Strength and Flexibility. Rachel Kloentrup, Hanover College. Faculty Sponsor: William Tereshko
The purpose of this study was to investigate the impact of ankle bracing on strength and flexibility. The independent variables used were a braced and non-braced ankle and the dependent variables were strength and flexibility. The lido machine was used to measure strength of the dominant ankle joint in plantar flexion, dorsi flexion, inversion and eversion through isotonic and isometric muscle contractions. The measurements of the braced condition were compared to the non-braced in order to find differences and to analyze the effect of bracing on ankle strength. Using a goniometer, flexibility in the same four planes of motion was measured on the subject's dominant ankle under the two conditions, braced and non-braced, in order to analyze the effect of bracing on ankle flexibility. It was hypothesized that a braced ankle joint will exert less force and a decreased range of motion during inversion, eversion, plantar and dorsi flexion. It was also hypothesized that subjects not acclimatized to ankle bracing will exert less force. Preliminary data is inconclusive. Statistical analysis of the compiled data will be presented.

Assessing the Influence of Direct-to-Consumer Advertising on Pharmacy Students. Katherine Kos, Butler University. Faculty Sponsor: Annette McFarland
Direct-to-consumer advertising (DTCA) is aimed at marketing products directly to consumers to enhance the sales of a particular drug. In 2009, the pharmaceutical industry spent \$4.5 billion in DTCA, with 62% of spending consisting of network TV and national magazine advertisements. A 1999 study looked at the opinions of university students and DTCA, which found that most students were not aware they were influenced by advertisements even though a positive correlation was found between number of ads seen and number of products used. In 2007, a survey was published that examined the knowledge and attitudes of pharmacy students towards DTCA and found that the students had overall negative

opinions towards TV and print ads directed at the consumer. The primary objective is to compare the influence of DTCA on pharmacy students at Butler University College of Pharmacy and Health Sciences. Methods: Butler University pharmacy students enrolled in P1, P2, and P3 courses will be given an online survey, using Survey Monkey, sent as an email link through class listservers. The survey will be asking about their opinions and behaviors towards direct to consumer advertising they had seen in the past year. Once the survey is concluded, a statistical analysis will be conducted on the survey results. I anticipate receiving 100 responses when the survey is concluded. Conclusions: Pending results, DTCA lectures should be included for all years of the pharmacy curriculum.

The Use of Heparin versus No Heparin for Central Line Infusion and Maintenance in Neonatal Intensive Care Units across the United States Tyler Kos & Eric Henry, Butler University. Faculty Sponsor: Dennis Gardner

Neonates who need central lines (PICC, CVL, UAC, UVC) are at a higher risk of clot formation. Heparin is used in adult patients to protect against thrombotic events, but safety and efficacy guidelines have not been established for use in neonates. The objective of this survey is to assess heparin versus no heparin for central line infusion and maintenance in NICUs across the US. Methods: This is a survey targeting NICUs across the United States. Survey Monkey will be used to distribute the survey via email. Perinatal Quality Care Collaboratives from various states will be utilized to formulate our contact list. NICU directors, Clinical Nurse Specialists, and educators from various hospitals will be the target contacts. Primary literature search will be performed using Pubmed to compile existing evidence for heparin versus no heparin use in the central lines of neonates. Data being collected includes NICU bed capacity, level of care provided, use of heparin in various central lines, flow rates, and clot rates. Analysis will be performed to identify standards of practice in caring for infants with central lines across the US. Outcomes from this project will assist in formulating a standardized heparin protocol for central line use in neonates, assist in identifying and comparing Community Hospital North's practice with the current standard of care across the United States and assist in identifying a current standard of care across the US, and in reviewing central line infusion practices at CHN.

Implementing Manufacturer Assistance Programs at an Underserved Clinic. Jessica Lamb, Janna Fett, & Cameron King, Butler University. Faculty Sponsor: Carriann Richey

Manufacturer assistance programs (MAPs) have evolved to play a vital role in providing uninsured patients with brand name medications, however, these programs can be difficult to access. The primary objective is development of a service for enrolling and maintaining eligible patients in MAPs at an underserved clinic. A secondary objective is to quantify cost related savings as it relates to the implemented MAPs. Initially, a software program called RxAssist Plus was purchased to help manage MAP applications. To develop an MAP service, feedback was collected from the clinic staff, volunteer pharmacists, and student pharmacists who completed an advanced pharmacy practice rotation at the clinic. A flowsheet and a MAP guide were both created to assist with the MAP process and enrollment applications, specifically for medications listed on the clinics' formulary. After six months of feedback, a training tool for processing MAP applications was created. Results: A questionnaire was developed to collect information for RxAssist Plus and the MAP applications. A stepwise approach was then created to process and track patients in MAPs. Steps included determining patient eligibility, instructions for using the MAP guide, and a detailed flowsheet for completing and submitting MAP applications. Flowsheets were continuously revised, and RxAssist Plus reports were utilized to track participation, refill information, cost related savings, and application renewal dates. While current literature adequately depicts the benefits and successes of pharmacist-facilitated enrollment for MAPs, information is lacking on the tools and processes needed to implement a MAP enrollment service.

Effects of Caffeine on Ratings of Perceived Exertion and Heart Rate during Exercise. Kristen LeBrun, Hanover College. Faculty Sponsors: William Tereshko & Bryant Stamford

Ergogenic aids such as caffeine are often used to improve athletic performance and gain physical advantage in fitness. In exercise performance it is crucial not only to exert oneself physiologically, but also psychologically. The perceptual effort complements the physical effort which can maximize performance endurance. Therefore, the purpose of this study was to examine the effects of caffeine on ratings of perceived exertion (RPE) and heart rate during exercise. The subject's perception of effort was accessed using the Borg's Scale, as well as heart rate using a Polar Heart Rate monitor during a graded exercise test on the Monark Cycle Ergometer. Ten active male subjects were tested in two blind sessions one with caffeine the other with placebo. It was hypothesized that the RPE would be lower when caffeine was ingested. Data collection is in the process of completion and pilot data supports the hypothesis thus far. The psychological effects of caffeine ingested before exercise is relevant to athletes, coaches, and exercise scientists to add to the literature on the physiological and RPE effects of caffeine ingestion.

Leveling the Playing Field for Basic Health Care: A Study Evaluating Resources Available for Non-English speaking Hispanic Patients in Retail Pharmacy Settings in Indianapolis. Joseph LeGrand & Sarah Perez, Butler University. Faculty Sponsor: Kristal Williams

Hispanics are currently the largest racial and ethnic minority population in the United States. To date, the Hispanic population continues to struggle with inequity in health care acquisition and provision. As health care providers, it is our responsibility to acknowledge and address these disparities in order to improve health outcomes in this large sect of the population. 1) Evaluate the resources available at retail pharmacies for the non-English-speaking Hispanic population in Marion County. 2) Determine and/or evaluate the pharmacy experiences, perceptions, and needs of

Indianapolis Hispanic residents. Phase one is two-fold, consisting of surveying (1) Hispanic patients of several health clinics that serve a large Hispanic population and (2) pharmacists employed by major retail pharmacy chains located within a five-mile radius of these health clinics. The pharmacies will be ranked using the investigator-designed rubric and a “gold standard” will be determined. In phase two, three study-trained secret shoppers will visit the gold standard pharmacy and two other randomly selected pharmacies, where they will act-out two common retail pharmacy scenarios. Immediately after each secret shopper event, the volunteer will grade each pharmacy on their ability to provide Spanish-language services, using the investigator-designed secret shopper rubric. The investigators will grade the pharmacist on accuracy and safety. The ultimate goal of this study is to determine the baseline levels of resources available to the non-English-speaking Hispanic population in Marion County and to have that data be used to promote language resources and cultural advancements in the community pharmacy setting.

Efficacy of Pre-Exercise Carbohydrate Consumption when Ingested at Different Times. Rachel Logar, Hanover College. Faculty Sponsor: Bryant Stamford

The purpose of this study was to determine the effects of Gatorade 01 Prime® as a carbohydrate supplement ingested at different times before exercise by measuring the effect on respiratory exchange ratio (RER) and blood glucose levels. It was hypothesized that the condition in which the subject ingested the Gatorade 01 Prime® 15 minutes prior to exercise would be more effective in terms of blood glucose levels and RER values. One college-aged female subject was tested under four treatments: one fasting exercise test, and 3 exercise tests in which she ingested Gatorade 01 Prime® 15, 30, and 60 minutes prior to exercise. The subject was exercised for 30 minutes on a cycle ergometer at 55 rpm with 1 kg of resistance. Blood glucose was measured prior to each treatment (fasted), 15 minutes after ingestion, at the start of exercise and every 5 minutes thereafter until the conclusion of the exercise. RER was collected every minute via a metabolic cart. Initial findings and pilot data suggest that the hypothesis regarding the ingestion the carbohydrate solution 15 minutes prior to the onset of exercise will be the most effective time frame. Ingesting the carbohydrate solution 30 and 60 minutes before exercise may show an early onset of fatigue during exercise, shown via decreased blood glucose levels during exercise. Data collection is ongoing and complete data will be presented.

An Evaluation of the Current Usage of Different Forms of Contraception and the Effectiveness of these Contraception Products in a Family Medicine Clinic. Jennifer Longenecker & Kalin Clifford, Butler University. Faculty Sponsor: Deborah Zeitlin

Various forms of contraception exist that include oral tablets and intrauterine implants. Many patients who use contraception do not fully understand the benefits and disadvantages with each formulation. Available data also shows each type of contraception differs in effectiveness. To evaluate the usage of different types of contraception prescribed to patients in a family medicine center and determine the effectiveness in preventing conception. Secondary objectives include mean duration of use, age of users, number of pregnancies, and the prescription frequency of each contraceptive product. A retrospective chart review will evaluate all female patients who have received a contraceptive prescription from the IU/Methodist Family Medicine Center in Indianapolis, Indiana from January 1, 2007 through June 31, 2010. The chart review will identify which contraception product was prescribed, mean duration of usage, age range of users for that product, and number of pregnancies that occurred. The statistical analysis will be conducted using the Statistical Package for Social Sciences version 17.0. The goal of this study is ensure that women are using an effective contraceptive product. All women have different needs for their particular choice of contraception. Women should also be aware of all available options to help them find the most beneficial product for their lifestyle to prevent pregnancy. The IU/Methodist Family Medicine Center eventually wants to create a patient pamphlet to help individuals make an informed decision about their contraceptive needs.

Evaluating the Need for Quality Educational Resources on Diet and Nutrition in the Outpatient Pharmacy Setting. Bethany Mast & Hilary Brown, Butler University. Faculty Sponsors: Annette McFarland & Jane Gervasio

Patients are becoming more aware of the role diet and nutrition plays in their overall health. With an abundance of conflicting information from a variety of sources, it can be difficult for patients to find reliable and safe information. It is well known that outpatient pharmacists are one of the most accessible healthcare providers, and as such, are in need of quality resources with which to answer patients' questions. To evaluate the need for specific nutrition related educational resources in the outpatient pharmacy setting, and to alert pharmacists to quality sources of information. A brief online survey will be sent over the Indiana Pharmacists Alliance listserv. The survey will inquire about the questions these pharmacists receive from patients regarding diet and nutrition, what types of resources they currently use to answer these questions, and what resources they would like to have available to them to more thoroughly answer patient questions in the future. Survey responses will be compiled and the data will be used to develop educational materials for the Butler University College of Pharmacy and Health Sciences (COPHS) Community Health Resource website. This survey will increase awareness of reliable health information sources, specifically the COPHS Community Health Resource website. Patients will benefit from the creation of resources tailored to their specific concerns.

Evaluation of the Warfarin Monitoring Process and Interventions Made by Pharmacy Staff. Kyle McGovern, Kaylee Lankhaar, & Meghan Graff, Butler University. Faculty Sponsor: Ayesha Kheiri

The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) has identified patient safety with regards to anticoagulation therapy as a National Patient Safety Goal. One area that is evaluated to assess this goal is the effectiveness of safety processes. To evaluate the

inpatient warfarin monitoring process and interventions made by inpatient pharmacy staff at Wishard Health Services. The study will be a retrospective chart review conducted at Wishard Health Services. All patients 18 years of age and older, on warfarin therapy, hospitalized during August 1, 2010 to October 31, 2010, and monitored by the inpatient pharmacy staff will be included in the study. Patients newly initiated on warfarin therapy or prisoners will be excluded. Data that will be collected includes medications, warfarin dosage (including home warfarin dosage if applicable), goal INR, warfarin indication, age, weight, initiation of interacting medications, and interventions made by pharmacy staff. Statistical analysis will be conducted using SPSS. The results of this study will identify areas in the warfarin monitoring process that need improvement to meet the National Patient Safety Goal addressing anticoagulation. It will also identify issues that may need further pharmacy staff education with warfarin therapy.

Vancomycin Associated Acute Kidney Injury in a Pediatric Population. Amanda Memken, Butler University. Faculty Sponsor: Chad Knoderer

Recent surveillance data have demonstrated a gradual increase in the vancomycin minimum inhibitory concentrations (MICs) for methicillin resistant *Staphylococcus aureus* in children. As a consequence, higher dosing regimens may be necessary to attain the target AUC/MIC ratio. Following the implementation of a higher empiric dosing regimen, there was an observation of increased acute kidney injury (AKI) in children receiving intravenous vancomycin. To compare the incidence of AKI in children treated empirically with low dose vs. high dose vancomycin. This study is a retrospective, cohort design evaluating patients <18 years old who received intravenous vancomycin for at least 72 hours. Patients will be excluded if estimated glomerular filtration rate (GFR) was <60 ml/min/1.73 m² at the start of therapy, vancomycin was started at an outside institution, or multiple courses of vancomycin were required during one hospitalization. Patients will be categorized into one of two groups according to dosing strategy: low dose (40 mg/kg/day) and high dose (60 mg/kg/day). The primary outcome will be the incidence of AKI in each group. Secondary outcomes include need for renal replacement therapy and mortality. Relative risk (RR) and odds ratios (OR) will be determined using logistic regression to assess the impact of empiric vancomycin dosing on the incidence of AKI. Significance: High vancomycin doses ensure proper AUC/MIC ratios. Recent studies in adult patients have demonstrated an association between elevated vancomycin levels and increased risk of acute kidney injury. Little data exists evaluating the safety of high vancomycin dosing in a pediatric population.

Evaluating the Use of Intravenous Immune Globulin (IVIG) for Treating *Clostridium Difficile* at Community Health Network Hospitals.

Nicole Mueller, Andrea Webster, & John Heyder, Butler University. Faculty Sponsor: Jarrett Amsden

Clostridium difficile is a gram positive, anaerobic bacterium that is the most frequent cause of antibiotic-associated disease (CDAD) in the United States. Since 2000, there have been increasing rates of *C. difficile*-related morbidity and mortality. The increased virulence of CDAD has prompted practitioners to use conventional and non-conventional treatment modalities, including IVIG. The data for using IVIG in CDAD is limited and conflicting. Study Objectives: The primary objective will be to determine if the use of IVIG for the treatment of CDAD reduces mortality. The secondary objectives will determine if the use of IVIG reduces morbidity endpoints: surgical intervention, length of stay, time to afebrile, resolution of diarrhea, or relapse. Methods: This will be a retrospective comparative cohort study evaluating all patients admitted with a diagnosis of CDAD to Community Health Network between January 1, 2006 and December 31, 2009. Patients with CDAD who received IVIG will comprise the IVIG cohort and the remaining patients with CDAD who did not receive IVIG will be active controls. The IVIG cohort will be matched to controls based upon admission date within one month. In addition, patients will be stratified based upon a CDAD severity scoring index and patient demographics, laboratory values, and CDAD treatments will also be evaluated. Statistical analysis will be performed using SPSS. The intent of this study is to determine if patients with CDAD benefit from treatment with IVIG.

A Review of Proper Prescribing of and Compliance to Treatment of Patients with Diabetes and Respiratory Disease on Patient Outcomes in an Underserved Clinic. Michael Olenik & Nicole Moore, Butler University. Faculty Sponsor: Trish Devine

Kingsway Community Care Center (KCCC) is an underserved clinic that provides healthcare to low-income families. An assessment of physician prescribing habits and orders for laboratory tests in relation to recommendations from current clinical practice guidelines has not previously been completed at KCCC. Furthermore, an assessment of patient compliance has not been determined. To assess physician adherence to current practice guidelines and patient compliance to treatment plans for diabetes and COPD/asthma in an underserved clinic, and the subsequent effect on patient outcomes. The study will be a retrospective cohort design chart review. Assessment of proper treatment regimens will be determined via chart review based upon agreement with current practice guidelines for diabetes, COPD and asthma. Patient compliance will be determined via a survey that includes questions regarding individual medication habits and adherence to lab follow-up appointments. The population will consist of approximately 59 patients with diabetes and 41 patients with COPD or asthma. All patients are 5 years of age and older who have been seen for a medical appointment at KCCC between August 1, 2009 and August 1, 2010. The results of this study will serve as a preliminary foundation on which to build a series of improvements tailored to KCCC's specific needs. They will determine the prevalence of non-adherence to treatment plans as well as the reason for noncompliance. They will also determine where physicians most commonly deviate from clinical practice guidelines and the impact this has on patient outcomes.

Outcome Predictors in Cardiac Arrest Patients Undergoing Therapeutic Hypothermia. Emily Prabhu, Butler University. Faculty Sponsor: Jane Gervasio

Early therapeutic hypothermia is a known treatment method that can effectively reduce brain damage in the event of cardiac arrest. Currently, few studies exist assessing protocol initiation or influences on patient outcomes. To identify patient specific predictors of outcome for cardiac arrest patients and assess components of the hypothermia protocol as well as their impact on prognosis. This was a retrospective, observational study reviewing medical charts of patients admitted to Methodist Hospital in Indianapolis, Indiana between December 2008 and December 2009. Data was collected using the hospital's computer software (Cerner™) for patients admitted due to cardiac arrest who underwent the therapeutic hypothermia protocol. Demographic information including age, sex, weight, height, and medical history as well as baseline laboratory values, vital signs, and admission Acute Physiology and Chronic Health Evaluation (APACHE) II scores were collected in addition to nutrition received and medications administered. Time to cool, time to warm, and change in body temperature were estimated based on recorded data. All statistical analyses were conducted using the Statistical Package for Social Sciences version 14.0 (SPSS Inc., Chicago). This study will help to determine what patient characteristics predict outcomes thereby helping health care professionals to better predict a prognosis for patients undergoing the hypothermia protocol. Information gained from this study, including the coolest temperature drops and percent changes in body temperatures, will help physicians better implement the hypothermia protocol.

Impact of Telecounseling on Tobacco Cessation Rates in Patients Receiving Managed Care Medicaid Benefits..

Nicole Pruett, Butler University. Faculty Sponsor:

Current United States Public Health Service guidelines on Treating Tobacco Use and Dependence recommend that a combination of counseling and medication could increase abstinence rates compared to medication alone. To assess the success of tobacco cessation telecounseling in addition to pharmacotherapy in an Indiana Medicaid managed care population. The tobacco cessation telecounseling program started in February 2009 and included current tobacco users 18 years or older that received benefits through MDWise Hoosier Alliance. Patients were identified through pharmacy prescription claims for varenicline, bupropion, or nicotine replacement therapy (patches, gum, or lozenges). Patients were contacted via telephone by student pharmacists and pharmacists from Butler University at 1, 2, 3, 4, 6, and 8 weeks and were offered telecounseling. At 6 months and 1 year post telecounseling, patients were contacted to assess current tobacco cessation status. The control group was contacted 6 to 8 months after filling a prescription for a tobacco cessation medication to assess current tobacco cessation status. Results: 727 patients were eligible for the control group and 111 patients enrolled. 1,769 patients were eligible for the prospective intervention group and 206 enrolled. Overall quit rates for patients at six months was 40.7% (n=27) in the prospective group and 22.8% (n=70) in the control group (p=0.11). At call six, the self reported tobacco quit rate was higher in the prospective group versus the control group, 50% and 27%, respectively (p=0.012). Results demonstrate that pharmacists' telecounseling services can improve tobacco cessation rates for up to six months.

Impact of Point of Care Hemoglobin A1C Testing at a Safety Net Clinic. Stephanie Robertson & Megan Kikkert, Butler University. Faculty Sponsor: Amy Peak

Hemoglobin A1c (HgA1c) is a standard clinical test that measures glycemic control of type 2 diabetics. While the test is recommended twice annually for controlled diabetics and quarterly for those not meeting treatment goals, patients without health insurance or government insurance cannot afford this testing. The primary objective of this study is to determine if the availability of low cost point of care HgA1c testing increases compliance with ADA standards regarding A1c testing frequencies. Methods: A retrospective chart review of patients seen and tested with point of care HgA1c testing devices at the Kingsway Community Care Center (KCCC) over a seven month period will be performed. Data collected will include the actual HgA1c result, the location of the testing (point of care, or another laboratory), whether the result meets ADA guidelines, any therapeutic interventions seen due to the result, and differences between the result and previous HgA1c results. This data will be compared with baseline data regarding HgA1c testing provided by the clinic. Appropriate inferential statistical analysis will then be completed using SPSS or comparable software. A descriptive statistical analysis of the de-identified data obtained from this study will also be completed. The results of this study will influence the decision to continue to purchase HgA1c point of care devices for patients at KCCC, directly impacting these patients' care by the clinic.

Evaluation of Medication Discrepancies at Hospital Discharge at Community Hospital East. Ashley Salt, Monal Patel, & Madeline Nicholas, Butler University. Faculty Sponsors: Tracy Sprunger & Tracy Costello

Medication reconciliation is a crucial method for identifying discrepancies that occur at points of transition in the hospital system. Hospital discharge poses a high risk of medication discrepancies as patients' medications may change and formulary therapeutic substitutions are utilized. At Community Hospital East (CHE) pharmacists play an active role in the medication reconciliation process at hospital admission; however, pharmacists are not routinely involved in medication reconciliation at discharge. The purpose of this study is to characterize medication discrepancies upon patient discharge by comparing patient discharge instructions and physician dictated discharge summary with the admission medication list. We will also characterize the discrepancies on potential to cause harm. We will present this information to health care providers at CHE with the goal of implementing a practice to prevent the discrepancies and potential patient harm from occurring. A retrospective cohort design was used to meet the study objective. Approximately 150 patients admitted to a general medicine floor at Community Hospital East

between January 1, 2010 and June 30, 2010 will be included. Patients discharged to an extended care facility or another institution and patients on no home medication prior to admission will be excluded. Patient demographics including: age, race, number of medications, hospital unit, etc. will be collected. Patient's home medication list will be compared to the discharge lists provided to the patient and dictated by the physician in order to characterize discrepancies. Data collection is currently in process.

Evaluation of Pharmacists' Working Environment and Job Satisfaction while Giving Immunizations in the Retail Setting.

Amy Samplawsk & Bethany Rose, Butler University. Faculty Sponsor: Laurence Kennedy

The pharmacist's job description in the community setting has evolved over the past several years. Recently, the majority of retail pharmacy chains have begun implementing protocols for their pharmacists to include administration of influenza vaccinations into their daily routines. There are currently no studies evaluating how these added duties effect the pharmacists' job satisfaction and the perceived advantages and barriers that come with this service. To assess the working environment and job satisfaction of immunizing community pharmacists as well as identify perceived advantages and barriers that such a service brings to the retail pharmacy setting. An anonymous survey will be distributed to about 4,000 pharmacists in retail pharmacies throughout Indiana with a goal of receiving 400 responses. The survey will be distributed during January and February 2011 and will be available via website and paper copy that may be returned via fax. It consists of 18 questions comprised of multiple choice, open ended, and response via likert scale. Questions inquire about demographics, typical workday when vaccinations are offered, and pharmacists' opinions about being immunizers. The data will be evaluated by comparing frequency of responses and will be compared by conducting statistical inferences and non-parametric tests. The analysis will be done using SSPS. The goal of the study is to determine how the responsibility of giving immunizations in the retail setting affects pharmacists' job quality. It is important to determine if pharmacists' are satisfied with the direction pharmacy is taking in the healthcare field.

A Retrospective Comparison of Methicillin-Susceptible Staphylococcus Aureus and Methicillin-Resistant Staphylococcus Aureus Outcomes in Hospitalized Patients with Bloodstream Infections.

Emily Schrey, Amanda Kahn, & Megan Dunford, Butler University. Faculty Sponsors: Dane Shiltz & Chris Peric

Staphylococcus aureus is the leading cause of bacteremia in hospitalized patients and is associated with mortality rates of up to 60% in some hospital settings. Methicillin-resistant S. aureus (MRSA) is concern in both the community and hospital settings, accounting for over half of all nosocomial infections in intensive-care units. Several studies have evaluated the clinical outcomes in bloodstream infections due to methicillin-susceptible S. aureus (MSSA) versus MRSA, but the conclusions from these studies are not definitive. The purpose of this study is to evaluate and characterize the outcomes of bloodstream infections due to MRSA versus MSSA in hospitalized patients. Data collection was a retrospective patient chart review utilizing Cerner and CareWeb, electronic databases available at Indiana University Health. Admissions were evaluated from January 1, 2009 to December 31, 2009. Patient information regarding past medical history, antibiotic regimens and dosing schedules, and laboratory values were collected. The results of this study will aim to provide additional information regarding clinical outcomes of bloodstream infections due to MRSA compared to MSSA. Additionally, this study will assist in determining the most appropriate antimicrobial treatment strategy for these pathogens. A secondary measure will attempt to identify the relationship between initial vancomycin dosing strategies, initial vancomycin trough concentrations, and vancomycin minimum inhibitory concentrations in the treatment of MRSA bacteremia. Data analysis for this project is currently ongoing.

Impact of FDA Mandated Medication Guides in Retail Pharmacy.

Laura Siemianowski, Ashley Kierath, Eric Pelletier, & Jessica Massey, Butler University. Faculty Sponsor: Joe Jordan

The FDA mandates the issuance of medication guides for medication classes of significant health concern. The goal of the medication guides is to provide information regarding the potential risks associated with the medication or class of medication. It is required that the patient receive the medication guide with each dispensing, however, no formal verbal counseling by the pharmacist is required in Indiana. The awareness and comprehension of the medication guides by the patients is unknown at this point. To evaluate the usefulness of FDA approved medication guides for NSAIDs, stimulants, antidepressants, and warfarin as perceived by patients in retail pharmacy. A survey will be distributed to patients receiving a prescription for NSAIDs, stimulants, antidepressants or warfarin, at a Kroger Pharmacy. The survey will be completed at the time of prescription pick up and will consist of eighteen questions that evaluate demographics and the impact of information in the medication guide. The questions will evaluate if patients read the medication guides, their level of understanding of the material, and potential concerns they may have after reading the guide. The data collected will be descriptive in nature. Differences in outcomes will be compared based on gender, age, and education level. This study will be used to develop an understanding of the role of medication guides in patient education with hopes of promoting change in the way patients receive this information so they are more fully aware of all the risks and benefits.

Evaluation of Physical Training and Dietary Education on Achieving Personal Health and Body Composition Goals.

Jake Skierkowski, Jeff Yambert, & Jason Mills, Butler University. Faculty Sponsor: Jane Gervasio

According to an article published in the Journal of the American Medical Association, over 2/3 of the US population is overweight (BMI >25) and over 1/3 of the US population is obese (BMI >30). The importance of physical activity and non-pharmacological measures is imperative in

enhancing health outcomes and improving overall well-being. The objective of this study is to assess the efficacy of a triathlon training club and walking program, in coordination with educational handouts, in improving the primary outcomes (weight, blood pressure, BMI, % body fat). The study was conducted using an observational design, with pre-study measurements, including subject blood pressure, weight, BMI, and percent body fat being taken at baseline. Study participants participated in a "Newbie Triathlon Club", with baseline measurements taken at the beginning of the programs' initiation. Training sessions were held multiple times each week under the supervision of a personal trainer. Study participants were also given educational handouts on the importance of a smart, balanced diet, controlling diet with portion control, and the concept of the glycemic index. Physical activity and maintaining a healthy diet have been scientifically proven to lower weight, blood pressure, and cholesterol, leading to a decreased need for the reliance on medication. Ultimately, these steps can lead to a decreased risk for cardiovascular events and a decreased risk of mortality in addition to an overall decrease in healthcare costs. Programs designed to educate and incentivise will only further help individuals successfully reach their personal goals.

Overdose Prevention and Diabetes Education for Seniors. Steve Smith & Robert Helmkamp, Butler University. Faculty Sponsor: Sarah Nisly Senior citizens account for a significant portion of preventable medication overdose incidents. Acetaminophen poses one of the most significant risks to senior citizens due to patients' lack of education about appropriate use and its potential for toxicity. Around 23.1% or 12.2 million of all people age 60 years or older in the United States have diabetes. Diabetes is the leading cause of new blindness in adults 20 to 74 and accounts for greater than 60% of nontraumatic lower-limb amputations. Assessment of pharmacist education in a local elderly group on overdose prevention and diabetes. To evaluate the level of knowledge on overdose prevention and diabetes and then impact of pharmacist based education in an elderly population. Discussions will be held at two separate events covering the topics of overdose prevention and general diabetes management. Topics covered in these discussions will be maximum daily dose of acetaminophen, natural products, what patients should do if they miss a dose of medication, tricyclic antidepressants, calculating daily acetaminophen intake, foot care, dental care, sick day care, vaccinations, and nutrition. A pre and post questionnaire will be administered before and after the discussions. The results from each pre and post study will then be compared to each other. Subjects are members of local elderly communities. Data collection is ongoing at the present time and results will be presented upon project completion.

Impact of Telecounseling on Tobacco Cessation Rates in Patients Receiving Managed Care Medicaid Benefits.

Monica Sopiartz, Jessica Lagassie, Nicole Pruett, & Claire East, Butler University. Faculty Sponsors: Carrie Maffeo & Cathy Ramey Current United States Public Health Service guidelines on Treating Tobacco Use and Dependence recommend that a combination of counseling and medication could increase abstinence rates compared to medication alone. To assess the success of tobacco cessation telecounseling in addition to pharmacotherapy in an Indiana Medicaid managed care population. The tobacco cessation telecounseling program started in February 2009 and included current tobacco users 18 years or older that received benefits through MDWise Hoosier Alliance. Patients were identified through pharmacy prescription claims for varenicline, bupropion, or nicotine replacement therapy (patches, gum, or lozenges). Patients were contacted via telephone by student pharmacists and pharmacists from Butler University at 1, 2, 3, 4, 6, and 8 weeks and were offered telecounseling. At 6 months and 1 year post telecounseling, patients were contacted to assess current tobacco cessation status. The control group was contacted 6 to 8 months after filling a prescription for a tobacco cessation medication to assess current tobacco cessation status. Results: 727 patients were eligible for the control group and 111 patients enrolled. 1,769 patients were eligible for the prospective intervention group and 206 enrolled. Overall quit rates for patients at six months was 40.7% (n=27) in the prospective group and 22.8% (n=70) in the control group (p=0.11). At call six, the self reported tobacco quit rate was higher in the prospective group versus the control group, 50% and 27%, respectively (p=0.012). Results demonstrate that pharmacists' telecounseling services can improve tobacco cessation rates for up to six months.

Medication Therapy Management and Health Literacy Assessment through Healthy Horizons: The "Manage My Medications" Study.

Jennifer Stark, Whitney Greenwell, & Chelsea Keyes, Butler University. Faculty Sponsors: Carrie Maffeo & Cathy Ramey In prior studies, Medication Therapy Management (MTM) has been found to be a beneficial service that improves patient clinical outcomes and can provide a cost savings for the patient and the healthcare system. MTM has also been shown to reduce medication errors in patients receiving this service. The objectives of this study were to assess health related outcomes in patients that receive MTM services; determine if a correlation exists between level of health literacy, number of prescriptions, and adherence score; assess the cost-benefit of an MTM service to a self-insured institution; conduct a baseline assessment of MTM participants' health literacy; provide MTM to Butler faculty, spouses and staff through Healthy Horizons. Participants included in the study are Butler University employees and spouses covered by Butler's health insurance taking 4 or more chronic medications or taking medications for one of the following conditions: dyslipidemia, hypertension, asthma, hypothyroidism, depression, anxiety, heartburn/gastroesophageal reflux disease (GERD) or diabetes. Participants underwent two 30 to 45 minute appointments 2 to 3 months apart. Depending on the health history of the participant, the appointment included disease control assessment tools. The pharmacist reviewed the participant's medication regimen, cost of medications, lab data, health history and developed recommendations based on nationally recognized clinical guidelines to optimize the participant's medication therapy. Statistical tests for this pre-post Quasi experimental study were used. As of October 2010, a total of 89 patients enrolled into the MTM program and 72 have completed the program. Final study results are pending.

Evaluation of Adherence to an ICU Electrolyte Replacement Protocol. Katherine Strane & Lauren Houle, Butler University. Faculty Sponsor: Wes Garmon

Electrolytes are an essential for many physiologic and metabolic functions. Electrolyte imbalances occur frequently in the intensive care unit (ICU). Hypokalemia is reported to occur in up to 20% of hospitalized patients, which can lead to many adverse effects including fatal arrhythmias. Hypophosphatemia may cause conditions including glucose intolerance, respiratory failure, and reduced cardiac output. In the case of critical illness, it is important to identify and treat these imbalances quickly. In the ICU, patients require continuous adjustment and monitoring to maintain goal serum concentrations. It is important to identify and treat these imbalances quickly in critically ill patients. Our institution has developed an electrolyte replacement protocol to assist with treatment of such electrolyte imbalances. The purpose of this retrospective observational study is to evaluate the use of an established ICU electrolyte replacement protocol at Methodist Hospital in Indianapolis, IN. The goal study is to determine the extent to which the protocol was followed and its effectiveness in correcting electrolyte deficiencies. This is a retrospective, observational chart review in which approximately 150-200 ICU patient records will be analyzed from 6/1/09 to 9/30/09. Only patients age 18 years and older, staying greater than 24 hours in the ICU who had the electrolyte replacement protocol ordered were selected in the study. Patients who received continuous renal replacement therapy (CRRT) were excluded. The study will assess the following parameters: demographics, drug therapy, nutrition therapy, electrolyte concentrations, and electrolyte administrations. This study will assess the safety and efficacy of this protocol.

The Influence of the Thermic Effect of Food on Caloric Expenditure during Exercise at Different Stages of Digestion. Andrea Thomas, Hanover College. Faculty Sponsor: Bryant Stamford

The purpose of this study was to determine the impact of the thermic effect of food on the caloric cost of subsequent exercise during different stages of digestion. It was hypothesized that caloric expenditure would be greater during exercise. One college-aged female subject was tested under eight treatments, in which their minute ventilation (VO₂) was measured using a ParvoMedic Metabolic Cart. Two treatments were unfed resting and exercise tests, three were fed resting tests, and three more were fed exercise tests. For the first unfed treatment the subject fasted for 12 hours and then rested for 30 minutes while VO₂ was collected. For the second unfed treatment the subject fasted for 12 hours and then cycled on a Monark Cycle Ergometer for 30 minutes at 55rpm with 1kg resistance. For the fed treatments the subject was administered a 550kcal meal each time. VO₂ was collected 30, 60 and 120 minutes after meal administration for 30 minutes both in resting states and in exercise states. VO₂ measurements were converted into caloric expenditure using the formula $(VO_2(\text{Body Weight kg})/1000) \times 5 \text{ kcal/L}$. Data collection is still underway. Pilot data suggests that caloric expenditure is greater during postprandial exercise. Higher VO₂ in the fed versus fasted state also supports this hypothesis.

Argatroban and Lepirudin Utilization in a Pediatric Population: A Five Year Experience. Emma Thone & Kathleen A. Doan, Butler University. Faculty Sponsor: Chad Knoderer

Heparin induced thrombocytopenia (HIT) is an antibody-mediated adverse reaction to unfractionated or low-molecular weight heparin. Direct thrombin inhibitors are recommended for anticoagulation in patients with HIT. The objective of this study was to review the use of direct thrombin inhibitors in a pediatric population. Methods: This was a retrospective chart review of pediatric-aged patients who received argatroban or lepirudin between July 2003 and December 2008. The primary outcomes measured were the effective drug dose required for resolution of thrombosis and thrombocytopenia, incidence of adverse events, and death. Clinical data collected to evaluate appropriateness of use included: indication for therapy, presence of heparin-induced antibodies, and presence of thrombosis or thrombocytopenia. Major bleeding events, thrombotic events, and death were recorded. Results: Twenty-two patients met initial inclusion criteria and were included in the statistical analysis. Argatroban and lepirudin were used in 54% and 46% of patients, respectively. The mean duration of argatroban and lepirudin therapies were 5.3 and 14.2 days. Thrombocytopenia resolution occurred in 46.7% of patients with HIT after a mean duration of direct thrombin inhibitor therapy of 2.5 days. Two patients with HIT had no change in clinical status after therapy. Thrombus resolved in 55.6% of patients with HIT with thrombus. Adverse effects were observed in eight patients, with bleeding occurring in all. Conclusion: This study will add to the limited pediatric argatroban and lepirudin data and help to further establish safe and effective pediatric dosing.

Assessing Contamination Rates of Medium-Risk Level Sterile Compounding with Non-sterile and Sterile Gloves. Helena Torres, Lauren Miklavcic, Shawn Van Scoik, & Stacy Snyder, Butler University. Faculty Sponsor: Kendra Atkinson

The purpose of this study is to determine if non-sterile gloves can meet or exceed the contamination rate set forth by sterile gloves for tryptic-soy broth (TSB) mini-bags. This study compared contamination rates from sterile compounding performed with new non-sterile and sterile gloves with routine disinfection and with non-sterile and sterile gloves that technicians had been using for at least an hour with routine disinfection. Contamination rates were assessed based on the results of TSB mini-bags and agar fingertip plates. Compounders made TSB mini-bags through a series of transfers following the directions from the manufacturer, Q.I. Medical Inc. For each test an ampule was broken. The TSB growth medium was then extracted and transferred to a vial already partially filled with TSB growth medium. Then the TSB was removed in twenty (1) milliliter (mL) aliquots and transferred to a TSB mini-bag. After the transfers were complete, the compounders placed their glove tips on agar plates and incubated both the agar plates and mini-bags at room temperature for at least three days and at least fourteen days, respectively. If the

results from our study can show that non-sterile gloves have the same or better contamination rate as sterile gloves, then we predict that there will be increasing interest of the topic on a larger scale. One day the results of these studies may provide evidence that could be used to refute the current recommendations of using sterile gloves for sterile compounding.

Rate of Rehospitalization: Comparing Daily Oral Antipsychotics to Their Long Acting Counterparts. Stephanie Tristano & Paul Warney, Butler University. Faculty Sponsor: Laura Ruekert

The primary objective the study addresses is the number of rehospitalizations over a twelve-month period comparing patients on a long-acting injectable antipsychotic versus its oral counterpart. The secondary objective the study addresses is the duration of hospital stay for rehospitalizations, the cost associated with the relapse, and the incidence of adverse events. The study is a retrospective chart review analyzing readmissions to Community Health Network. Patients will be included if they are between 18 and 89 years old, have been discharged on an oral antipsychotic or long-acting injectable (excluding olanzapine) antipsychotic prior to the date of November 1st, 2009, and have been diagnosed with one of the following: schizophrenia, schizoaffective disorder, or bipolar disorder. Patients discharged on an antipsychotic prior to November 1st, 2009 will be generated onto a list from which we will randomly select patients to meet the number of patients needed for our study to meet its power. Patient's data will be analyzed one year past their entry into the study. The one year follow-up must fall in between November 1st, 2009 to October 31st, 2010. Data to be analyzed includes medication, age in years, diagnosis, number of hospitalizations, duration of any hospitalizations, cost of hospitalization, and adverse events reported during any hospitalizations. Statistics Independent sample t-tests will be used to analyze the data to determine and significant differences between long acting injectable antipsychotics and their oral counterparts. Some results may be described in means and medians as well as percentages.

Service, Education, and Advocacy within a Student-Run Pharmacy: An Evaluation of the Butler University Community Outreach Pharmacy. Tyler Truog & Eliza Dy, Butler University. Faculty Sponsor: Kristal Williams

The Butler University Community Outreach Pharmacy (BUCOP), a student-run pharmacy, was established in August 2009 with a mission of service, education, and advocacy and an overall goal to help resolve a challenge for a local, economically disadvantaged Indianapolis community by providing a resource for free medication and patient counseling. The purpose of this study is to individually investigate these three domains of the BUCOP mission statement for the purpose of quality improvement. This study, approved by the Indiana University – Purdue University Indianapolis (IUPUI) Institutional Review Board, is a multi-phase study evaluating the fulfillment of the BUCOP mission statement, specifically in the areas of service, education, and advocacy. The service questions are designed to assess the primary measure of the patients' perceptions of the provision of pharmaceutical care including pharmacy experience and secondarily their confidence in the student-volunteers ability to render healthcare services. The education survey is used to evaluate the quality of the volunteer training session, the overall volunteer experience, and their overall learning experience as a student-pharmacist and member of the clinic's diverse medical team. The third survey assesses advocacy in terms of the ability of the BUCOP board and its student-volunteers to promote the health center and the BUCOP. All statistical analyses will be conducted using Microsoft Excel 2007 Analysis ToolPak. Data collection is currently ongoing and results are pending. Conclusion: Final conclusions will be presented.

The Impact of Dehydration on Bioelectrical Impedance Body Fat Analysis. Bruce Whitehead, Hanover College. Faculty Sponsor: William Tereshko

Bioelectrical impedance analysis (BIA) is the easiest and most readily available means of assessing percent body fat while still being accurate. However, this measurement does have possibilities for error. One such area is the hydration level of the person being tested. The purpose of this study was to determine the impact of varying degrees of dehydration on body fat measurements by bioelectrical impedance. Ten college football players were tested before, during and after dehydration. Their percent body fat was measured by three methods of BIA (upper, lower and total) at all three stages of testing. The Dehydration occurred over a thirty minute period and Measurements were taken every ten. Their heart rate was monitored using a Polar Heart Monitor, and temperature was assessed using an oral thermometer. Data collection is in progress. It is hypothesized that progressive dehydration will result in progressive underestimation of body fat measured by bioelectrical impedance and full re-hydration will restore body fat measurements to pre-dehydration levels. Initial findings have demonstrated that the body fat measurements are underestimated with increasing levels of dehydration. Thus far BIA body fat measurements have returned to original levels after rehydration. Comprehensive data analysis will be presented.

PHILOSOPHY & RELIGION

Milton's Trinitarianism in *Paradise Lost*. Anthony Acciaioli, Valparaiso University. Faculty Sponsor: Edward Upton

Scholars continue to debate how firmly John Milton espouses an Arian perspective in his writing, particularly his less dogmatic works. Previous studies have accentuated a form of subordinationism consistent with Arianism in Milton's writing, Arianism being a position in which God the Son is different from and lesser than God the Father as a result of his being created by God the Father. Specifically, many scholars argue that Milton holds to a doctrinal system in which God the Son is neither coeternal nor coequal with God the Father. While Milton displays such a

perspective in his more dogmatic works (*De Doctrina Christiana*), I argue he deviates from such a blatant, Arian perspective in *Paradise Lost*. A careful examination of *Paradise Lost* in tandem with current scholarship reveals a more nuanced relationship between Father, Son, and Spirit, a relationship in which Father and Son act as cooperative, coequal partners in Creation, an atemporal partnership sustained by the Holy Spirit. Furthermore, a close inspection of *Paradise Lost*, specifically Book III, reveals a soteriological framework in which God the Son willingly sacrifices himself on behalf of humanity, a willingness which contradicts a purely Arian perspective by asserting God the Son as an informed, cooperative partner in God's salvific plan. This quasi-Trinitarian framework present in *Paradise Lost* becomes more apparent when Father, Son, and Spirit are viewed not as individual characters, but rather, as manifestations of God's inner life, distinct hypostases nevertheless part of one ousia or eternal reality.

The Lives of People with Schizophrenia and Different Religions. Mary-Margaret Carlson, Wittenberg University. Faculty Sponsor: Keith Doubt

Schizophrenia is a condition that appears to affect the most basic mental functions that give people their sense of personhood, individuality, uniqueness, and direction. Like other severe mental illnesses, schizophrenia leads to loss of self, loss of opportunity, and loss of relationships, which lead to social isolation. Can religion be a supportive environment where people with schizophrenia can be accepted and part of a community? Are different faith traditions more supportive than others? While, researchers have explored the influences of religion on mental health, studies are needed to examine the effects of different religious belief systems for people with schizophrenia. Not all religious beliefs and practices may have the same impact on health outcomes. Do different religious belief systems and practices, because of their differing contexts, impact the life course of someone with schizophrenia in different particular ways? The research is an empirical study of the cross-cultural religious responses to the spirituality of people with schizophrenia. By using in-depth interviewing, I hope to explore how different religions do or do not have positive effects on those suffering from schizophrenia.

Parables of the Kingdom of God. Danielle Reist, Butler University. Faculty Sponsor: James McGrath

The nature of the Kingdom of God as understood by the historical figure of Jesus has long been a topic of scholarly debate. Parables make up a large part of the material attributed to Jesus concerning the Kingdom. I propose that many parables may be better understood by looking for a character that represents the nature and actions of God. With this in mind my examination of these parables is particularly concerned with what, if anything, can be learned about Jesus' view of the eschatology of the Kingdom.

Aldo Leopold's Land Ethic and the Great Lakes. Michael Sanford, Grand Valley State University. Faculty Sponsor: John Uglietta

This essay explores the obligations which we have to protect the Great lakes ecosystem from the threat of aquatic invasive species within the context of Aldo Leopold's seminal essay in environmental philosophy *The Land Ethic*. In this essay I argue that Leopold's land ethic provides a consistent and dynamic paradigm for how we perceive and protect the natural environment. The land ethic is summarized in what I call Leopold's Edict which directs us to preserve the health and beauty of the natural environment. Aquatic invasive species have in recent years become a major area of concern for ecologists, industrialists as well as those who use the Great Lakes recreationally. Many invasive species of both flora and fauna, which previously did not exist, have been introduced into the Great Lakes accidentally by commercial shipping practices such as ballast water discharge and the use of locks and canals. When we examine the cost both monetarily and in terms of ecological damage to the Great Lakes ecosystem of invasive plants and animals now present in the lakes at this time we are faced with many ethical questions. This essay attempts to understand the moral paradigm necessary to effectively manage the Great Lakes ecology in light of these threats. However a versatile paradigm does not necessitate a paradigm which it is adaptable to whatever moral winds are blowing at the time, rather that it helps us to distinguish the mean between two extremes and therefore offers us a virtuous response to each new threat.

Aristotle on the Reduction of Good Friendship. Apostolos Stefanopoulos & Dennis Mulqueen, Marist College. Faculty Sponsors: Jugis Brakas & Andrei Buckareff

Aristotle believes that friendship grounded by the good is mutual affection. I will argue for the reduction of friendship grounded by the good, (Aristotle's theory), on the account that it is unattainable. The argument runs as follows: the self is of highest value, primary, and not extendable in bodies. Further, my account will demonstrate that good friendship is not a necessary condition for a flourishing life. In effect, all that matters is that the self-fulfill the condition of goodness and virtue.

An Exploration of Psychological Egoism. Alec Stephens, Butler University. Faculty Sponsor: Richard McGowan

I will explore the concept of psychological egoism. I will start by expounding upon the theories of Thomas Hobbes and his ideas on human intentions. I will then explore Sigmund Freud's theories on the human ego, especially his notions of 'Eros' and 'Thanatos.' I will offer a comparison of the theories of these two men, looking for similarities and differences. I hope to show how the two thinkers answered the question, "Are humans always self-interested?"

Varieties of Zen Buddhism in Indianapolis. Myles Trapp, Butler University. Faculty Sponsor: Chad Bauman

The primary aim of the current study is to compare the varieties of religious practice and subjective experience across Zen Buddhist centers in the Indianapolis area. The incredible diversity of Buddhism as a rich spiritual tradition with a dynamic history in the east and its recent transformations as a result of western influence are reflected in the distinct groups that have developed in this city. Some of these practices refer back to the ancient spiritual texts handed down centuries before Common Era, while others are founded on the teachings of migrant monks who continue to promote their school of thought throughout the United States to this day. I have paid visits to the An Lac Temple, Dromtonpa Buddhist Center, and Indianapolis Zen center – all affiliated with different cultural and religious backgrounds. Additionally, I have attended Shambhala meditation at Butler University's Center for Faith and Vocation and Mindfulness Meditation sessions at Second Presbyterian Church. Services at these centers diverge widely in terms of the rituals incorporated in their service; they range from hour-long chanting in Vietnamese accompanied with heavy percussion to simple breathing and body scanning exercises. Each group affords meaning and sensations of wellness to its constituents in unique ways. I report the differences in style and technique, and explore the relationships of each group to the broader framework of Buddhism as a major world religion.

PHYSICS

An Investigation into the Origin of the Second Law of Thermodynamics. Douglas Coleman, Grand Valley State University. Faculty Sponsor: Milun Rakovic

Coffee creamer is readily seen to diffuse into coffee, but once mixed, is never observed to separate back. The second law of thermodynamics describes this nonreversible event by stating that a closed system not in equilibrium will evolve until it approaches its maximum value of entropy—in which case the system has reached equilibrium—and its macrostate will not change. Because it is known that coffee, creamer, and all other matter is composed of elementary particles whose interactions have been shown (in part) to be calculable (at least within a statistical framework), the question can be posed whether the second law of thermodynamics is a fundamental physical law, or if it can be derived from first principles of mechanics, or perhaps with something else, such as statistics. Specifically interesting is that the microscopic dynamical equations thought to govern all macroscopic system's constituents are time symmetric, implying that the reversed time evolution of any process should also be physically possible. This presentation will analyze the works of Boltzmann, Gibbs, and others who have sought to derive or qualify the second law of thermodynamics in terms of the underlying time reversible microscopic dynamics. A personally developed numerical simulation will be exhibited to illustrate the foundations and paradoxes of Boltzmann's 'H-theorem', and the presentation will attempt to distill the literature regarding the pursuits of nonequilibrium statistical mechanics to describe entropy increase of irreversible macroscopic phenomena.

Variable Stars in the Globular Cluster NGC 4833. Andrew Darragh, Butler University. Faculty Sponsor: Brian Murphy

Using the image subtraction method of Alard & Lupton (1998) we have searched for variable stars in the globular cluster NGC 4833. Image frames were obtained during January and February 2011 using the Southeastern Association for Research in Astronomy (SARA) 0.6 meter located at Cerro Tololo Interamerican Observatory. We confirmed 16 previously known variables catalogued by Demers & Wehlau (1977). In addition to the previously known variables, we have identified 10 new variables. Of the total number of confirmed variables, we found a total of 20 RR Lyrae stars. Of the total we classified 12 RR0, 8 RR1, a number of possible variables with periods greater than 2 days, a W Ursis Majoris contact binary, and 5 SX Phoenicis stars. We present the periods of previously found variables as well as the periods, classification, and light curves of the newly discovered variables. This project was funded in part by the National Science Foundation Research Experiences for Undergraduates (REU) program through grant NSF AST-1004872 and by a grant from the Butler Institute for Research and Scholarship.

Fabrication and Characterization of Nanocrystalline TiO₂:V₂O₅ Powders. James Folberth, Rose-Hulman Institute of Technology. Faculty Sponsors: Maarij Syed & Elaine Kirkpatrick, Rose-Hulman Institute of Technology & Kasem Kasem, Indiana University, Kokomo
Mixtures of Titanium Oxide (TiO₂) and Vanadium Oxide (V₂O₅) were prepared from aqueous solutions of TiCl₃ and urea by repeatedly refluxing and separating the precipitate by centrifugation. By varying the amount of NaVO₃ that was used as the V dopant, several mixtures of TiO₂:V₂O₅ were fabricated with proportions ranging from 10:90 TiO₂:V₂O₅ to 90:10 TiO₂:V₂O₅. X-ray diffraction (XRD) was used to find the Debye-Scherrer diffracting crystallite sizes (DCSs) of the mixed metal oxides. The DCS of the TiO₂ was observed to increase steadily with increasing V content from approximately 21 nm for the mixture containing 10% V₂O₅ sample to approximately 37 nm for the 50% V₂O₅ sample. Further XRD analysis will be used to characterize growth patterns in the mixtures based upon relative proportions of TiO₂ and V₂O₅ and the methods used to produce the mixtures.

Understanding Circumstellar Regions through Optical Pumping Polarization. Brian Geiss, Butler University. Faculty Sponsor: Jeff Kuhn
Through sensitive spectropolarimetric measurements of stars imbedded in gas and dust, certain geometric properties of the circumstellar region can be deduced. Stars with circumstellar material can range from pre-main sequence stars, like Herbig Ae/Be stars, to post-AGB stars, like RV Tauri stars, to emission type stars. Light coming from the imbedded stars can be polarized by the surrounding material. Scattering and absorption in the circumstellar region both can cause this polarization. Polarization due to absorption, or optical pumping, arises because of the anisotropic

light from the star to the region of gas. This absorption polarization is only observed from the regions of material along the line of sight from the imbedded star, thus constraining where the gas is located. The 866.2nm line of Ca II near infrared triplet lines has the feature of being polarized by absorption but not by scattering due to its hyperfine structure. This optical pumping phenomenon was measured in this study, showing optical pumping as a mechanism of polarization in circumstellar regions. We also used the Hydrogen Balmer series and a model of the hydrogen transitions in anisotropic incident light to understand the geometry of the circumstellar region. Using the linear Stokes parameters Q and U from the Ha and H β , we were able to determine the polarization amplitude and orientation angle across the absorption part of the lines. From this we could determine the orientation of the nearby absorbing disk of MWC 361.

Characterization of Sulfur Chemical Structures in Selected Coal Oils and Asphaltines. Sean Gorsky & Chad Wine, Rose-Hulman Institute of Technology. Faculty Sponsor: Sudipa Kirtley

Sulfur is often an impediment in the processing and utilization of fossil-fuel reserves. For example, sulfur gives rise to catalyst poisons during processing and sulfur oxides are often produced during combustion, causing environmental hazards. For reasons such as these, sulfur speciation in these materials has been studied for many years. Knowledge of sulfur structures in these materials not only allows development of means of desulfurization, but also helps explain complex maturation processes. X-ray Absorption Near-Edge Structure Spectroscopy (XANES) is a versatile and non-destructive approach for determining the abundance of different sulfur structures in complex fossil-fuel materials. The various resonances in the data can be considered as finger-prints for different structures of a particular element and can be observed even in complex mixtures. For this reason, this powerful analysis technique reveals strong trends in the abundance of specific structures between different samples even in the raw data. Moreover, even when the chemical entities are present in small mass fractions, this method is sensitive enough to detect them. XANES also works on insoluble samples; that is an advantage of XANES over FT-ICR MS, for example, which is probably the most common technique for heteroatom analysis but has not yet been coupled to a good ionization technique for insoluble samples. For these reasons XANES is one of the best techniques in directly analyzing heteroatom structures in fossil-fuels. For this reason, sulfur speciation of several coal oils and coal derived asphaltenes has been investigated in the course of research using XANES.

Modeling and Comparative Analysis of Chemical Dyes as Quantum Mechanical Systems. Steven Harden, Rose-Hulman Institute of Technology. Faculty Sponsor: Maarj Syed

Quantum mechanical systems include a particle moving freely within some form of a potential. In analyzing chemical dye bonding schemes, the pi-electrons can be modeled as particles within a simple one-dimensional potential. The size, shape, and strength of the confining potential would depend on the type of dye that is analyzed. This study plans to model various dyes as quantum mechanical systems by measuring their optical spectra with a spectrophotometer and then numerically solve the relevant Schrodinger equation by adjusting the potential profile. Since dyes of various structure types are being used, a comparative analysis can be taken to understand how the potential profile changes with structure type. Considered dyes include 1,1'-Diethyl-2,2'-cyanine iodide (pseudocyanine iodide), 1,1'-Diethyl-4,4'-cyanine iodide, 1,1'-Diethyl-2,2'-carbocyanine iodide (pinacyanol iodide), and 1,1'-Diethyl-2,2'-carbocyanine chloride (pinacyanol chloride). We also plan to present data on Raman measurements carried out on these dyes. We hope that Raman analysis of these dyes will help further our understanding of these confining potentials and help us create a better model of the confining potential.

Filtered Optical Feedback in Semiconductor Lasers. Blake Johnson, Joseph Suelzer, & Gautam Vemuri, Indiana University/Purdue University at Indianapolis. Faculty Sponsor: Gautam Vemuri

Diode lasers are responsive to outside stimuli including the light emitted by the laser itself. By creating an external cavity that couples the feedback to the laser, dynamics within the laser may be observed. These dynamics may also be manipulated by adjusting parameters that include the relative intensity of the feedback to the laser and the length of the external cavity. As the intensity of the feedback is increased, the laser moves from a coherent behavior, to an undamping of the relaxation oscillations, to ultimately a complete coherence collapse. Spectrally filtering the feedback before it couples to the laser with a Fabry-Perot filter produces a stair-step pattern in the filter's profile. Without feedback, the spectral profile of the filter is smooth; however, the laser's frequency locks to the external cavity modes when feedback is introduced creating the step pattern. By scanning the laser's current and measuring the intensity of the filter's output with a photodiode, the profile can be observed.

Quantum Diffusion-Limited Aggregation. David Johnson, Butler University. Faculty Sponsor: Gonzalo Ordonez

Though classical random walks have been studied for many years, research concerning their quantum analogues, quantum random walks, has only come about recently. Numerous simulations of both types of walks have been run and analyzed, and are generally well-understood. Research pertaining to one of the more important properties of classical random walks, namely, their ability to build fractal structures in diffusion-limited aggregation, has been particularly noteworthy. However, nobody has yet pursued this avenue of research in the realm of quantum random walks. The study of random walks and the structures they build has various applications in materials science. Since all processes are quantum in nature, it is very important to consider the quantum variant of diffusion-limited aggregation. Quantum diffusion-limited aggregation is an important step forward in understanding particle aggregation in areas where quantum effects are dominant, such as low temperature chemistry and the development of techniques for forming thin films. Recognizing that the Schrodinger equation and a classical random walk are both diffusion

equations, it is possible to connect and compare them. Using similar parameters for both equations, we ran various simulations aggregating particles. Our preliminary results suggest that the quantum process is more efficient at searching and finding the aggregate than the classical process. Also, the resulting structures demonstrate that the quantum diffusion process can create fractal structures, much like the classical random walk.

Depletion of Giant Stars in the Galactic Nucleus Due to a Top Heavy Mass Function. Mackenzie Jones, Butler University. Faculty Sponsor: Brian Murphy

Using the direct Fokker-Planck method we have studied the effect of a top-heavy mass function on the depletion of post-main sequence stars in the Galactic Nucleus. Beginning with the standard Kroupa mass function, with stellar masses ranging from 0.1 to 50 solar masses, we ran a series of models with progressively flatter IMF slopes. Our top-heavy mass function had an approximate power-law slope of 2, with the Salpeter IMF slope being -1.35. With this top-heavy mass function, black holes outnumbered lower main sequence stars by a factor of 1000. We found that despite a top-heavy IMF, post-main sequence stars kept the same homologous profiles and underwent no more depletion than the standard Kroupa IMF. This implies that the most likely scenario for post-main sequence depletion is not pre-emptive destruction of main sequence stars by stellar mass black holes, but rather tidal disruptions due to the central supermassive black hole as found by Geiss et al. (2009). This project was funded in part by a grant from the Butler Institute for Research and Scholarship.

Measuring the Diffusion of Oxygen in Concrete by Electrochemical Methods. Dean Koldenhoven, Purdue University Calumet. Faculty Sponsor: Jose Pena

The high alkalinity of concrete causes a passive layer to form in the surface of the embedded metal. This protective layer can be disrupted by penetration of deleterious substances which may cause lowering in the pH of the concrete. Once the protective layer is broken, a corrosion reaction progress begins, where an anodic reaction causes iron to dissolve into ions and a cathodic reaction reduces the dissolved oxygen. The corrosion rate of the reinforcement depends on the rate of the cathodic reaction. Diffusion of oxygen through concrete can be rate-limiting; therefore it is important for the determination of corrosion rates. Penetration of oxygen in concrete decreases as the relative humidity and water to cement ratio decrease, it is also affected by the composition of the concrete and aggregates. Most of these factors are related to the curing, ageing, and conditions that concrete is aged under. The objective of this research is to measure the effective diffusion coefficient of oxygen in concrete as a function of relative humidity. To determine oxygen diffusivity of concrete with a specific mix design and curing methods, concrete specimens containing a steel electrode were used. The specimens also contained a titanium/titanium oxide reference electrode and counter electrode. The specimens were four inches in diameter and two inches thick. The effective oxygen diffusion coefficient was determined from the current limiting achieved during cyclic polarization tests.

Measuring Regolith Depth across the Lunar Surface. Matthew Lawder, Butler University, Ryan Nickerson, & Gwen Barnes, University of Idaho. Faculty Sponsors: Gwen Barnes, University of Idaho & Brian Murphy, Butler University

Using new images captured from the Lunar Reconnaissance Orbiter Camera (LROC), we studied the lunar regolith depth at various locations across the Moon. Previous studies of regolith depth only examined the equatorial nearside of the Moon. With the global coverage of the new LROC images, we obtained regolith depth measures across the entire lunar surface, including the farside of the Moon and high latitude regions. We used a method outlined by Oberbeck and Quaide (JGR 1968), who calculated the regolith depth of nearside equatorial regions, to calculate each new region's regolith depth. We located small (50 m diameter), flat-bottomed craters within each region. Measuring both the diameter of the flat-bottom feature and the diameter of the crater, we were able to calculate the regolith depth at each location using an equation empirically derived by Oberbeck and Quaide (JGR 1968) in their original experiments. Our results confirm the original results of Oberbeck and Quaide where our data overlap. We expanded on their work by examining new regions, including more nearside areas as well as areas in the high latitudes and on the farside of the Moon. Highland regions generally have deeper regolith than mare regions. We also compared regolith depths on adjacent, distinct geologic units; however, within these small regions, we found no statistically significant variation in regolith depth. By comparing the regolith depth across the lunar globe at varying scales, we gain a more thorough understanding of the cratering process and the geological evolution of the lunar surface.

Analysis of the Properties of Variable Stars in Globular Cluster M14. Zheyu Liu, Kyle Conroy, & Andrew Darragh, Butler University. Faculty Sponsor: Brian Murphy

Using the image subtraction method of Alard & Lupton (1998) we have searched for variable stars in the globular cluster M14 (NGC 6402). Image frames were obtained during June and July 2010 using two different telescopes, the Southeastern Association for Research in Astronomy (SARA) 0.9 meter at Kitt Peak National Observatory and the SARA 0.6 meter located at Cerro Tololo Interamerican Observatory. We confirmed 62 previously known variables catalogued by Wehlau & Froelich (1994). In addition to the previously known variables, we have identified 71 new variables. We have confirmed the periods of most of Wehlau & Froelich's variables we identified with just a few exceptions. Of the total number of confirmed variables, we found a total of 112 RR Lyrae stars, several of which exhibited the Blazhko Effect. Of the total we classified

55 RR0, 57 RR1, 19 variables with periods greater than 2 days, a W UMa contact binary, and an SX Phe star. We present the periods of previously found variables as well as the periods, classification, and light curves of the newly discovered variables.

Surface Characterization and Luminescence Properties of Titanium Doped in Amorphous Aluminum Nitride. Kyle Main, Ball State University. Faculty Sponsor: Muhammad Maqbool

Titanium (Ti) doped aluminum nitride (AlN) thin films were deposited on silicon (100) substrates at 77 K by rf magnetron sputtering method. 200 nm thick films were grown at 100 – 200 watts RF power and 5 – 8 mTorr nitrogen, using a metal target of Al with Ti. X-ray diffraction results show that films are amorphous. Energy Dispersive x-ray spectroscopy (EDX) confirmed the presence of Ti+3dopant in AlN. Cathodoluminescence (CL) study was performed at room temperature and a broad emission extending from 660 nm to 900 nm was observed with peak around 780 nm. Photoluminescence (PL) was performed using a 532nm NdYAG laser with a power 15 mW as an excitation source. PL study provided two peaks at 780.5 and 784.5 nm. The broad CL emission and two PL peaks show that titanium could be used for possible infrared applications. Emission intensity was also investigated as a function of the excitation laser direction and the direction of light emission from thin films. It was found that emission from the AlN:Ti films is independent of the incident laser direction. The light emission occurs in the same way in all directions.

Modeling the Variation of X-rays from Wolf-Rayet Stars. Michael McFall & Richard Ignace, Butler University. Faculty Sponsor: Richard Ignace

Wolf-Rayet(WR) stars are massive stars with powerful, x-ray emitting winds. Some single WR stars have been observed to show a periodic behavior in optical wind emission lines (such as WR1 and WR6). Assuming this behavior is governed by some globally coherent wind structure, we explore the possibility of x-ray variability on the same period. Motivated by the idea of a Co-rotating Interacting Region (CIR), we adopt a model of a spiral structure in the wind. We calculate x-ray brightness and spectral variations as a function of rotational phase, parameters of the spiral (opening angle and pitch angle), and viewing inclination. We find that variability is detectable given sufficient data quality and sampling of the light curve for reasonable model parameters and observing conditions.

Quantum Transport in Carbon Nanotube Devices Using Molecular Dynamics. Andrew Moore, Ball State University. Faculty Sponsor: Mahfuza Khatun

We will present transport phenomena in Carbon Nanotube (CNT) structures. CNTs have many interesting physical properties, and have the potential for device applications. Specifically, CNTs are robust materials with high thermal conductance and excellent electrical conduction properties. A review of electrical and thermal conduction of the structures will be discussed. Our research interests at Ball State University include the thermal and electrical transport properties and the study of electronic structures of the various CNT configurations. The research requires analytical analysis as well as simulation. The major thrust of this study is the usage of the molecular dynamics (MD) simulator, LAMMPS (Large-scale Atomic/Molecular Massively Parallel Simulator). A significant investigation using the LAMMPS code is conducted on the existing Beowulf Computing Cluster at BSU. NanoHUB, an open online resource to the entire nanotechnology community developed by the researchers of Purdue University, is used for further supplementary resources.

Modeling Photothermal Heating of Nanoparticles in Biological Hard Tissues. Colin Rice, Rose-Hulman Institute of Technology. Faculty Sponsor: Renat Letfullin

Biomedical applications using nanoparticles as delivery mechanisms for therapeutic treatment are becoming more and more feasible. Conjugating nanoparticles with specific chemicals or proteins can allow for accumulation of these nanoparticles in very selective tissues. In one such therapy, called nanophotothermal hyperthermia, nanoparticles are heated by photonic radiation to heat the tissue immediately surrounding the nanoparticle. To ensure death of malicious cells in the target region and minimize damage to surrounding healthy tissues the temperature distribution and its time evolution must be known. To model this problem a single spherical nanoparticle surrounded by an infinite medium of bone tissue is considered. The use of bone-targeting conjugating agents is discussed as well as the effects of different physical parameter choices for the nanoparticle.

POLITICAL SCIENCE

Muslims and the American Public School System. Brandon Bayliss, Butler University. Faculty Sponsor: Larry Williamson

This research project is aimed at discovering both the difficulties and positive aspects faced by Muslim Arab American youth in the American public school systems. Research is aimed at formulating suggestions which will allow for improvements in Arab Americans' experiences living in the United States, eventually resulting in the improvement of the United States' image in the Middle East.

From Hope to Havoc: A Study of Peacemakers in the Israeli-Palestinian Conflict. Reid Dvorak, Butler University. Faculty Sponsor: Siobhan McEvoy-Levy

Why do some previously violent Israelis and Palestinians turn to non-violent activism as a means of conflict resolution? Be it because of a

traumatic experience, the enlightenment of education, the realization of the "other," or a myriad of other factors, this phenomenon does occur. In some cases people who subscribe to a violent become disenchanted with it and try to resolve conflict in a nonviolent way. Drawing on academic sources that delve into these occurrences and from my own research in Israel over the summer, I will present a brief history of the conflict and its current standing before presenting my findings. I hope to engage the audience in a dialogue regarding these occurrences and will try to break the stereotype that once a person has engaged in violence that "they can never return to peaceful means of conflict resolution." Presenting my quantitative data in a power point format, I will also be sharing personal stories from my interviews that will give a more qualitative feel for what this change does to people and how they view their previously violent lives and why the nonviolent work they do now is important. Questions will be taken at the end of the presentation.

"We'll Make Our History": Peacebuilding Among Israeli and Palestinian Youth. Caleb Hamman, Butler University. Faculty Sponsor: Siobhan McEvoy-Levy

This paper conceptualizes youth as a set of discursive concepts shaped by power relations. It begins from the assumption that meanings are political—that they are contested, symbolic sites which affect material politics. Accordingly, concepts of youth are political entities. This paper concerns concepts of youth in Israel and the Occupied Palestinian Territories. It argues that Israeli and Palestinian youth are remaking dominant concepts of youth in their respective societies through everyday practices such as storytelling, rapping, and refusing military service. Such practices can give rise to a discursive resistance whereby dominant concepts of youth are rejected and remade. The paper's findings support the position that youth are political actors who impact the resolution and the reproduction of conflict. The case studies presented here suggest that the political efficacy of youth in armed conflict should be conceptualized so as to include symbolic politics emerging from everyday practice.

The Debate Surrounding Stem Cell Research. Russell Haver, Ball State University. Faculty Sponsor: Barbara Stedman

I will discuss a broad range of topics concerning stem cell research including the benefits of the research, recent medical advances, funding, and the parties involved in this policy debate. In my presentation, I will also discuss the three main types of stem cells and how each type has affected the debate surrounding stem cell research. Although each of these types of cells has affected the stem cell policy debate, my presentation will focus primarily on embryonic stem cells and the major role they play in the debate. Through this presentation, I hope to give individuals a new insight into this policy area and how the outcome of this debate could impact them in the future.

Pragmatism versus Upholding a Moral Standard: The Expansion of Executive Powers in the Case of Emergency Lawmaking. Caitlin Huey, Hanover College. Faculty Sponsors: Ruth Turner & Bill Kubik

Suppose an individual must choose between two courses of action both of which would be wrong to undertake. Further suppose that this choice could happen and that it did happen whenever somebody was forced to choose between upholding some moral standard on the one hand and avoiding some looming disaster on the other. There are critics who argue that this could not possibly happen, for there are 'guidelines' that would yield the conclusion that one or the other course of action was the right one to undertake in the circumstances. The aforementioned suppositions present the dilemma between formalism and functionalism: the two leading theories of separation of powers. Originating in the US Constitution, separation of powers is a political doctrine in which the three branches—the legislative, the executive, and the judicial—are kept distinct as to prevent the abuse of power. The two theories take place within a larger context known as the power analysis framework, a structure that "seeks to define the nature of legislative and executive power and analyzes separation of powers conflicts". This paper follows with an examination of executive powers and as to what role the executive is to play during the course of an emergency: shall the executive have supreme power of the course of military events in the case of an emergency, or should the Constitution and International treaties, as they hold some rigorous, moral standard, guide the executive in conduct both domestically and internationally.

Socialist Perspectives on the Role of Individualism within the Collective. Nathaniel Vaught, Butler University. Faculty Sponsor: Robert Oprisko

This paper will endeavor to outline the balance between collective efficiency, and individual freedoms. By drawing from established multidisciplinary research and historical evidence, this paper will show that it is possible to create a sustainable and modern social democratic state that expands on the contemporary European model. Moreover, this can be done without constraining individuals so strongly as to alienate them by preventing them from achieving self-actualization and avoiding autocratic tyranny. Once this ratio of state regulation to individual liberties is established, the paper will conclude with a brief discussion of the viability of evolving staunchly individualist societies into societies that are more economically and socially stable than was previously possible in existing hypercompetitive systems.

Live A Little: A Memoir of My Political Socialization. Shannon West, Butler University. Faculty Sponsor: Margaret Brabant

My project addresses the issue of underage drinking on college campuses and argues that prohibitive policies are ineffective and should be changed. I argue my thesis by weaving an historical analysis of Prohibition, as well as information relevant to current policies related to underage drinking, through my own personal narrative of my experiences with alcohol in college, prior to turning 21. I will read a portion of my paper to provide the background about myself and my project, and also to set the tone of my narrative. I will then highlight my key findings and

arguments. I will address the topics of adolescent brain development research and its relation to alcohol policies, Prohibition and why it failed, and current conflicts between the media's representation of youth, public opinion on underage drinking, and the legalistic side of enforcing the minimum drinking age.

PSYCHOLOGY

Body Image and Personality Traits and Relationship Survey. Juliana Abercrombie & Ashley Matthews, Ball State University. Faculty Sponsor: George Gaither

Interpersonal issues are associated with poor body image (Thelen, Farmer, Mann, & Pruitt, 1990). Wives' body image is positively associated with both wives' and husbands' marital satisfaction (Meltzer, & McNulty, 2010). Additionally, Thelen et al. (1990) found that women who exhibit bulimic tendencies are likely to have trouble establishing relationships with men. Regarding personality, individual differences help explain behavior in romantic relationships (Conger, 2005). An individual's own personality as well as his or her partner's personality is related to relationship satisfaction (Dyrenforth, 2010). Multiple scales will be used to measure individuals' body image, attachment style, life satisfaction, and personality traits as predictors of romantic relationship length. Of these variables, body image and personality are the most significant for presentation. A survey will be conducted with 200 to 400 university students aged 18 years and older who were recently enrolled in an introductory psychology course. Although past studies have addressed relationship satisfaction resulting from individuals' body image and personality, more research is needed to assess relationship length as it is affected by these two factors. The presentation will center on results looking at body image and personality traits as factors affecting relationship duration. Individuals with negative body image are expected to report shorter past relationship lengths than those with positive body image. Similarly, individuals who score higher on neuroticism are expected to report shorter relationship duration as compared to those who score higher on extraversion, openness, and agreeableness.

Young Adults' Relationship with the Divine Predicts Psychological Health. Jennifer Aker, Claire Brownson, Jenna Wheaton, & Toni Maraldo, Butler University. Faculty Sponsor: Brian Giesler

Past investigations have demonstrated that the construct of attachment style (i.e., relationship between a child and caregiver) can be extended to symbolic relationships between adults and God in religions where the Divine is viewed as a personal figure. Previous investigations have suggested that type of attachment to God may predict psychological outcomes in older adults. However, very little work has addressed young adults. The current study was conducted to investigate whether young adults' relationship with God predicts both positive and negative aspects of mental health. As part of a larger questionnaire study, several scales were administered to a sample of undergraduates ($n=98$). Attachment to God was assessed using a modified form of the Distant God Scale (Kilpatrick & Shaver, 1990); negative and positive aspects of psychological health/well-being were also assessed using previously validated scales. Bivariate correlations revealed significant relationships between attachment to God and mental health. For example, the more participants perceived God positively, the less depression they experienced ($r = -.21$, $p < .05$) and the more life satisfaction they reported ($r = .23$, $p < .03$). However, after controlling for level of religiosity, attachment to God no longer predicted any of the negative mental health outcomes, but still marginally predicted two of the positive mental health outcomes (i.e., life satisfaction and positive affect). These findings suggest that young adults' perceived relationship with the Divine may independently affect positive aspects of psychological health.

The Relationship between Prayer and State Anxiety. Claire Alexoff, Anderson University. Faculty Sponsor: Linda Swindell

This study investigates the relationship between prayer and state-anxiety. Personal prayer is operationally defined as intentionally addressing God directly. For the purposes of this study God is defined as any supernatural, uncreated being of any religion, which the participant considers the Supreme Being. This includes the Gods of Judaism, Christianity, and Islam, but not Hindu's multiple Gods. State Anxiety refers to an emotional state categorized by tension, apprehension, worry, and nervousness at a given moment in time and at a particular level of intensity. There are two hypotheses: first, participants with higher frequencies of prayer will score lower on a measure of state-anxiety; second, participants with longer duration of prayer will score lower on a measure of state-anxiety. Participants are lower division psychology course students at a small Midwestern university. Participants will complete a four item researcher-created questionnaire surveying the frequency and duration of prayer in the past 7 days, and the State-Trait Anxiety Inventory (Spielberger, 1970). Data will be analyzed and results will be discussed.

Cursor Path in Novel Keyboards. Kiale Anderson, Purdue University. Faculty Sponsor: Gregory Francis

Patients with locked-in syndrome are almost totally paralyzed and mute. They often only have control of a single set of muscles (e.g., eye blink). Such patients can only communicate through special kind of keyboard where a cursor moves automatically across items and the patient triggers a switch (e.g., eye blink) to select a desired item. We set out to identify how to make the keyboards more efficient. Previous work has identified how to balance entry speed and accuracy by optimizing the layout of items on the keyboard and modifying the cursor speed. However, this analysis only applied for a keyboard where the cursor resets to a common starting position after each selection. In this study we explored whether having the cursor reset to the row of a selected item, rather than to a common starting position, could generate even better keyboards. We ran an

experiment to measure how well undergraduates could guide a cursor to a target on such a keyboard for two different cursor speeds. As expected from previous research, accuracy improves with more time between selections. The accuracy data was used to build a quantitative model of accuracy, which was then used to construct optimized keyboards for these new kinds of keyboards. The findings also identify how different cursor paths can influence the design of these kinds of keyboards. Long term, this kind of analysis helps to optimize a keyboard to enable locked-in Syndrome patients to type their thoughts or responses in a quicker but accurate fashion.

Fantasies and Sexual Orientation: How these Factors Affect Behaviors or and Attitudes Toward Sadoomasochism. Amanda Auron & Jessica Laumann, Ball State University. Faculty Sponsor: George Gaither

Sexual fantasies such as rape, domination, and role-play can be vital in the sexual health of an individual who practices sadoomasochistic behaviors. The current study will look at this phenomenon and also whether attitudes about and level of participation in sadoomasochism are mediated by sexual orientation. A number of different questionnaires, including the ASMS as well as measures of sexual orientation, sexual fantasy, and perceptions of sadoomasochism will be administered to the respondents. The participants in this study will be 200 undergraduate Introduction to Psychology students who will respond via a secure online survey system. Pearson correlation analysis will be used to determine the relationship between these factors and scores on the ASMS. Results will be analyzed and implications for attitudes and practices toward sadoomasochism will be discussed. It will be explored whether fantasies and sexual orientation will translate to tolerant attitudes about sadoomasochism.

The Effectiveness of Assertion Training and Effects on Self Esteem. Renee Bader & Austin Boon, Anderson University. Faculty Sponsor: Linda Swindell

Recent research has found that assertion training is associated with improved self-esteem (Stake, Deville, & Pennell, 1983; Fox & Boulton, 2003), as well as improved use of assertiveness in adolescents (Piccinin & McCarrey, 1985; Lee, Hallberg, & Slemmon, 1985). This study examined the effects of a weekly, skill-based, assertiveness training program on self-esteem and assertion performance for five at-risk 9th and 10th grade students. The program contained three assertive communication skills: Introducing oneself, refusing requests, and disarming anger. Before beginning the program, participants completed written measures containing five demographic items and the Rosenberg Self Esteem Scale (RSES; Rosenberg, 1965), and oral measures about their expectations of the program and self-ratings of effective communication. Participants were video-taped while role-playing scenarios in which participants utilized the three assertive communication skills. Upon completion of the program, four participants were again recorded using the three skills in the same scenarios. All five participants also completed the RSES and gave oral feedback of their attitudes toward the program, what they learned, and self-ratings of effective communication. Results and discussion of findings and applications of the study will be discussed.

What's In My Drink? Typical Consumption, Caffeine Expectancies, Drink Choice and Cognition. Katie Berg & Addie Allen, Butler University. Faculty Sponsor: Tara Lineweaver

Our study examined how typical caffeine consumption and students' expectancies about how caffeine generally affects them influence their decisions about caffeine use as well as their performance on memory and attention tests. Undergraduate students completed two questionnaires assessing their typical caffeine consumption and the effects they expect to experience when they consume it. They were divided into four groups: high consumption and high expectancy, high consumption and low expectancy, low consumption and high expectancy, low consumption and low expectancy. After being told they would compete for the best scores on memory and attention tests, participants chose a high, moderate, or no caffeine drink. They were then informed that they had been randomly assigned to consume either the high caffeine or no caffeine drink, but both drinks were caffeine-free. After 20 minutes, participants completed several tests of attention and memory. The four groups did not differ in the frequency with which they selected the high, moderate, or no caffeine drink. Expectancies interacted with drink label to affect performance on attention, but not memory, tests. Across attention measures, the highest scores were achieved by the low expectancy group who believed they had consumed no caffeine and the high expectancy group who believed they had consumed caffeine. Neither typical caffeine use nor caffeine expectancies impacted students' drink choice in a competitive situation. Consistent with our hypothesis, students' expectations about how caffeine affects them interacted with their beliefs about how much caffeine they had consumed to impact performance on tests of attention.

The Effects of Autonomy on Group Effectiveness and Job Satisfaction in Self-Managed Work Teams. Katie Boes, Anderson University. Faculty Sponsor: Linda Swindell

Self-managing work teams, autonomy, and job satisfaction are important topics in field of organizational behavior. The purpose of this study was to investigate the influence of individual and group autonomy and group performance orientation on job satisfaction and group effectiveness. Three hypotheses were proposed: First, teams with high levels of autonomy will be rated more effective than teams with low levels of autonomy; second, level of individual autonomy will be positively correlated with job satisfaction; third, group performance orientation will be positively correlated with group effectiveness. Participants were 46 engineers from 11 work groups in a small, Midwestern-manufacturing company. Each engineer completed a 36-item questionnaire, which included 20 items from the Dutch Questionnaire on the Experience and Evaluation of Work (VBBA) (Van Veldhoven & Meijman, 1994), 7 items from the Organizational Assessment Inventory (OAI) (Van de Ven & Ferry, 2000), 3 items

from the Michigan Organizational Assessment Questionnaire (MOAQ) (Cammann, Fichman, Jenkins, & Klesh, 1983), and 6 demographic items. Individual and group autonomy were measured using the VBBA and group performance orientation was measured using the OAI. Job satisfaction was measured using the MOAQ and group effectiveness was measured by the average monthly score given to each cell. Data will be analyzed using step-wise multiple regression and conclusions will be drawn.

The Effects of Perceived Differences on Relationship Satisfaction. Jami Boyle, Hanover College. Faculty Sponsor: Bill Altermatt

This study focuses on the effects of partner similarity on relationship satisfaction, specifically similarity in levels of virtues. As part of the positive psychology movement, the study of virtues has grown rapidly in the past decade but has not been applied to relationship satisfaction. A virtue is defined as a character strength or quality valued as being always good in and of itself. A list of character strengths was chosen from Peterson and Seligman (2004) which identifies six classes of virtues (i.e. "core virtues"), made up of twenty-four measurable character strengths. Creativity, for example, is one of the character strengths and is defined as the ability to do and think differently from the norm. Participants rated themselves and their partners on the level in which they possessed these twenty-four character strengths. Before rating character strengths, participants took a relationship satisfaction questionnaire. Much research has been done on the topic similarity and how it affects romantic relationships and is found to be a consistently strong predictor of relationship satisfaction. However, research on similarity's effects on satisfaction generally focuses on personality traits (such as extroversion or conscientiousness) or on demographic characteristics (such as religion or socioeconomic status) and not on character virtues. This study has expanded the previous research concerning virtues and applied it to relationship satisfaction while aiding the growing positive psychology movement by highlighting the importance of character strengths in regards to romantic relationships.

Disclosing a Chronic Illness: The Response of Others and Quality of Life. Jonathan Bryant & Jody Lecheler, Ball State University. Faculty Sponsor: Heather Adams

A growing body of research has found important connections between social support and growth following a traumatic event (Norris and Kaniasty, 1996). An important step in accessing social support is the individual's ability to disclose the trauma with others. Looking specifically at chronic illnesses as a type of trauma Cordova, 1999) found that when friends and family members did not wish to hear from breast cancer patients about the illness, these patients displayed inhibited cognitive processing and less post-traumatic growth This study contributes to this area of inquiry by exploring the pattern of disclosure experiences for women living with various chronic illness, the responses of others to this disclosure, and various outcomes related to quality of life. In-depth interviews with four women with chronic illnesses are analyzed using a general thematic analysis to develop an understanding of how their experiences in discussing their chronic illnesses impact their relationships with others and other aspects of their life. Themes found across the interviews will be presented, along with excerpts form the interviews and considered in terms of their connections with the current literature.

Siblings of Individuals with Developmental Disabilities: Understanding Perceived Roles. Raquel Buchanan, Hanover College. Faculty Sponsor: Ellen Altermatt

Past research has used naturalistic observations to determine role portrayal in sibling relationships where one sibling is affected with a life-long disability. Role portrayal in sibling relationships is analyzed through Sibling Interaction Scales and found regardless of birth order or age spacing, non-disabled siblings took on more directive roles during interaction. With the evidence from previous observations and advice from researchers, open ended interviews are conducted to explore role portrayal and the subjective experience of having a sibling with a developmental disability. Ten participants who have a sibling with a developmental disability were recruited through a popular networking site along with ten other participants who were apart of the control group. Interviews from both interview sets were recorded transcribed and analyzed. Using the Interpretative Phenomenological Approach, perceived roles, involvement of over the life span, responsibilities and attitudes will be clustered to find common themes in the interviews. With support from previous research and the subjective data collected in the study, comparisons with non disabled sibling relationships to gain a holistic understanding of the experiences of individuals who have a sibling with a disability.

The Effects of Elevated Temperature Conditions on Human Memory Recall. Adam Bunnell, Riley Denslaw, Danielle Oehrle, & Amanda Poston, Franklin College. Faculty Sponsors: Kristin Flora & Jamie Bromley

Temperature affects a variety of human behaviors and abilities, including memory (Bishop & O'Neil, 2010). Previous research on this topic has been conducted on lab rats with little research being done on human participants. The current study was designed to extend previous animal research and aims to observe whether changes in ambient temperature either improves or hinders memory in human participants. Participants will be asked to observe a set of 30 pictures taken from the International Affective Picture System (IAPS) in a room at approximately 72 degrees Fahrenheit. The participants will not be told this is a memory test. Next, half of the participants will be taken into another room where the ambient temperature will be set at 82 degrees Fahrenheit; the other half will be taken to a room that is the same temperature as the first room (72 degrees Fahrenheit). All participants will then complete a short questionnaire designed to create a 10 minute delay. Once the questionnaire is completed, they will receive a set of 60 pictures taken from the IAPS, half of which they had seen previously. The researchers hypothesize that temperature will have a significant effect on the participant's memory.

Effects of Perceived Pressures on Test and Anxiety Scores. Sabrina Butts, Saint Joseph's College. Faculty Sponsor: Chau Wong

This study investigated whether anxiety and test performance were linked directly to social pressures or time limitations on standardized tests. Participants (N=32) were drawn from various psychology courses on a volunteer basis with the incentive of extra credit at a small Catholic liberal arts college in the Midwest. Participants were divided into four groups with different emphasis on either time limit or social pressure in the form of peer judgment. A 2 (social judgment, no social judgment) x (timing pressure, no timing pressure) between-subjects ANOVA was used to test the hypothesis of a decrease in test performance when presented with a combination of social and timing pressures and a second 2 (social judgment, no social judgment) x (timing pressure, no timing pressure) between-subjects ANOVA was used to test the hypothesis that there would be an increase in anxiety when presented with a combination of both pressures. Significant results were found in both tests' interactions, where participants scored less favorably, whether it was by performing worse or reporting anxiety scores, in the presence of a social pressure with no timing pressure, though these results were reversed when timing pressure was present. These results suggest that environmental pressures such as time limits and perceptions of the judgments made by the administrator effects performance as well as anxiety in a test setting. Further research may examine the extent to which environment plays a role in standardized testing performance including perceptions of the test administrator.

Effects of Caffeine on Relationships. Elsa Carodenuto, Butler University. Faculty Sponsor: John Bohannon

70 participants' memory of a failed relationship (first meeting, first kiss, and break-up) were examined. Each student was given a cup of coffee, either containing (200 mg) or decaffeinated coffee (5mg). Participants were asked to complete a protocol of three autobiographical event memories revolving around their last relationship of 6 months or longer that had since ended. Memory for each event was assessed with a free recall narrative and probe questions. Results showed that caffeine had an effect on memory at retrieval without raising general cognition. Probes were more elaborate than narratives, $F(1,60) = 246.8, p < .0001$. In the probed section, we found that participants in the caffeine group remembering more than those in the decaffeinated group, $F(1,44) = 8.24, p < .0058$. Arousal at encoding and at retrieval enhances autobiographical memory. Also, participants were significantly different across caffeine groups by arousal and valence rating times, $F(4,236) = 12.87, p < .0001$, meaning that those with caffeine were significantly more aroused during recall than those without caffeine. Kiss memories revealed no valence effect at recall (Carodenuto, 2010). Arousal and valence had an affect on memory, $F(2,120) = 15.4, p < .0001$. More aroused subjects remembered more, which was also shown in multiple flashbulb studies (Gillot 2009, Bohannon 2007).

The Impact of Gender and Induced Mood States on Food Preferences. Isabel Carrero & Mallory Wolfe, Marian College. Faculty Sponsor: Laurel Camp

We examined the effect of induced mood states on food preferences in men and women. Participants (n=70) read a set of randomly ordered vignettes developed to induce a sad, stressful, and happy mood state. After reading each vignette, participants indicated how likely they were to eat and selected what they would eat if the actual event had occurred. Overall, the induced moods were significantly more intense in women than in men. Women reported a higher likelihood of eating after a happy event compared to sad or stressful events whereas the mood state did not influence the likelihood of men eating. When sad or happy, women were more likely eat sweets than men. In addition, women were more likely to consume coffee in a stressful or happy situation than were men. Finally, men were more likely than women to consume alcohol when in a stressful situation. Caution must be used when generalizing these results due to the differences in the scenarios used for men and women in this study and previous studies. Methodological suggestions are made to increase the validity of the gender differences found in mood-induced food preference studies.

The Effects of Alcohol Consumption Habits on Parenting Styles. Stephanie Collins & Katie Hanslits, Hanover College. Faculty Sponsor: John Krantz

This study was designed to look at the relationship between alcoholic drinking behavior and parenting styles. We are curious to see if consumption habits have an impact on parenting styles. Previous research focuses on the impact of parental drinking as a direct influence on the well-being of their children, but we hypothesize that having heavy drinking habits has a direct relationship on parenting styles which then influences the well-being of their children. The participants will be gathered through multiple websites that either target heavy drinkers, parents, or both. The participants will take a survey about their parenting styles and personal lifestyle, including their alcohol consumption habits. In order to assess each individual's parenting style, an edited version of Diana Baumrind's (1971) Parental Authority Questionnaire will be used to categorize parents according to rearing style. Once categorized, a chi-square will be used to determine if heavy drinking habits tend to fall into one particular category of parenting style in comparison to the other parenting styles. Through the data gathered from the survey, we expect to find that parents with heavy drinking habits will fall into one of the three parenting categories.

Magazine Readings Influence on Sexual Health Knowledge among Racial Groups. Brett Crehan, Ball State University. Faculty Sponsor: George Gaither

In the present study, magazine reading will be examined to see its influence on sexual health knowledge for minorities within males and within females. Approximately 200-400 college students, most of whom identified as heterosexual, Christian, and aged 18-22 completed sexual history questionnaires, a sexual knowledge questionnaire, and a survey assessing the types of magazines participants read during the Spring 2011

semesters. Sexual health knowledge will be examined by the number of correct responses indicating the awareness of sexual health knowledge an individual has. Students completed the surveys individually in an online condition. Data for each participant was stored anonymously. A MANOVA will be conducted, comparing sexual health knowledge; independent variables will be student's self-identified racial minority status.

Jumping to Conclusions: Subclinical Delusional Ideation and Self Reference. Danielle DeWinter & Cam Thompson, Butler University.

Faculty Sponsor: Joel Martin

Previous research suggests that individuals with delusions make hasty decisions (i.e., Jump to Conclusions – JTC; see Garety et al., 2005). Research also suggests that unusual beliefs are fairly prevalent in the general population (Peters et al., 1999) and that psychosis may be thought of as a continuum (van Os et al., 1999). Further, research suggests that individuals in the general population with high levels of unusual beliefs are more likely to JTC than individuals with low levels of unusual beliefs, especially when they are asked to make decisions about emotionally salient material (Warman & Martin, 2006). Interestingly, previous JTC studies typically used a fairly weak emotional stimulus – words that are alleged to be about a person “very much like” the participant. The present study manipulated the emotional salience of the stimuli by suggesting to some (randomly assigned) participants that the words really were descriptive of them (as opposed to someone like them). We hypothesize that individuals with higher levels of subclinical delusional beliefs will JTC more than those with lower levels of delusional beliefs. Further, we hypothesize that individuals in the self-referent condition will JTC more than individuals who believe the description is about someone like them. To test these hypotheses, data are currently being collected from undergraduate students, participating to receive extra course credit. We anticipate collecting data from 100 individual participants.

Facets of Emotional Intelligence Differentially Predict Marital Outcomes. Nicole Ehlert, Butler University. Faculty Sponsor: Alison

O'Malley

Our study explored to what extent Emotional Intelligence (EI) scores predicted self-reported marital satisfaction and quality. The majority of research focuses on EI as one global entity; we explored whether individual facets of EI can account for greater variance in marital outcomes. We predicted that the higher one's level of Emotional Intelligence, the higher one's level of marital quality/satisfaction would be. Second, we believed that the emotional intelligence facets of adaptability, relationship capacity, stress management, and trait empathy would correlate more strongly with marital satisfaction scores than would global EI. We employed an online survey through www.questionpro.com that contained the Trait Emotional Intelligence Questionnaire (Petrides, 2001-2010), the Marital Satisfaction Scale (Roach et al., 1981), and the Positive and Negative Quality in Marriage Scale (Fincham & Linfield, 1997). The survey was completed by 136 university employees (faculty and staff) who were currently married or in a domestic partnership. A significant correlation between global EI scores and marital satisfaction and quality was not found. Regression analyses were used to examine how much variance in marital outcomes was accounted for by facets of EI above and beyond key demographic variables such as gender and marriage length. As hypothesized, stress management, relationship capacity, and adaptability predicted significant variance in marital satisfaction and quality (R^2 values range from .10-.31). Additional data from college students in proximal and long-distance dating relationships will be incorporated and contrasted with the findings of this study.

Perceptions and Stereotypes of Greek Organizations. Jena Elder, Brittany Ford, & Zane Willis, Franklin College. Faculty Sponsors: Kristin Flora & Jamie Bromley

Each year thousands of college students join Greek affiliated organizations in order to feel connected through their similarities. However, these students may be unaware of the negative stereotypes attached to their Greek organization. The purpose of this study is to determine if a person with Greek affiliation will elicit a negative stereotype. This experiment will be completed with a series of questionnaires that will be used to test the perceptions of target pictures. The targets will be viewed on a projection screen. Each target will be shown twice: One will display Greek letters and the other will not. Once the participants have viewed the pictures of the target, the participants will then fill out a questionnaire filled with a 5-point Likert scale that will rate different characteristics. A second identical survey will be taken with the photo-shopped pictures, where those who wore Greek letters in the first questionnaire will now be shown with a blank shirt. The two surveys will then be compared in order to find if there are differing scores rating the targets with and without the letters. It is hypothesized that the Greek letters will elicit a negative stereotype.

Episodic Salutary Experiences (ESE): An Active Ingredient in the Religiosity-Health Relationship. Elizabeth Erb, Elizabeth Kaiser, Jennifer Aker, Elliot Spengler, & Katherine Wainwright, Butler University. Faculty Sponsor: Brian Giesler

Although religiosity has been found to predict physical health in numerous studies, attempts to unpack this relationship remain noticeably incomplete (McCullough & Willoughby, 2009). Drawing from recent research on the adaptive effects of different types of positive affect (e.g., Frederickson, 2002; Frederickson, et al., 2008), our work highlights an understudied type of positive affective state, episodic salutary experiences (ESE), which refers to spontaneous episodic feelings of inner peace distinct from one's usual state. In multiple survey studies, a majority of participants reported experiencing ESE. Episodes are relatively brief, occur in a number of religious and non-religious contexts, and are perceived as low in intensity but high in positive valence. Correlational data indicated ESE is distinct from overall positive affect but is associated positively with both religiosity and physical health. To address whether ESE mediates the religiosity-health relationship, a cross-sectional survey

study was conducted using a convenience sample of religious undergraduate students ($n = 93$). ESE, religiosity and physical health were assessed using self-report measures. To characterize the strength of ESE, several other variables drawn from the literature were also assessed and tested as potential mediators, including health-related behaviors, social support from one's religious group, meaning in life and self-regulatory ability. Regression based analyses revealed that of the candidate mediators, only ESE (marginally) met the statistical criteria for mediation, Sobel $Z = 1.75$, $p = .07$, thereby supporting its hypothesized role.

Affect and Consequentiality Effects on Remembering Important Childhood Events. Laura Fels, Butler University. Faculty Sponsor: John Bohannon

Different childhood events (parental divorce, physical injury and diagnoses of a learning disability) were assessed to examine how consequentiality, affect and recounts aid memory. Parental divorce was shown to be a consequential event in a person's life with the children often changing homes and schools (Agypt & Bohannon, 2007). In fact, divorce was more consequential than childhood injury (Thornberry & Bohannon, 2009). However, injuries were both more arousing and subjects showed superior recall of the event. (Hilliard, Gillott & Bohannon, 2008). As the children age, their memories for their parent's divorce announcement improved and paced their increasing affective response to the news. However consequential the divorce event might have been, it seemed that a strong emotional reaction to the news was required to improve memory for that event (Thornberry & Bohannon, 2009). To prove that the age related memory differences observed earlier were due to changes in affective response and not developing memory skills, a strongly consequential event that evokes little arousal (diagnoses of a learning disability) was examined across the same age range. Consequentiality, rehearsal and affect levels of three childhood events (injury, parental divorce, and Learning disability/ AD/HD diagnoses) were assessed. Diagnosis and Injury events yield higher memory recall than divorce. People that retold events retained their memory no matter affect level. However when recounts are low, higher affect yields better memory.

Co-ed Residence Halls and Risky Behaviors among College Students. Laura Fels, Bethany Hussong, & Tyler Skaggs, Butler University. Faculty Sponsor: John Bohannon

Students that live in co-ed dorms have been found to be more likely to engage in heavy drinking behaviors (more often, in social situations, and in residence halls) compared to peers living in all female or all male residence halls (Cross et al, 2009). Although between men that live in single sex dorms compared to co-ed dorms are usually small, females that lived in co-ed dorms generally show more irresponsible behaviors. On the other hand, females that lived in co-ed dorms had better self-concepts, moods, and aspirations, compared to their single sex dorm counterparts. Both males and females in co-ed resident halls used health centers significantly more than single sex students. Females in co-ed dorms had a greater likelihood of quitting school than single sex dorm females (Moss & Otto, 1975). Research has also shown that females living in co-ed resident halls are more likely to engage in eating disorder behaviors than females living in single-sex residence halls. The purpose of the present study was to further assess co-ed living arrangements on a variety of risky behaviors among college students. Preliminary results indicate that students living in co-ed living arrangements are more drink more alcohol and with greater frequency and females will be more likely to have eating disorders.

Consistency of First Kiss Recall among Couples: Evidence of Collaborative Recollection. Christine Fisher, Karina Hamaouche, & Kendall Sauer, Butler University. Faculty Sponsor: John Bohannon

Studies of autobiographical memory have one overarching problem. There is rarely a way to validate autobiographical recollections. However, by looking at shared memories, like kisses, we can employ within-group consistency as an estimate of accuracy. This assumes that consistent memory elements are more likely to be veridical than inconsistent. Therefore, autobiographical kiss memories were assessed in couples. 40 couples ($n=80$), at least one of whom was a Butler student, separately recalled their first kiss with their current romantic partner. The delay from the first kiss to the memory test ranged anywhere from two weeks to 300+ months. Participants filled out a narrative and probed recall test, as well as confidence ratings, number of recounts, and encoding arousal and vividness rating scales. Analysis showed there was a delay effect $F(2,74) = 15.82, p < .002$, on the consistency of the couple's narrative and probed recall. The longer the delay from the first kiss to recall, the less extensive and consistent were the memories. In addition, there was a recount effect $F(1,74) = 4.47, p < .038$, where the more couples recounted their kiss story, the more consistent their were memories. Those who had many recounts were roughly 1.5 times more consistent than those who had few recounts. Investigating first kisses with a current partner is a way to estimate the veridicality of memory. When within-couple consistency is used as an estimate of accuracy, well-known memory effects such as delay and rehearsal were shown to significantly affect autobiographical recall in ways reflective of laboratory results.

The Effects of the Coach-Athlete Relationship and Team Cohesion on Self-Efficacy in Athletics. Ben Fox, Kate Denlinger, Hayley Wampnew, Tamara Davis, Daniel Horton, & Kayla Thompson, Indiana Wesleyan University, Marion. Faculty Sponsor: Tim Steenbergh
Sport-related self-efficacy is associated with higher goal setting and better athletic performance. Furthermore, studies have demonstrated that athletes' self-efficacy is positively correlated with their perceptions of the coach-athlete relationship. We sought to further clarify the nature of the association between athletes' self-efficacy and relationships in sport by examining how time spent with a coach outside of practice or games and a team's cohesion level related to athletes' self-efficacy. Participants were male and female collegiate athletes drawn from a variety of team

sports. We used the Coach-Athlete Relationship Questionnaire (CART-Q) to measure the coach-athlete relationship, and the Group Environmental Questionnaire (GEQ) was employed to assess teams' cohesion levels. We administered the General Self-Efficacy (GSE) scale to measure athletes' self-efficacy. Multiple regression analyses were conducted with CART-Q and GEQ scores as predictors of GSE scores. We discuss our findings in an effort to clarify the relational factors that are associated with athletes' self-efficacy.

Effects of the Holiday Season on Positive and Negative Emotions. Torin Franz & Evan Frick, Hanover College. Faculty Sponsor: Ellen Altermatt

The current study examines changes in positive and negative emotions around the holiday season. Participants completed an online survey at three different times (before, during, and after the holidays). At each time point, individuals rated the degree to which they were experiencing positive and negative emotions. Individuals also answered a series of questions about themselves (e.g., gender) and their holiday experiences (e.g., the number of family members they were expecting to host). We expect to find that participants will experience the most positive emotions before the holidays, the least positive emotions after the holidays, and moderate amounts of positive emotions during the holidays. A variety of moderators of these trends will be examined to better understand the factors that might lead to decreases in positive emotions around the holiday season.

Incidental Context Dependent Memory with Nonsense Words. Alissa Fritz, Butler University. Faculty Sponsor: John Bohannon
190 undergraduate Butler University students recalled nonsense words superimposed over 30 different, everyday 5-second videos to test whether a purported incidental context effect would occur in the absence of semantic associations. Participants were exposed to one of three recall conditions (reinstated video, novel video, or no video) after an initial exposure to the same video slideshow. During the reinstated video condition, participants were exposed to 15 of the control videos without the nonsense words superimposed. The slides shown during the reinstated video condition were counterbalanced so no single context could unduly influence results. During the novel video condition, 15 new videos were shown during recall and during the no video condition, no videos were shown during recall. Participants recalled significantly more nonsense words when the encoding contexts were reinstated over no video or novel video conditions, demonstrating that the incidental context effect was not dependent on semantic associations.

Effects of Violent Music. Kristin Gibson & Whitney Smith, Franklin College. Faculty Sponsor: Kristin Flora

Past research has shown that exposure to violent media is correlated with increased aggression. Anderson, Carnagey, and Eubanks (2003) investigated how violent song lyrics affect aggressive thoughts and feelings in both male and female participants. The researchers found that there were higher levels of hostility for participants that listened to violent songs compared to participants that listened to nonviolent songs (Anderson et al., 2003). Furthermore, Anderson and Dill (2000) conducted an experiment to see how short term exposure to violent video games affected aggressive thoughts and feelings. The results indicated that participants that played a violent video game had an increase in aggressive thoughts and behavior compared to participants that played a nonviolent video game. Past research has only investigated the effects of violent music or violent video games on aggression. Therefore, the present study will look at the combination on violent music and a violent video game. Participants will spend fifteen minutes playing Grand Theft Auto 4, a violent video game, while being exposed to either violent music or no music. It is expected that participants in the condition with violent music will increase aggressive or violent acts while playing the video game.

A Gateway to Schizophrenia? Sensory Gating in Schizophrenia Spectrum Patients. Sarah Gillott, Mallory Klaunig, Brian O'Donnell, & William Hetrick, Butler University. Faculty Sponsor: Tara Lineweaver

Sensory gating refers to an individual's ability to filter incoming sensory stimuli. Although it has traditionally been quantified using neurophysiological techniques, Hetrick and colleagues developed the Sensory Gating Inventory (SGI), a self-report assessment of four dimensions of sensory gating: Perceptual Modulation, Distractibility, Over-Inclusion, and Fatigue and Stress Vulnerability. We utilized the SGI to characterize sensory gating deficits in various patient groups and to explore whether self-reported sensory gating difficulties predicted positive, negative, and general symptoms of schizophrenia. 239 healthy adults (HA), 103 patients with bipolar disorder (BP), 136 patients with schizophrenia (SZ), 22 patients with schizoaffective disorder (SZ-Aff), 45 patients with schizotypal personality disorder (SPD), and 25 relatives of schizophrenic patients (REL) completed the SGI. The SZ subgroup also completed the Positive and Negative Syndrome Scale. We found an overall effect of diagnosis on the SGI. Follow-up analyses demonstrated that SZ-Aff patients generally reported the most sensory gating difficulties, and HA the least. The other patient groups varied across subscales, and REL sometimes more closely resembled SPD patients and sometimes HA. We then explored which aspects of sensory gating best predicted symptoms of schizophrenia. Perceptual modulation predicted positive symptoms, and distractibility predicted both negative and general symptoms. The diagnostic group differences apparent on the SGI subscales are consistent with findings from the electrophysiological literature on sensory gating and lend credibility to the use of this self-report measure as an index of sensory gating difficulties and as a predictor of positive, negative and general symptoms of schizophrenia.

Effects of Mood on Using Analogies to Solve Problems and Reduce Conflict. Erin Good, Butler University. Faculty Sponsor: Amanda Gingerich

Past research has shown that analogies and metaphors can be useful tools in problem solving tasks (e.g., Gick & Holyoak, 1980). In addition, mood has been shown to have an effect on a person's ability to generate solutions to problems (Abele, 1992). The present study aims to investigate how mood affects analogical problem solving, especially in relation to conflict resolution. Research was conducted to examine whether mood has the same effect on the use of analogies to solve interpersonal conflict problems as it does on the use of analogies to solve cognitive problems. In this experiment, participants began by writing about an especially happy or sad personal experience. After this mood induction, participants were presented with one interpersonal conflict problem and its analogy and one cognitive problem and its analogy. The participants were then instructed to write all possible solutions to the problems they read. Data collection is complete and data analysis to determine whether mood affected participants' abilities to use relevant analogies is currently underway.

Internal-External Source Discrimination Accuracy. Erin Good, Alex Wallace, & Elizabeth Sahagun, Butler University. Faculty Sponsor: Amanda Gingerich

Source monitoring is one's ability to recount the details of the context in which information was presented (e.g., Johnson, Hashtroudi & Lindsay, 1993). Researchers have found that the accuracy of source discriminations can depend on the combination of sources tested (e.g., Marsh & Hicks, 1998). For example, one "internal" and one "external" source are easier to differentiate than two external sources (e.g., Johnson & Raye, 1981). However, no research has addressed the possibility that who the external source in an internal-external source decision is may affect one's accuracy in discriminating sources. In this study, we evaluate differences in source monitoring accuracy, specifically in heterosexual romantic couples versus unacquainted heterosexual pairs of individuals. Particularly, we are interested in whether the members of romantic couples and unacquainted pairs may differ in their internal-external source monitoring accuracy. During the first experimental session, each member of the pair takes turns asking the other member pre-selected questions and both individuals answer the questions. This procedure is identical for both romantic couples and unacquainted pairs. We are not interested in their answers, but rather in their ability to remember, 48-50 hours later, which questions they asked and which questions their partner asked. In the second session, participants receive an item recognition and source memory test in which they are tested on whether certain questions were asked during the previous session and, if so, by whom. Data analysis is still ongoing, but preliminary results suggest that couples have more accurate recognition and source memory scores than unacquainted pairs of individuals.

Body Image and Condom Embarrassment as Correlates of Hooking Up Behavior. Brittany Gottschall & Samantha Amick, Ball State University. Faculty Sponsor: George Gaither

This study explores one of the ways in which our society is evolving in the realm of sexuality, specifically hooking up behavior. This behavior is becoming more prevalent among college students in today's culture. The study investigates the relationships between hooking up and body image, and hooking up and condom embarrassment. Approximately 200-400 participants in this study will be undergraduate students, 18 years or older, participating in the Department of Psychological Science Human Subject Pool or currently enrolled in PSYSC 100 (General Psychology). Participants will complete a survey that measures hooking up behavior within the last three months and consists of modified questions from The Sexual History Questionnaire, The Body Image Self-consciousness Scale (Wiederman, 2000), and Condom Embarrassment Scale (Vail-Smith, Durham & Howard, 1992) to better focus on specific hooking up behaviors. The researchers have two main hypotheses: females with a higher body image will inversely correlate with hooking up behavior while high body image in men will positively correlate with hooking up, and a higher level of condom embarrassment will inversely correlate with using condoms during hook ups. Body image and sexuality have been found to closely correlate (Gillen, Lefkowitz & Shearer, 2006); however, body image and hooking up behavior specifically has not been studied. Gallupe, Boyce & Fergus (2009) studied condom non-use at last intercourse; frequency of condom use has not been studied in terms of condom embarrassment and hooking up. An understanding of hooking up factors will be gained.

The Effects of Feedback Delivery Context on Affective Forecasts and Experienced Emotion. Ellen Gustafson, Butler University. Faculty Sponsor: Alison O'Malley.

The process surrounding the prediction of emotions generated by specific outcomes is called affective forecasting. We examined the implications of performance feedback delivered impersonally (i.e., via a computer) or personally (i.e., via the experimenter) for the intensity of affective forecasts and task performance. We predicted that participants who expected to receive feedback from an actual person would make more intense forecasts and perform better on a spatial relations task. Seventy-six undergraduate students (78% female) participated in exchange for course credit. Data collection is ongoing. We used a 2 (feedback source: experimenter or computer) x 2 (performance feedback: positive or negative) between subjects design. After performing the spatial visualization task, participants received randomly assigned performance feedback and rated their experienced emotions. Participants in the experimenter condition received a feedback printout directly from the experimenter; participants in the computer condition received feedback on their computer screen. Feedback condition had a strong effect on experienced emotion such that participants who received positive outcome feedback experienced much higher levels of positive emotion than did participants who received negative outcome feedback. Furthermore, participants who expected to receive feedback from the computer forecast having more intense emotional reactions upon receiving outcome feedback. Contrary to expectations, participants in the computer condition forecast experiencing more intense emotion upon receiving a positive performance outcome. Although affective forecasting researchers have found that computer-

generated feedback is perceived to be more fallible (Gilbert et al., 1998) than person-provided feedback, participants may have responded favorably to the perceived objectivity of the computer-generated feedback.

The Role of Authority on Reactions to Prejudice Confrontation. Christian Harmon & Danny Applegate, Indiana University/Purdue University at Indianapolis. Faculty Sponsor: Leslie Ashburn-Nardo

The Role of Authority on Reactions to Prejudice Confrontation Previous research has shown that confrontation is an effective way of reducing a person's prejudice (Czopp, Monteith, & Mark, 2006). This study will examine whether confrontations are more effective when they are made by an authority vs. a peer. Participants will be asked to read a scenario in which they imagine making a prejudiced remark that is either overtly negative (i.e., "Black people make bad parents") or superficially positive (i.e., "Mark [a black man] would be great on the company basketball team"). Then, they will imagine being confronted by either a co-worker or a supervisor. Participants will then be asked to indicate how they would respond to the confrontation. Results are expected to show that participants will report more negative self-directed affect (e.g., guilt, self-criticism) when they are confronted by a supervisor rather than a co-worker, especially when the comment is overtly negative. Results of this study will contribute to the growing literature on prejudice confrontation by providing insight into factors that would contribute to diversity education in the workplace.

Effect of Hands-on Learning on Short-Term and Long-Term Retention in Third-Grade Students. Whitney Helton, Ivy Ivers, Hanover College. Faculty Sponsor: Ellen Altermatt

This study was designed to examine the effects of hands-on learning on third grade students' performance and satisfaction. Participants (n=X) were assigned to either a traditional or hands-on group and were taught three different Language Arts lessons (i.e., idioms, adjectives, and adverbs) over the course of three weeks. The traditional group was taught using traditional, lecture-style methods, while the hands-on group was taught using hands-on activities related to each lesson. Participants were given two types of assessments (standardized and authentic) to measure their retention of the lesson material. The standardized assessment consisted of multiple-choice questions and was designed to reflect a typical standardized test. The authentic assessment consisted of open-ended writing prompts and was designed to assess skills more applicable to the real world. These two types of assessments were given one week following each lesson to measure short-term retention. Five weeks after the final lesson, participants were given two comprehensive assessments (one standardized and one authentic) to measure long-term retention. We expect to find that participants in the hands-on group will perform better than participants in the traditional group on both the standardized and authentic assessments, both in the short-term and the long-term. Participants will also be given a satisfaction questionnaire after each lesson to rate how enjoyable the lesson was. We expect that the participants in the hands-on group will rate the lessons as more enjoyable than participants in the traditional group.

Testing Delay of Gratification in Young Adults by Means of Technology. Matt Higgenbottom, Rachael Sopko, & Heather Woods, Franklin College. Faculty Sponsors: Kristin Flora & Jamie Bromley

The ability to delay of gratification is defined as being able to "forgo an immediate reward in favor of a better reward at a later time". The lack of this ability has correlated with low academic achievement, negative adult personality traits, and increased substance use in teens, creating everyday ramifications. This ability has been predominantly studied in children, in landmark studies conducted by Mischel and colleagues in the 1970s. The current study investigated the ability of college students (N=30) to delay gratification by not responding to a text message received via cell phone, and waiting for a potentially larger reward. The use of technology was chosen, because of its pervasiveness in the college community. The participants were divided into two separate groups. Group one was sent a text message 5 minutes into the study, requiring them to wait for 15 minutes, and group two was sent a message 15 minutes into the study, requiring them to wait only 5 minutes. Completion of a survey also measured this ability. The survey contained hypothetical situations that required the participant to choose between an immediate reward and a delayed reward. The study hypothesizes that group one would be less likely to delay; furthermore, those participants who are unable to delay gratification will show more immediate preferences on the survey.

Ginkgo Biloba Extract Effect on Working Memory Performance in Rats. Gretchen Hitze, Hanover College. Faculty Sponsor: Alexis Green
Ginkgo Biloba Extract has reportedly been used throughout the centuries to improve learning and memory. This experiment used rats to address the validity of the claim that the extract has an effect on memory, specifically on working memory. This study examined the effect of 90mg/kg of Ginkgo Biloba Extract orally administered daily in eight Long Evans rats over thirty days. Four rats were given a control solution of a 20% sucrose vehicle in equivalent volume. Rats' initial working memory was tested using an eight-arm radial arm maze prior to Ginkgo Biloba Extract administration. Working memory ability was evaluated through use of a one-hour delay-testing procedure. Following exposure to either the Ginkgo Biloba Extract or the vehicle solution, rats were again tested using the radial arm maze. Results were evaluated using a three-way ANOVA comparing pre-test and post-test maze performance results by administration group. Results are expected to be such that the rats receiving the Ginkgo Biloba Extract will both reduce proactive errors, defined as reentering arms entered on a previous trial, and retroactive errors, defined as reentering arms during the same trial, as well as maze completion time. This study aims at supporting or not supporting the

supposed effects of Ginkgo Biloba Extract on working memory by measuring the before and after-effects of administration and therefore providing enlightenment for use by humans.

The Relationship between Religiosity and Attitudes about Sadomasochism. Zachary Holzknicht, Ball State University. Faculty Sponsor: George Gaither

Traditionally, psychological research on prejudice has focused on attitudes towards concrete, salient outgroups, but more recent research has directed this focus towards less visible social groups. The present study continues this trend by investigating prejudice towards practitioners of sadomasochism (SM). In her study describing the development and validation of the Attitudes about Sadomasochism Scale (ASMS), Megan Yost (2010) proposed that religious critiques of SM as immoral contributed to the negative stigma associated with the set of nontraditional sexual practices that make up SM. The present study investigates this relationship by examining the correlation between religious orientation and prejudice towards SM. Using a secure online survey system, 200 undergraduate Introduction to Psychology students will be administered the ASMS as well as measures of general religiosity, religious fundamentalism, and intrinsic, extrinsic and quest orientations. It is anticipated that like prior research, religious fundamentalism and extrinsic religious orientation will be positively correlated with prejudice, while quest orientation will be negatively correlated with prejudice. Unlike prior research, it is anticipated that intrinsic orientation will be positively correlated with prejudice because participants high in this quality will have limited motivation to inhibit this prejudice.

New Optimal Keyboards for Locked-In Patients. Elizabette Johnson, Purdue University. Faculty Sponsor: Gregory Francis

Locked-in individuals exhibit almost total paralysis, yet intact cognitive functioning. A virtual keyboard controlled by a binary response switch represents one means of communication available to locked-in patients. A cursor moves over items on the keyboard and the user triggers the switch to select the item currently highlighted by the cursor. Communicating with these keyboards is extremely time-consuming hence improvements in keyboard design can result in dramatic improvement in communication efficiency and therefore individuals' lives overall. One approach to improve these keyboards involves adjusting the layout and cursor path of the keyboard. In this study, we had 44 undergraduate students enter target numbers using a 16x4 key virtual keyboard divided it into four even sections to examine the effect of sectioning on error rate. Our results revealed that subjects were more likely to make errors at earlier points in the cursor path and at faster cursor durations. From this we conclude that the more time individuals have to anticipate a future cursor location, the higher the probability a correct selection will be made. We can then use this information to identify an optimal arrangement of characters on the keyboard.

Parental Attachment Affects Home Visits, GPA, and Overall College Adjustment. Hannah Jordan & Casey Natalino, Butler University.

Faculty Sponsor: Robert Padgett

Attending college is exciting and potentially difficult. The new student moves into a dormitory with potentially unfamiliar people. The student's attachment to their parents can possibly influence how the student will react to college life, grades, and home visits. We wanted to know if having a secure versus insecure attachment to parents in early life impacted college adjustment. To measure this, we surveyed students at Butler University using the Parental Attachment Questionnaire, the Psychological Separation Inventory, and the College Adjustment Test. We were also interested in the extent to year in school might interact with attachment to influence college adjustment. Preliminary results showed there is a potential association between attachment and how often the student calls and visits home. Additional results will examine if students with insecure attachment types might have lower college adjustment, GPA's, and grades. This research is important because with the findings we can possibly find a way to help students with insecure attachment types adjust to college just as well as those with secure attachment types.

Thinking then Doing: What Predicts Health Goal Achievement? Jennifer Kelleher, Katherine Wainwright, & Lindsey Joo, Butler University.

Faculty Sponsor: Brian Giesler

Processes related specifically to the formation or adoption of health-related goals have received little attention. The purpose of the current research was to determine whether and to what extent amount of pre-adoption thought, which refers to how much an individual considers a goal and its consequences before deciding to pursue the goal, is related to goal achievement. To accomplish this aim, a sample of undergraduates from a Midwestern university were asked to complete a series of self-report measures, including measures of health goal intentions and pre-adoption thought at semester's start and measures of goal success at semester's end. Measures of previously established predictors of health goal achievement were also administered. Data collection is currently underway, but preliminary analyses suggest that amount of pre-adoption thought may be related to goal success in a curvilinear fashion. That is, thinking a lot about one's health goals prior to undertaking goal related actions appears to foster goal success. However, deciding to 'just do it' (i.e., spontaneously adopting goals) also appears to foster success. If spontaneous goal adoption is indeed related to goal achievement, further investigation of this phenomenon may provide insight into the processes that allow individuals to lead healthier lifestyles.

Motivation and Its Effects on Test Performance. Jennifer Kelly & Ashley O'Gara, Franklin College. Faculty Sponsors: Kristin Flora & Jamie Bromley

In society it is common practice for motivation to be induced prior to an important performance in hope of enhancing the results. Previous

research (Wrightman, 1962) has supported that participants who are properly motivated try equally hard regardless of the importance on an intelligence test. So students who are high achievers that have internal motivation will do well regardless of the importance of the test. The current study was designed to examine the effects of motivation on test performance; more specifically, targeting students with less internal motivation. To examine this, a two minute neutral or motivational clip will be shown, to students from a small liberal arts college located in the Midwest. A survey portrayed to evaluate the clip will follow. Finally, a standardized test will be administered. It is hypothesized that the participants who are less intrinsically motivated and view the motivational clip will show greater improvement on test performance.

How Framing an Incident Affects Conviction to Confront Prejudice. Sara Kern, Colleen Quilty, Charlotte Quinn, Brittany Sullivan, Nicole Bonk, & Samantha Smith, Butler University. Faculty Sponsor: Kathryn Morris

Feelings of responsibility are one factor in the decision to confront prejudice (Ashburn-Nardo, Morris, & Goodwin, 2008). One aspect of responsibility is the feeling of conviction (see Bandura, 1999) to confront prejudice. We know from our previous survey that people have stronger convictions to confront bullying than they have to confront prejudicial behavior. In the current research, our goal was to determine whether framing prejudice as bullying will cause people to have stronger convictions to confront it. In this experiment, participants read a description of a prejudicial incident that was framed as bullying, prejudice, both (i.e., prejudicial bullying), or neither (i.e., difficult behavior). After reading the description, participants reported their conviction to confront the behavior. The results and their implications will be discussed.

The Effects of Applicant Nonverbal Communication and Physical Characteristics on Interview Ratings. Brittni Kirkby, Franklin College. Faculty Sponsor: Jamie Bromley

Nonverbal communication has been shown to provide a lasting impression on one person's opinion of another (Gifford & Wilkinson, 1985). The employment interview is one place where nonverbal communication can be of the utmost importance. One way of examining the effects of nonverbal communication in such a setting is to compare the hiring recommendations made for employment interviews involving applicants who are chewing gum and applicants who are not chewing gum. This variable has not been previously researched and the findings of the study can add to the body of research already conducted on nonverbal communication. The purpose of the current study is to gauge the effects of nonverbal communication (gum chewing) on hiring recommendations. The current study will ask the participants to watch a videotaped employment interview for a mock position as a summer intern as a camp counselor. The participants will then complete a survey consisting of questions regarding the applicant's displayed professionalism and potential for future success. It is hypothesized that the ratings of professionalism and desirability for the available position will be lower for the applicants who are shown to be chewing gum during the interview than for the applicants who are not chewing gum, due to their display of negative nonverbal communication. Keywords: Nonverbal communication, interview, employment

What about Atheists?: A Narrative Analysis Making Sense of Death and Grieving. Chelsea Kolodziej, Ball State University. Faculty Sponsor: Heather Adams

Past research has focused on religious populations, including Christianity, Wicca (Lozano, W., & Foltz, T., 1990), and nature-based religions (Walker, A., & Balk, D., 2007). This research indicates a strong spiritual connection as a determinant of whether or not participants' lives have meaning. Little is known about atheists and how they negotiate these life experiences without spiritual connections. The goal of this study is to begin to fill this gap in our knowledge with information grounded in lived experiences. Interview data will be collected using cluster interviewing where participants will create a diagram out of the central topic "death and grief" and discuss each branch as they are mentioned. Interviews and the diagrams will be analyzed using Labov's framework (Labov, 1997) to create meaningful interpretations. The resulting narratives will then be tape recorded as a script. These will form the foundation of the presentation interspersed with the researcher's analysis.

Perfectionism: Differential Relationships with the Equity Norm and Belief in a Just World. Amy Kraner, Manchester College. Faculty Sponsor: Marcie Coulter-Kern

Perfectionism is a multidimensional construct consisting of high personal standards, parental expectations and criticism, doubts and concerns about actions, and organization. In this study, the relationship between dimensions of perfectionism and justice theories is explored. Perfectionism was expected to be positively correlated with preference for the merit principle, based on the assumption that there exist individual differences in the preference for the equitable versus equal distribution of rewards, and with the general belief in a just world. As compared to mixed academic groups, a group of freshman honor students was expected to exhibit perfectionism traits to a greater degree, and larger correlations were expected between perfectionism and the just world theories for the group. The hypotheses were largely confirmed. Unexpected findings suggest that perfectionism is negatively correlated with the belief in a just world, and that adaptive and maladaptive elements in perfectionism play a role in these relationships. Adaptive perfectionism was positively correlated with preference for the merit principle and maladaptive perfectionism negatively correlated with the general belief in a just world, with some variation in pattern between the honors and mixed academic groups.

Sweet and Sour Memories: Agonistic and Antagonistic Effects of Glucose at Retrieval. Alex Lange, Sarah Gillott, & Michael Leider, Butler University. Faculty Sponsor: John Bohannon

Glucose has been found to enhance general cognitive performance as well as memory encoding for emotionally arousing stimuli. For this study, the effects of glucose administration at memory retrieval were examined for two distinct types of memory. 110 participants gave autobiographical memories for best kisses whereas 41 participants gave semantic recollections of a feature film. Participants were randomly assigned to glucose or saccharin control conditions. Blood glucose levels were obtained before and after protocol completion. Protocols contained a word search as test of general cognition and a memory section including free recall and probed response questions. Group one completed the protocol for memories of best kisses, whereas group two completed the protocol for memories of a feature film. Plasma glucose rise was calculated and free recall was scored on a graded system for canonical features. Glucose levels were initially equal between groups, but increased significantly for the glucose group and were maintained for the saccharin group. Memories for best kisses were more elaborate than memories for a feature film, which may be due to the fact that best kiss memories were rated as more arousing at encoding and were encoded more recently than film memories. Regardless, glucose consumption significantly impaired autobiographical kiss memory, yet enhanced memory for a feature film. This suggests that glucose administration at retrieval has differential effects on memory depending upon memory type.

Who Will Step Up? The Effect of Leadership Type on Decisions to Confront Prejudice. Alex Lindsey, Indiana University/Purdue University at Indianapolis. Faculty Sponsor: Leslie Ashburn-Nardo

Confrontation is effective in reducing prejudice (Czopp, Monteith, & Mark, 2006), yet people often fail to take action when they witness discrimination (Swim & Hyers, 1999). The Confronting Prejudiced Responses Model (Ashburn-Nardo, Morris, & Goodwin, 2008) outlines obstacles people must overcome to confront prejudice; among them is taking responsibility for responding. Research in other domains indicates that leaders may be more willing to take on responsibility than average bystanders (Baumeister, Chesner, Senders, & Tice, 1988). Additionally, whether leaders are person-oriented or task-oriented (Fleishman, 1953) may have an effect on their confrontation goals. To investigate, 150 participants were assigned to one of three leadership conditions (person-oriented, task-oriented, or non-leader) and asked to provide feedback to a scripted chat conversation in which one of their (fictitious) fellow participants made a racist remark. Feedback was analyzed for evidence of confrontation. Participants also answered several questions about their goals and perceived responsibility for confronting. We hypothesized that participants in a leadership role would more readily take responsibility and confront prejudice than non-leaders. Additionally, we hypothesized that the confrontation goals for person-oriented leaders would focus on aiding the target member, while the confrontation goals for task-oriented leaders would focus on reprimanding the perpetrator of the remark. Initial results support our hypotheses, with a 59% confrontation rate for participants in the leadership conditions compared with a mere 45% confrontation rate for participants in the non-leader condition. Upon completion of data collection, additional analyses will be conducted to determine the effect of leadership type on confrontation goals.

The Influence of Political Attitudes on How Individuals Narrate their Life Stories. Lindsay Marsh, Rachael Moreland, & Ashley Adams, Hanover College. Faculty Sponsor: Ellen Altermatt

This study was designed to examine how political attitudes influence the way people construct their life narratives. Participants (N = 12, 58.3% males) were interviewed about their life stories and completed a questionnaire assessing their political attitudes on a 6 point conservatism-liberalism scale. The participants' narrative responses were transcribed and coded for the dimensions of empathy, openness to experience, respect for authority, and purity. We expected that individuals with more liberal attitudes would be more likely to include themes of empathy and openness to experience, but be less likely to include themes of respect for authority and purity in their life stories. Our hypotheses that liberalism would be associated with themes of empathy ($r = .61, p = .04$) and openness to experience ($r = .54, p = .08$) were supported.

Influence of Magazine Reading on Sexual Behaviors, Attitudes, and First Sexual Experiences. Lauren Mazur & Bethany Cooper, Ball State University. Faculty Sponsor: George Gaither

This study examines the influence magazine reading has on ambivalence towards first sexual experience and sexual behavior and attitudes. Previous literature indicates that magazine reading is correlated with sexual health knowledge (Walsh & Ward, 2010). Additionally, sexual media is correlated with sexual behavior of adolescents (Brown, L'Engle, Pardun, Guo, G., & Kenneavy, 2006). Between two hundred and four hundred college students will complete an anonymous online survey consisting of a Demographic Questionnaire, the Sexual History Questionnaire, Ambivalence About Having First Time Sexual, Conditions at First Sexual Experience, and The Brief Sexual Attitudes Scale. We expect to find that levels of magazine reading influences college students' sexual perceptions, behavior, and attitudes. This study may be beneficial for understanding how college students develop sexual attitudes and perceptions, relative to magazine reading.

Bilingualism in Children with Down Syndrome. Stephanie McMillen, University of Evansville. Faculty Sponsor: Elizabeth Hennon

Children effortlessly pick up the linguistic cues that surround them in their every day adventures. They hear the arbitrary phonemes that cascade together to form complex words which contain meaning. Previous research has begun to define exactly how children are able to not only produce language, but also how they comprehend the meaning of words. Many cognitive skills have been identified as imperative in the development of language, but an emerging area known as categorization is becoming present. Its prominence has only been recently recognized and researchers

are still developing experiments to test exactly how it affects language development. With the notion that categorization allows children to link several pieces of information together to form a cohesive, yet flexible unit, psychologists are able to speculate as to how children are able to excel in the area of bilingualism as well. Bilingual skills in typically developing children are a fascinating wonder that perplexes the adult understanding of how language operates within the human brain. Even more astounding is case evidence of atypical children who are also able to enter into the realm of dual-languages. Similarly to typically developing children, children with Down Syndrome are exposed to bilingual atmospheres where they must learn to cope with linguistic complexity. Although the area of research on these children has been previously neglected, it is a branch that is beginning to develop and prosper so that children of all linguistic backgrounds can receive speech and language treatment in a therapeutic setting.

The Influence of Self-Esteem and Value Similarity on Attraction. Alexis Miller, Anderson University. Faculty Sponsor: Laura Swindell
The purpose of this study is to examine the influence of self-esteem and value similarity on attraction in college age students. It is hypothesized that participants with higher self-esteem will be more attracted to individuals with highly similar values. It is also hypothesized that those with lower self-esteem will be attracted to those with dissimilar values. This study will be completed in two sessions. During the first session, participants will complete the Rosenberg Self-Esteem Scale (Rosenberg, 1965) and the Rokeach Value Survey (Rokeach, 1973). During the second session, participants will read descriptions of three hypothetical persons who have values 20%, 40% and 80% similar to the participants', and are asked to rate them on attractiveness using a 4-point Likert-type scale. Results will be analyzed and discussed. Results have possible implications on relationship longevity and stability.

In Search of a Soul: Myth and Well-Being. Rachel Miller, Anderson University. Faculty Sponsor: Linda Swindell
In the study of philosophy and religion, the idea of myth has been recognized and explored. Through Carl Jung (1907), Joseph Campbell (1949), and Mircea Eliade (1956) the concept of mythology and the development of personality has been described and documented. The concept of myth is important to understanding the development of the self and the functioning of individuals. There is a need for myth, personal and collective, to enter the field of psychology through empirical research so that it may be better understood. Its use in therapy can bring individuals to self-awareness and can heal through integration and wholeness. In this study I will attempt to empirically test myth. Participants from a General Psychology and a World Religions class at a small midwestern university will identify their values and tell a story of how they came to choose the university they attend. The congruence between the personal myth of the students and the institutional myth found in the university's literature and by the report of administration will be measured. Participants will also complete four aspects of Ryff's Scale of Psychological Well-Being (Ryff, 1989) (RSPWB): autonomy, environmental mastery, self-acceptance, and life purpose. The results from the myth survey and the RSPWB will be correlated to assess the strength of the relationship between congruence of self and collective and well-being. Data will be analyzed using multiple regression.

Life Satisfaction, Social Support, and Emotional Numbing in Relation to Past Trauma. Tarah Miller, Ball State University. Faculty Sponsor: Heather Adams

Attempts have been made to identify factors that moderate the effects of trauma and are associated with higher ratings of life satisfaction among trauma-exposed individuals (Pruneau, 2009; Rappaport et al., 2005; Zatzick et al., 1997). This literature has produced much data on the moderating effects of social support in relation to trauma/PTSD symptoms, post-trauma impairment, and life satisfaction. Though a body of research exists on this topic, the effect of emotional numbing on the relationship between social support and trauma outcomes has yet to be examined. The purpose of this study is to examine how emotional numbing may moderate previously reported relationships between social support and life satisfaction among trauma-exposed individuals. The sample consisted of PSYSC 100 students, from a mid-size university, who completed the following measures electronically: the PTSD Checklist-Civilian Version (PCL-C), Green's Trauma History Questionnaire (THQ), the Multidimensional Students' Life Satisfaction Scale (MSLSS), and the Berlin Social-Support Scale (BSSS). Data from the questionnaires was analyzed using a series of t-tests.

Does Perceived Power Influence the Likelihood of Confronting Prejudice? Scott Moore, Jennifer Bochenek, & Shaista Zafar, Indiana University/Purdue University at Indianapolis. Faculty Sponsor: Leslie Ashburn-Nardo
Previous research has shown that confrontation is an effective method for reducing prejudice but people are often reluctant to do so. The Confronting Prejudiced Responses Model (Ashburn-Nardo, Morris, & Goodwin, 2008) describes factors that aid or hinder confrontation. Among these factors are perceived confrontation self-efficacy and perpetrator power. The current study will test whether the relationship between confrontation self-efficacy (the perception of whether one has the skills necessary to confront prejudice) and confrontation behavior depends on the perpetrator's power over the witness. Participants (N = 150) will be led to believe that they hold equal or less power than their partner in a task over networked computers involving reading a sample of writing and responding to a series of questions regarding its mechanics, quality, and content. During the session, the partner, a computer confederate, makes a preprogrammed racial statement, which the witness can choose whether or not to confront. As part of a supposedly unrelated study, participants will complete a measure of confrontation self-efficacy. Participants who are higher in self-efficacy will be more likely to confront. However, it is expected that this relationship will depend on

perpetrator power such that confrontation is less likely when the perpetrator is higher in power. Results of this study will provide insight into factors that facilitate or inhibit prejudice confrontation.

Reactions to People Who Confront Racism: Likable and Courageous or Complainers and Whiners? Aaron Moss, Indiana University/Purdue University at Indianapolis. Faculty Sponsor: Leslie Ashburn-Nardo

Confrontation is an effective way to reduce others' prejudice, yet people are often hesitant to confront perpetrators. This may be because they are uncertain of how others will perceive them. Indeed, past research investigating witnesses' reactions has shown that confrontation from targets (e.g., Blacks) produces more unfavorable outcomes (i.e., perceptions of increased rudeness and decreased persuasiveness) than confrontation from non-targets (e.g., Whites) (Rasinski & Czopp, 2010). Related studies have shown that perpetrators evaluate confronters more positively when confrontation is framed as an appeal for fairness rather than an accusation of racism (Czopp, Monteith & Mark, 2006). Research on witnesses' perceptions, however, is limited. This study goes beyond prior work by investigating how manner of confrontation can influence witnesses' perceptions of confronters differently based on group membership, and whether targets are perceived as complainers more than non-targets. 200 White participants will read a scenario involving a racist comment made toward a Black man. The comment will be confronted by the insulted Black man (victim), another Black man (target), or a White man (non-target), and will be framed as an accusation of racism or an appeal for fairness. Participants' perceptions of the confronter (e.g., rude, courageous) will be measured. The victim and target are expected to be evaluated negatively, especially when confrontation is an accusation of racism. The non-target is expected to be evaluated positively, especially when confrontation is an appeal for fairness. Expected results will add to the confrontation literature by providing a more comprehensive view of how confronters are perceived.

Self-Enhancement Motive Strengthened by Task Relevance of Feedback in an Assessment Center. Daisy Nunez & Cara Lucas, Butler University. Faculty Sponsor: Alison O'Malley

Researchers consistently find that most people strive to acquire feedback that reflects positively on their self-concept (e.g., Taylor & Brown, 1988). One important question surrounding the process of self-enhancement is whether people are more likely to self-enhance in certain contexts. We hypothesized that participants would desire higher ratings from the assessor on task-related feedback dimensions compared to feedback dimensions that were not directly related to the focal task. We also incorporated goal orientation constructs and a new measure of feedback motives to more explicitly model the link between the self-enhancement motive and feedback preferences. We hypothesized that individuals with a strong learning goal orientation would be less interested in self-enhancing feedback. Participants completed individual difference measures of goal orientation and feedback motives and provided self-ratings on three task critical (e.g., works efficiently) and three non-task critical feedback dimensions (e.g., exudes confidence). They also rated how they hoped to be evaluated by the assessor on the feedback dimensions. Participants then completed an organizational decision-making task in groups. Afterwards, the participants rated how much they wanted asset or liability feedback on each of the feedback dimensions. Our results lend support to Swann et al.'s (2002) argument that the self-enhancement motive is context-specific. That is, people are generally more motivated to receive self-enhancing feedback on the dimensions that they deem important to the evaluation context. Individuals high on learning goal orientation, however, are less motivated to self-enhance.

Attitudes Toward the Average American Man. John Pajarillaga, Anderson University. Faculty Sponsor: Linda Swindell

This study explores men and women's attitudes toward the average American man. It is hypothesized that females with high levels of intimacy with their fathers will have more positive attitudes toward men, while males with low levels of intimacy with their fathers will have more negative attitudes toward men. It also hypothesized that high levels of femininity in women will be negatively correlated with their attitudes toward men, while high levels of masculinity in men will be positively correlated with their attitudes toward men. The sample will consist of students from a general psychology course in a small liberal arts Christian university. Participants will complete a demographics survey, the 30-item short form version of the Bem Sex Role Inventory (Bem, 1981), 8 questions from the Social Relations Questionnaire (Blythe & Foster-Clark, 1987) that examines levels of intimacy in relationships, and a 38-item adapted version of the Attitudes Toward Men Scale (Iazzo, 1983) that examines attitudes toward men. Data will be analyzed using multiple regression analysis and conclusions will be drawn.

The One That Got Away and Why You Remember Them. Sarah Pajkos & Kendall Sauer, Butler University. Faculty Sponsor: John Bohannon

Evolutionary psychologists use Darwin's theory to study the mating patterns in humans. Sexual selection is dependent upon the advantage certain individuals have over others, which is exclusively related to reproduction (Darwin, 1871). Nairne (2007) applied evolutionary theory to memory by using word lists both related and unrelated to survival. He argued that the human memory has adapted to solve problems of survival and therefore, survival processing produces great retention. By testing a more real-life situation, results can be better generalized to everyday life. Students at Butler University ($n=51$) completed a two-part protocol (initial testing and follow-up one week later) consisting of: an introductory video of a suitor, a request for a date, a rejection video from the suitor (of either a polite or harsh manner), and follow-up questions to the introduction and rejection. There was a significant main effect in the harshness of the rejection in the extent of elaborate nature of the narrative, $F(1, 47) = 7.38, p = <.01$ because the overall narrative score of those that received the harsh rejection was .387 in contrast to the polite rejection of .31. There was a significant effect of rejection group, $F(1, 39) = 15.94, p = <.0003$. This was due to the harsh group remembering of mean of 3

such items, with the polite group remembering less than 1 item (.71 item). The degree of threat to one's reproductive fitness due to harsh romantic rejections generate significantly more detailed memories of those who perform harsh rejections.

Effects of Music Genre on Beer Pong Rate of Play. John Peterson, Saint Joseph's College. Faculty Sponsor: Chau Wong

Very few experimental studies have been conducted to investigate what variables influence drinking games. The current study investigated the extent that genre of background music influenced the rate of play in simulated beer pong games. Undergraduate college males (N = 16) at a small, Catholic liberal arts college in the Midwest participated in simulated beer pong games using nonalcoholic beer. All participants were 21 years of age. Conditions included control (no music), rock, and classical music. The average rates of play among conditions were analyzed using a one-way ANOVA. No significant difference was found. Music genre does not influence the rate of play in beer pong. The small sample size may have affected results. Future research should refine the current study, looking at other factors affecting drinking game rate of play.

The Effects of Nicotine Withdrawal on Cooperation. Melissa Poole & Nickolas Bliznoff, Hanover College. Faculty Sponsor: Alexis Green

This study is designed to explore the hypothesis that the stress felt from nicotine withdrawal will decrease cooperation levels in humans, and if the effects of stress from nicotine withdrawal differ from those of every day life. Previous studies have found that nicotine withdrawal causes increased stress, and that stress can lower cooperation, though research examining a direct link between nicotine withdrawal and decreased cooperation is minimal. In this study, withdrawal is defined as abstaining from nicotine use for 8 hours. This experiment uses a 2x3 design; participants (smokers-withdrawal, smokers-no withdrawal, non-smokers) are counterbalanced to a "stress" or "no stress" condition. To induce stress, participants are told that they will be performing a public speaking task at the end of the experiment. Stress is measured using Spielberger's State-Trait Anxiety Inventory (STAI). Next, the participants are asked to complete a computer simulated version of the prisoner's dilemma game. The game measures the amount of times a participant responds with either "cooperate" or "compete." We hope to find that abstaining smokers and stressed non-smokers will both click "compete" more often than participants who are not subjected to increased stress. This will support our hypothesis that the stress felt from nicotine withdrawal correlates with a lack of cooperation. We believe that these findings could help to improve smoking cessation programs by giving a more complete understanding of the changes in temperament during nicotine withdrawal.

Differences in Gender and Race Perceptions of Magazines. Amanda Reyome & Chelsea Kolodziej, Ball State University. Faculty Sponsor: George Gaither

This study examines the relationship magazine reading and sexual health has hypermasculinity and hyperfemininity and differences in race perceptions. Currently, there is limited research on the factors this study is examining as it relates to magazine reading. It is common to see sexual health information in magazines, though it is often distorted and presents information that is consistent with gender and racial stereotypes (Walsh & Ward, 2010; Batchelor, Kitzinger, & Burtney, 2004; Sengupta, R, 2006). Previous literature indicates that the information teens and young adults are receiving from the media is harmful to body image and self-esteem for males and females (Geng, S., & Lee, 2010; Milkie, 1999; Turner & Hamilton, 1997). This study examines how these perceptions effect hypermasculinity and hyperfemininity and differences in race specifically. Between 200 and 400 college students will complete anonymous online surveys which examine the three factors listed above. The surveys examined perception differences between the races, and gender stereotyping. We expect to find levels of magazine reading will influence college students' sexual perceptions and sexual health knowledge. Further, we expect that there will be a difference in perceptions based on race and gender due to the different portrayal in the media.

Personality Factors and Sex Education as Contributors to Hooking Up Behavior. Jessica Rockhill Ashley Mims, Ball State University.

Faculty Sponsor: George Gaither

Our society is rapidly evolving in terms of sexuality and this study explores one of the key ways in which this development is occurring. Specifically, hooking up behavior is becoming more prevalent among college students in today's culture. This study investigates the relationships between hooking up and openness, extroversion/introversion, and sex education. Approximately 200-400 participants in this study will be undergraduate students, 18 years or older, participating in the Department of Psychological Science Human Subject Pool or currently enrolled in PSYSC 100 (General Psychology). Participants will complete a survey that measures hooking up behavior within the last three months and consists of modified questions from The Sexual History Questionnaire, The Big Five Inventory (Donahue & Kentle, 1991)(openness and extroversion), and the Sex Education Inventory (Bennett & Dickerson, 1980) to better focus on specific hooking up behaviors. The researchers have two main hypotheses including: participant's hooking up behavior will positively correlate with openness and extroversion, and participants hooking up behavior will inversely correlate with the number of sex education sources they have had. There have only been two studies that have examined the specific relationship between personality and hooking up (Gute & Eshbaugh, 2008) and therefore, further research is needed. Sex education has been studied in terms of program quality (Scales & Kirby, 1981), however, the effectiveness of these programs later in life, and hooking up specifically, seem to have been largely ignored. Overall, this study will increase our understanding of concrete factors affecting hooking up behavior.

Evolutionary Memory: Sex, Kisses, and Car Crashes. Kendall Sauer & Danielle Vaclavik, Butler University. Faculty Sponsor: John Bohannon
Subjects (n = 329) recalled either a first kiss with their current romantic partner, their first sexual encounters, or a car accident. The effects of arousal, delay (in months), rehearsal, and event type: kiss, sex, or crash were examined. As predicted by evolutionary theory, there were two significant effects over and above the effects described in prior FBM studies. There was a main effect of event, $F(2,275) = 45.9, p < .0001$, where kisses were not recalled as well as either sex or accidents. Further, there was a three-way interaction between event, delay and measure, $F(4,275) = 2.45, p < .047$. This was the result of both estimates of kiss memories (narrative and probed details) declining over time whereas recollections of sex and crashes remained stable. Thus, even though kisses were the most recent event and talked about just as much as sex, the event caused the least arousal and was the only memory to show forgetting over time. Taken together, these results suggest that life events directly related to evolutionary functions such as reproduction (sex) and survival (crashes) are remembered better and longer than events that are only precursors (kisses) to more important evolutionary events. Whether, this is the result of some direct mechanism linking specific events like reproduction and physical threat to memory (Nairne, 2008) or indirectly through the arousal mechanism (Julian, et al., 2009) is not yet established.

Sadomasochism in Relation to World Views. John Schock & Brittanie Mosbaugh, Ball State University, Faculty Sponsor: George Gaither
Megan Yost (2010) created the Attitudes about Sadomasochism Scale (ASMS), which measures prejudice towards those who practice sadomasochism. Two variables, feminism and perceptions of sadomasochism as a psychiatric diagnosis, were not studied in relation to this prejudice. Since sadomasochism focuses on the intentional use of pain, both physically and psychologically, for sexual arousal, it has drawn much attention and stigma from feminists. This research will examine feminist attitudes in relation to perceptions of sadomasochism. With sadism and masochism being listed in the DSMIV-TR as diagnosable disorders, this study focuses on the belief of sadomasochism as a mental disorder and attitude about the practice and those who practice it. In the current study, a number of different questionnaires, including the ASMS as well as measures feminism and perceptions of sadomasochism as a psychiatric diagnosis will be administered to the respondents. The participants will be 200 undergraduate students enrolled in an Introduction to Psychology class who will respond via a secure online survey system. Pearson correlation analysis will be used to determine the relationship between these factors and scores on the ASMS. Results will be analyzed and implications for attitudes and practices toward sadomasochism will be discussed. It is expected that those with strong feminist views will have negative views towards sadomasochism. Also it is expected that those who view sadomasochism as a mental disorder will also have a negative view towards sadomasochism.

The Influence of Experimenter Status on Suggestibility. Eric Sharp & Lindsay Marsh, Hanover College. Faculty Sponsor: John Krantz
This study was designed to examine the effect of experimenter status on participants' suggestibility. Suggestibility was measured by the presence of false memories about a video clip. Participants watched a video clip and were questioned about the details of the clip using a script of leading questions or neutral questions. The leading questions were designed to elicit false memories in the participants by suggesting information about what occurred in the video clip. The neutral questions did not contain suggested information. These questions were either presented by an experimenter of high status or low status. In the study, the high status condition was an experimenter who is a college professor. The low status condition was an experimenter who is a senior undergraduate psychology major. After being questioned about the video clip, the participants sat through an intervening task of watching a cartoon. The participants were then questioned about the video clip again using neutral questions. The second set of questions was used to see if any false memories had been elicited from the suggested information in the leading questions. We expected that participants that were questioned with leading questions by the high status experimenter would be more suggestible than participants questioned with leading questions by the low status experimenter.

Standing Up Against Prejudice: Confronting Discrimination May Depend on Expected Outcomes. Erica Siddeeq, Alexandria Baer, & Christal English, Indiana University/Purdue University at Indianapolis. Faculty Sponsor: Leslie Ashburn-Nardo
The Confronting Prejudiced Responses Model (Ashburn-Nardo, Morris, & Goodwin, 2008) suggests that individuals' assessment of a situation involving prejudice remarks and the potential consequences associated with confronting the perpetrator may determine their likelihood of challenging discrimination. This study will investigate whether participants higher in confrontation self-efficacy are more likely to confront and what role potential outcomes of confrontation (i.e., positive, negative, or neutral) has on their decision to confront. Participants (N = 180) will be randomly assigned to examine one of three versions of an article describing a Black Student Union's past complaints of discrimination and the outcome. Participants will then electronically discuss the article's content with an (alleged) partner. During the discussion, the partner will make a prejudiced remark. Results are expected to demonstrate that participants high in confrontation self-efficacy will be more likely to confront their partner's prejudiced remark, especially when confrontation outcomes are perceived as positive. Such findings can afford researchers clearer insight into how certain contexts surrounding prejudice can facilitate speaking out against it.

Does Homophobia Involve Self-Disgust? Elliot Spengler, Sarah Rodenkirch, Jennifer Aker, Toni Maraldo, & Jennifer Kelleher, Butler University. Faculty Sponsor: Brian Giesler

The primary purpose of this study is to investigate the relationship between self-disgust and homophobia. Prior research has demonstrated that homophobic individuals experience disgust when exposed to homosexual stimuli (e.g., a picture of two men kissing). It is possible that the

disgust experienced by homophobics in this context might include a self-disgust component. This may occur for a variety of reasons. For example, homophobic individuals may fear that homosexuality could 'contaminate' the self. Imagining self-contamination, especially if such imaginings were to occur with sufficient strength, could conceivably lead one to feel the same reaction toward the self that one feels toward the 'contaminating' stimulus (i.e., disgust). To investigate this possibility, participants varying in degree of homophobia will be exposed to homosexual stimuli or non-homosexual stimuli. Disgust toward the self will then be assessed using several indirect measures to prevent the likelihood of demand characteristics interfering with participants' self-reports. Data collection is currently underway.

The Effect of Induced Happiness Levels on Academic Performance. Laura Spice, Butler University. Faculty Sponsors: Alison O'Malley & Kathryn Morris

Past research has shown that people who have high levels of happiness show greater job performance and productivity than those who are less happy (Lyubomirsky, et al., 2005) and that happiness can be improved in both non-depressed and depressed people (Sin & Lyubomirsky, 2009; Seligman et al., 2005). However, little research has been done on the application of happiness interventions in the classroom context. In 4 academic classrooms, happiness and control interventions were applied. Classroom performance was subsequently measured through student attendance, engagement, and achievement in the classroom. Measures of well-being (happiness) were taken pre and post-treatment. Results and their implications will be discussed.

Stop! Versus Stop Signs: Neurodegenerative Disorders Differentially Affect Action versus Object Language. Walter Stamp & Angela Mion, Butler University. Faculty Sponsor: Tara Lineweaver

Our study compared Parkinson's disease patients (PDP) and Alzheimer's disease patients (ADP) on traditional language and action language tasks. We expected that PDP would be more impaired on measures of action language, whereas ADP would be relatively more impaired on measures of semantic language. Ten non-demented PDP, five ADP, and ten healthy adults (HA) completed a battery of five language tasks: two evaluating action language (action naming, action fluency), and three evaluating semantic type abilities (lexical fluency, semantic fluency, and object naming). All groups were matched in age, years of education, and baseline IQ. ADP performed more poorly on the Dementia Rating Scale than either PDP or HA. Consistent with expectations, ADP's semantic fluency was more impaired than that of either PDP or HA. In contrast, PDP performed worse than HA and as poorly as ADP on action fluency. Results from the lexical fluency test were inconsistent with our expectations; PDP struggled more on this test than either HA or ADP. For naming ability, the pattern of test scores across patient groups again supported our expectations. Specifically, ADP named fewer objects than HA, with PDP's scores falling between the other two groups. However, PDP's action naming was as impaired as that of the ADP, with both groups performing more poorly than HA. These results support the notion that action language tests may be more sensitive to the anterior brain dysfunction associated with Parkinson's disease, while traditional language tests are more sensitive to the posterior degeneration associated with Alzheimer's disease.

Personal Convictions to Confront Prejudice. Brittany Sullivan, Laura Spice, Marie Danh, & Peg Zizzo, Butler University. Faculty Sponsor: Kathryn Morris

To determine whether people have personal convictions to confront prejudice, participants reported how compelled they feel to fight 20 inappropriate behaviors including various forms of prejudice. Results: participants reported stronger convictions to fight bullying and teasing than prejudice; and stronger convictions to fight classism and heterosexism than racism and sexism.

Are You Master of Your Domain? Using Mindfulness to Promote Impulse Control in College Students. Myles Trapp & Amber Sapp, Butler University. Faculty Sponsor: Tara Lineweaver

We investigated the impact of a brief, introductory mindfulness intervention on attention, executive control, and impulsivity in college undergraduates. 47 students were randomly assigned to a treatment group (TG: n=24) or a waiting list control group (WLG: n=23). All participants completed a battery of self-report and cognitive measures. Following pre-test, the TG underwent a 2-hour mindfulness intervention and were encouraged to practice for 20 minutes a day. Both groups recorded any meditative or relaxation exercises during the intermittent three weeks. Finally, all participants returned for a follow-up assessment using the same test measures. First, we examined the correlations between baseline Mindfulness and scores on both self-report and experimental tests. Although none of the correlations reached significance, trends emerged indicating that participants high in trait mindfulness suffered less interference on a cognitive task, were less impulsive, but also evidenced less cognitive flexibility. To gauge the success of the intervention, we examined how many minutes each group spent engaged in mindfulness activities. The TG spent more time meditating than the WLG. They also spent more time performing body scans and practicing yoga. Despite this practice, the TG only improved on one cognitive measure. Paradoxically, they also demonstrated a greater increase in impulsivity. Despite its limited effects on attention, executive function, and impulse control, our 2-hour mindfulness intervention successfully motivated college students to engage in meditation, body scanning, and yoga. Perhaps future studies incorporating more extensive training and a longer practice interval will yield larger effects on cognition.

Induced Emotions and Taste Preferences. Cristy Tucker & Becca Lane, Franklin College. Faculty Sponsors: Kristin Flora & Jamie Bromley
Previous research has demonstrated that a relationship exists between peoples' moods and the foods or flavors they prefer. Elated and depressed moods tend to affect food preferences (Lyman & McCloskey, 1989; Pliner & Steverango, 1994). People who experience eating disorders and suffer from emotional eating may benefit from the knowledge gained from research. Purposefully inducing an elated, depressed, or neutral mood provides insight to why people choose specific foods or flavors. Previous studies have used different forms of media or emotionally-charged Velten statements to successfully induce participants' moods. The present study will use Velten statements to measure how induced elated and depressed emotions affect individuals' desires for sweet, salty, sour, and spicy stimuli. The Velten statements consist of positive, neutral, and negative statements meant to induce readers' moods (Velten, 1968). Thirty students from a small liberal arts college in the Midwest will complete the PANAS-X questionnaire, which is an adjective checklist that successfully measures participants' moods (Watson & Clark, 1994). Participants will taste four different stimuli and will rate the pleasantness of each on a Likert scale adapted from previous research. The participants will then receive a positive, negative, or neutral mood induction from the Velten statements, and will taste the same four stimuli again. The participants will rate the stimuli on the same pleasantness scale, and complete the PANAS-X questionnaire again. The current researchers hypothesize that participants will show preference for different flavors depending on their emotional state at the time of testing.

The Effects of Initiative on First Sex Memories: Don't Take It Lying Down. Danielle Vaclavik, Kendall Sauer, & Liz Jennings, Butler University. Faculty Sponsor: John Bohannon

Students (N=96) completed a two-part questionnaire regarding their First Sexual Encounters (FSE). Section 1 asked participants to recall their FSEs in an open narrative. Section 2 consisted of probe questions regarding their FSEs as well as questions about gender, their role as passive or active, ratings of vividness, arousal, embarrassment, and sense-memory information. We found a Role Effect in vividness, $F(2,85)=4.51, p<.014$. Participants were asked if the decision to have sex was theirs, their partner's or a mutual decision. Passive participants had less vivid memories ($M=3.077$) compared to mutual or active participants ($M=3.72$ and $M=3.5$ respectively). A Role Effect was also found in elaborateness of the overall FSE memory, $F(2,92)= 3.69, p<.029$ Participants who initiated their FSE ($M=2.33$) remembered more details than those who were mutual or passive participants, ($M=2.03$ and $M= 2.11$ respectively). A marginal Rehearsal Effect was found for overall memory, $F(1,89)=3.50, p<.065$. Participants who rehearsed their FSE experience retained vividness of their FSE memory ($M=2.14$) longer than those who either did not rehearse or only mentioned it once or twice ($M=2.09$). These findings show the positive effect of active cognition on memory. If an individual makes the active or mutual decision to have sex before the encounter, their active mental participation at the time of encoding makes the memory more vivid and they retain more elaborate details at the time of recall than those individuals who took a passive role. Rehearsing of the FSE memory after-the-fact also helped maintain the vividness of the memory over time.

Positive Affect and Goal Adoption. Katherine Wainwright & Katherine Adams, Butler University. Faculty Sponsor: Brian Giesler
Prior research has shown that positive affect helps individuals to achieve their goals. For example, positive emotion improves self-regulation, which facilitates goal attainment (Tice, Baumeister, Shmueli, and Muraven, 2004). There has been limited research on the role that positive affect might play during the process of goal adoption. In the current study, we examine whether positive affect experienced at the time of goal adoption facilitates goal driven performance. Participants are induced into either a positive or neutral mood by watching a video clip. They are then asked to adopt the goal of performing well on a mental rotation task. All participants then complete the mental rotation task; performance on the task will be analyzed in terms of speed and accuracy. This research may help identify what conditions are ideal for goal adoption and explain why people are better able to achieve some goals and not others. Data collection is currently underway.

Observing the Effects of Goal Setting on Performance. Brittney Wilson, Franklin College. Faculty Sponsor: Kristin Flora
Previous research has found that setting small goals can help an individual improve performance (Wilson & Brookfield, 2009). Improving performance can lead to a person maximizing their personal potential. A simple way to observe goal setting is through athletics. The present study is designed to examine athletes' intrinsic goal setting and resulting performance. Intrinsic goal setting is when a person sets a goal to successfully challenge himself or herself and achieve the task. Male and female college basketball players (N=20) were used in this study to measure an individual's intrinsic goal setting on a performance task of shooting 15 ft. jump shots. Half of the participants in the study will be prompted to set an intrinsic goal. The other half of the participants will not be prompted to set a goal. It is hypothesized that the individuals prompted to intrinsically set a goal will perform better than those who did not set a goal.

I Know the Feeling: Mood Related Differences in Feelings of Knowing. Elizabeth Wright, Steven M. Lindgren, & Aimee Wilkinson, Butler University. Faculty Sponsor: Amanda Gingerich

We are testing the effects of mood on the likelihood of having a tip-of-the-tongue (TOT) experience. We are also interested in people's ability to differentiate being in a TOT state from knowing but being unable to recall. Participants first complete a mood-induction task in which they transcribe a happy or sad memory for 7 minutes. They then complete the first of three mood questionnaires before answering a series of general knowledge questions. To answer the general knowledge questions, participants are given two clues (e.g., Indiana - Capital). Next, they indicate their feeling of knowing (FOK) the answer by selecting one of four options: know, TOT, know but can't recall (KCR), or don't know (DK). After

reporting their FOK, participants are prompted to provide the answer via free response. Finally they are given four multiple-choice options and they choose what they believe to be the correct answer. They then continue their writing sample for an additional 7 minutes, complete the second mood questionnaire, answer the remaining general knowledge questions, and complete the final mood questionnaire. Our findings suggest that participants who were induced into the happy mood report a higher proportion of KCR responses than TOT responses. A similar but less robust effect emerged for the participants induced into the sad mood. While participants induced into either mood show evidence of being able to differentiate between TOT and KCR, participants in the happy mood show a greater distinction between these two metacognitive experiences.

Effects of Sexualization in Advertisements. Alyssa Zaid & Phillop Walker, Hanover College. Faculty Sponsors: Bill Altermatt & John Krantz
Abstract Advertisements are constructed persuasively so that will they produce the most rewarding outcome for a company. These persuasive messages are used to convince the consumer to choose their product. One of the persuasive techniques used in many of the advertisements is sexualization. The types of sexualization used in advertisement, are scantily clad models, and alluring behavior. This study was designed to measure the effects of sexualization in printed and video media on memory retention and purchasing intent. Participants (N) were exposed to either sexualized or neutral advertisements consisting of both a printed and video advertisement. Following the advertisements, they then viewed a 21 minute video clip of Nickelodeon's Doug. Participants, then, completed a survey in which there were questions about the product and brand being advertised as well as their overall attitude about the model in the advertisements and the advertisement itself. The questionnaire also included their confidence in their ability to recall the advertisements shown. We expect to find that: video advertisements will yield a greater memory retention and purchasing power than printed advertisements; and that the non sexualized advertisements will yield greater memory retention and purchasing power than sexualized advertisements.

SOCIOLOGY

Time Management. Jolynn Apatang, Bellarmine University. Faculty Sponsor: Curt Bergstrand

The purpose of this study was to determine the effects of time management skills among college students in relation to their grade point average. Further, by identifying the different aspects of an occupation, school, or other leisurely activities, and asking specific questions dealing with activities to occupy a student's time, the researcher hoped to discover if there was a relationship between the student's time management skills and their grade point average. The researcher used a sample size of approximately 100 students at a private liberal arts university.

Does having a Dog have a Positive or Negative Effect on an Owner's Well Being? Tammy Binder, Bellarmine University. Faculty Sponsor: Curt Bergstrand

The purpose of this study was to determine whether owning a dog has a positive or negative impact on an owner's health, happiness, and overall psychological well being. A purposive survey sample was used to survey dog owners at random. The sample size was 50 dog owners and was given at a dog park in a close knit community.

Setting Refugees Up for Failure: Rethinking U.S. Resettlement Policies. Stephanie Fritz, University of Indianapolis. Faculty Sponsor: James Pennell

The U.S. Department of Health & Human Services oversees the refugee resettlement program that was responsible for nearly 79,000 new refugees in the year 2009. The main mission of the program is to provide resources that will allow refugees to become "integrated members of American society." This presentation will examine how current policies and practices that focus on economic independence affect the refugee resettlement experience. Research and observation from my personal experiences working with African refugees indicates that current policies fail to promote social and economic integration. Emphasis will be on changes that can promote opportunities for true social acculturation allowing refugees to become fully integrated members of American society.

Relational Aggression. Sarah Briggs, Butler University. Faculty Sponsor: Kenneth Colburn

With all the bullying in the news today, it is time to look at what is really happening in adolescent life and the effect that it is having on future quality of life. This study looks at relational aggression, the way that adolescents exclude, talk about, and isolate one another. Typically with the word aggression, we think of males who physically hurt one another, but it seems that there is another type of aggression as well, relational aggression, which is much more mental than anything else. Girls in high school are known for being catty and exclusive, but this study will look at how these behaviors in high school transcend to college, how prevalent they are, and the way that they affect body image, self worth, rates of depression, and overall quality of life.

Lie to Me: Exploring and Exposing Micro-expressional Behavior in Sociopaths. Kayla Brown, Butler University. Faculty Sponsor: Robert Oprisko

Throughout history, there has been a frightening trend of dehumanizing those who either fail to adhere to societal standards or whose ideas and

behaviors are beyond societal regularities. There is one socially-classified group that has been objectified and dehumanized significantly more than most due to stereotypes beget from fear and a lack of knowledge—sociopaths. Through my research, I hope to expose the true commonalities among sociopaths with three main objectives in mind: these ‘commonalities’ are prevalent in the general populace, they can be found long before—and if—the sociopath commits a crime, and they do not support the misconception that every sociopath is inherently evil. I will begin my research by looking at micro-expressional behavior—specifically, those movements that are controlled by the unconscious mind. The differences and similarities of the micro-expressions between sociopaths and the general populace will be pertinent to the discovery of sociopathic nature. Further, I will explore the principals of psychopathology and socio-pathology as a platform for exposing the flaws in available information. The portrayal of sociopaths in the media culture will help to expose societal conception of sociopaths on a large scale. Consequently, the main purpose of my research is to uncover, through the combined analysis of these different areas of study, a new revelation that will arise in place of the old misconception and dehumanization of sociopaths—a revelation that will perhaps show that there is more of the sociopath within each person than those labeled as ‘sociopaths’, collectively, could ever encompass.

The State of Anti-Human Trafficking Efforts in Michigan and Indiana. Christine Brunzell, Grace College. Faculty Sponsor:

In 2000 the United States released the Trafficking Victims Protection Act which shed light onto the issue of human trafficking for a variety of purposes. The United States was acknowledged as a destination for trafficked persons as well as a source for acquiring people for the purpose of trafficking. During the years that followed, the nation, states, and non-government organizations worked to raise awareness and draft legislation to stop the trafficking. The question now is if the combined efforts have made any progress and what the future holds for eliminating trafficking. Through literature reviews, legislature review, various organizations, and interviews those questions will be answered, specifically for the states of Michigan and Indiana.

Digital Gay: LGBT Conformity in a Cyberworld Context. Kane Bryant, Bellarmine University. Faculty Sponsor: Curt Bergstrand

The present study attempts to examine the MMORPG environment through role conformity among an LGBT population. By identifying stereotypes, attitudes, and motivations, the present study will determine if MMORPGs are "homosupportive" environments. Surveys and interviews are being given to LGBT gamers via online forums for data collection.

Examining the Attitudes Behind Athletes Who Use Drugs. Terra Burns, Butler University. Faculty Sponsor: Kenneth Colburn

The use of drugs by athletes has been a concern since the 1980s, with observers raising questions about its use in the Olympics, baseball, and football predominantly. Baseball players such as Mark McGwire and Sammy Sosa got caught using steroids after they were recognized for achieving their home run records. At the time, the drugs they used were not banned by the MLB. In 2003, according to an investigation on the BALCO (Bay Area Laboratory Cooperative), it provided proof that some athletes had been taken steroids. It then raised questions about those star athletes who had accomplished major goals in their sport. This caused institutes to create a drug-testing program. The investigation made an important impact on national sports programs and their athletes who participate within them. Even though steroids were made to speed the process of healing injured muscles and for other medical purposes, it is now difficult to deny that many athletes, from high school players to professionals, use them to gain an advantage over other competitors. This study will observe college students at Butler University who participate in various sports and their engagement and awareness of the use of drugs within the sports world; both personal and impersonal.

Lifebooks: Effective Tool in the Adoption and Foster Care Systems or Not? Julie Campbell, Wittenberg University. Faculty Sponsors: Jerry Pankhurst, Keith Doubt, & Lori Askeland

There has been very little research done on the use of lifebooks as a tool for children and families in the adoption and foster care systems. Currently lifebook making is mandated by Child Services in all of Ohio yet there is variety in literature and study on whether the lifebooks are effectively accomplishing the goals and purposes as described and set by social workers, Child Services, and foster care agencies themselves. Based on the interviews and written correspondence with two specialists, five foster and adoptive parents, and two former foster care children 1) The goals and purposes of lifebooks are understood somewhat unanimously across the groups; 2) Including as much of the children’s lives as possible assists in the understanding and making sense of their past and why they are where they are now; and 3) Each book and each lifebook making process must be tailored to the children’s needs, maturity, and circumstance, especially when there is abuse in the children’s past. Complete data collection, analysis, and implications for further research are provided.

Body Modification: Beauty or Taboo. Jenny Crouse, Butler University. Faculty Sponsor: Kenneth Colburn

Body Modification, in the context of this paper, means self-ascribed tattoos and piercing. The focus is to determine if the practice of body modification has become an art form and/or a way in order to express self-identity. Is body modification being considered taboo or an alternate beauty form for those individuals who choose to practice it? This paper examines, how and why body modification exists, and finally how it is perceived by the society at large.

The Extent of Visual Media Intake and its Implications on Women's Body Perception. Kirsten Eid, Megan Robbins, & Madelyn Horvath Valparaiso University. Faculty Sponsor: Matthew Ringenberg

The aim for this study was to discover the amount of media input that negatively impacts women's self-esteem, specifically media that distorts women's body ideals. The research hypothesis was that the more visual stimulant a woman received from media, such as films, television and magazines, the more distorted her ideal body perception became. The sample for this study consisted of a representative sample of college women, ages 18-23, attending Valparaiso University, located in Valparaiso, Indiana. The participants gave their consent to fill out a survey that measured: Media input- type of visual media consumed by means of film, television and magazines. Amount of media observed was measured in terms of approximate hours per week. Body Perception- was defined as how women view and compare themselves to those around them, specifically using women in the media as the prototype for ideal body image. The knowledge gained from this study can be used to pinpoint how exactly women obtain their constructs of the ideal body image, and the relationship between the amount of media consumed on body image. Using this knowledge, those who wish to promote a more encompassing, realistic idea of body image can use this research to advocate for and empower women to recognize the media's distorted body ideals.

Social Interaction and Binge Drinking. Nick Estey, Butler University. Faculty Sponsor: Kenneth Colburn

Binge drinking is a serious problem on any college campus across America today. This study is developed to answer questions of not only the percentage of students who drink on this Midwestern private college campus, but why they do. This study explores the aspects that contribute to a student choosing to binge drink. Certain aspects in a student's life growing up shapes their attitude towards the consumption of alcohol when they enter college, factors such as, Religion, Demographic, Income, Family structure, etc. All of these aspects are taken into account in this study to better define why a college student between his/her freshmen to senior year choose to binge drink. We know college students binge drink, but it is not merely the fact that they enter college doors, and gain this desire to binge drink. This study is trying to help better understand if there is a pattern among college students growing up that encourages them to binge drink or not binge drink upon entering college.

Shedding Light on the Shattered Selves of People with Schizophrenia. Laura Finch, Wittenberg University. Faculty Sponsor: Keith Doubt

A lot of research has been conducted on the invasion of the self of people living with schizophrenia. Schizophrenia takes a toll on the selves of individuals suffering from the illness and the focus of much research seems to be on the harsh destruction schizophrenia has on the self of the sufferer. Research points to the self as being "absent" in a person suffering from schizophrenia. While I believe that the self is in some ways impaired, does schizophrenia completely erase the individual's self-awareness? Just because a person suffering from schizophrenia is often unable to control their thoughts or actions, a sufferer can still obtain a concept of self-awareness. Employing George Herbert Mead and Erving Goffman as well as autobiographical accounts of individuals living with schizophrenia, the research develops an alternative perspective to the perceived "shattered" selves of afflicted individuals. The reason for offering an alternative perspective is to fight the stigmatization of people with schizophrenia as self-less people.

Firefighter's Battles: Paid and Volunteer. Travis Garcia, Butler University. Faculty Sponsor: Kenneth Colburn

The fire service of the United States is separated into three different department types: Career, Volunteer, and Combination. As a member of a fire department, I have seen the tension and negative attitudes against the types of departments first hand. Little research has been done to show how these different departments work with, feel about, and understand each other. The hypothesis of this research is; does the negative attitudes and condescension towards members of opposing fire department types affect the way in which the members view themselves and the work they do? For example, if one receives constant negative sentiments from another department will their self-perception and the work reflect the negative views? Applying Charles Horton Cooley's, a symbolic interaction theorist, looking glass self concept to explain and possibly understand the reasons for these attitudes. Twenty-six fire fighters from Northwest Indiana were asked a series of questions in an interview setting that would help explain their feelings of themselves and how others feel about them. These individuals were selected through the use of a snowball sample. The findings showed that many of the participants felt as if they are condescended against but don't participate in the belittlement of others. Many couldn't explain why they were receiving negative sentiments but felt it from the community and especially other departments. Their perceptions of how others viewed them didn't seem to affect their work, but some did take it personal.

Homophobia and Sports. Mark Giacomantonio, Butler University. Faculty Sponsor: Kenneth Colburn

The purpose of this study is to measure the levels of homophobia exhibited by males and females in Division I athletics with regards to the type of sport they play and the classification of the sport. The goal of this study is to help athletic administrators direct programs that promote tolerance to the sports that need it most. The type of sport is either team or individual and the classification of the sport is either contact or non-contact. Quantitative methods were used in this study. The participants for this study were Butler University male and female student-athletes from the 2010-2011 seasons. This study will use a purposive sample, with the selection criteria being that the participant must be a Division I athlete at Butler University. Participants were contacted via e-mail and through their respective coaches. Comparable numbers of team sport athletes and individual sport athletes, as well as contact sports athletes and non-contact sports athletes were used. The dependent variable will be

the level of homophobia and the independent variables will be the type of sport, the classification of the sport and the gender of the respondent. This study will be based in symbolic-interaction theory.

The Relationship between Foreign Language Study and College Students' World Views. Christine Hazuka, Butler University. Faculty Sponsor: Katherine Novak

The interconnectedness of the world has reminded us that we live in an increasingly global environment. There has been a recent push in higher education to improve attitudes on globalization and cultural diversity among students. It is said that this education will help prepare students to become international citizens, function effectively in a diverse society, and develop a sense of being a "world citizen." In particular, attention has been placed on the effect of language education on the improvement of global perceptions and cultural diversity in order to create the "world citizen." The purpose of my study is to see if personal knowledge of a foreign language is related to one's perspective on globalization and cultural diversity. Two hundred Butler University students from a variety of majors and diverse backgrounds completed a survey that measured perceptions about other cultures and motivations for learning foreign languages. Findings indicated that the students learning a foreign language had a more favorable attitude towards cultural diversity and the global perspective than those not learning a college-level foreign language.

Mental Illness Stigmas and Stereotypes in the Military. Jessica Hyndman, Butler University. Faculty Sponsor: Kenneth Colburn
Stigma against mental illness is developed according to the culture and stereotypes created within society. The military is obviously different from civilian society in its structure and mentality, and therefore these individuals may think or react differently to the concept of mental illness. A sample of twenty military individuals of various ranks will be asked semi-structured questions regarding their thoughts on mental illness in the military. These individuals will be selected through the use of a snowball sample. I will explore what the individual thinks about the specific mental illnesses of Post-traumatic Stress Disorder and depression, including stigmas and stereotypes within the military.

Homicide Victimization: Columbus, OH, Indianapolis, IN and Jacksonville, FL. Kelsey Isenberg, Butler University. Faculty Sponsor: Kenneth Colburn

As the 13th, 14th and 16th most populated cities in the United States, Jacksonville, Florida, Indianapolis, Indiana and Columbus, Ohio each struggle with relatively high rates of homicides each year. An analysis of homicides in the major counties of each of these cities (Duval, Jacksonville, Marion, Indianapolis and Franklin, Columbus) in the year 2010 will demonstrate comparisons among certain factors comprising these homicides. Factors to be examined include: income, education, and community programs such as churches, along with demographics such as age, race, and gender that may show patterns in homicide occurrences. Sociological theories such as broken windows and the subculture of violence will also be used to shed light on factors that may help predict instances of homicide. With patterns and any correlations that may show stronger leads to homicides, the research can be used to better understand why and where homicides are more likely to occur, thus helping to prevent future occurrences in these two cities.

Comparing Misogyny in Rock, Rap, and Country Song Lyrics. Kassaundra Kennedy, Bellarmine University. Faculty Sponsor: Curt Bergstrand

This research examined 159 songs from three genres, rock, rap and country. The songs were gathered from the 2010 Billboard hit lists for all three genres. Six themes of misogyny were coded for in each song and the presence of each theme was compared to songs from the other genres. In addition, emotions provoked by women as presented in the songs was also coded for the song as a whole. The level of misogyny was determined by the number of themes present and the frequency of those themes. The ultimate goal of this research was to determine what difference in misogynistic content levels the genres of songs had, if one existed.

Examining the Differences Between the Socialization of Racism in White and Black Families. Sophie Kincaid, Butler University. Faculty Sponsor: Kenneth Colburn

The purpose of this study is to uncover the constructs of people's views regarding race and racism and how those views are related to or caused by their family's socialization practices. This study is an attempt to enter territory that has not been previously studied regarding socialization, as there has been no previous research using both black and white subjects regarding this particular issue. The participants of this study are both black and white students of a small, private university. Attempts will be made to relate the findings of this study to theories of structural functionalism, conflict theory, and social emergence of the self. The research question that will be explored is "do the parents' views on race and their socialization practices affect their offspring's views on race?"

What Effects does the Social Networking Site Facebook Have on Its Users? Kathryn Lange, Bellarmine University. Faculty Sponsor: Curt Bergstrand

The purpose of this study was to determine what effects, positive and/or negative, the social networking site Facebook has on its users. This study was conducted by giving a survey to a convenient sample of 100 students at a small private university. After all surveys were taken the content was analyzed to look for themes throughout.

The Undefined Middle: Exploring the Role of the Representative in the Modern Teachers Union Structure. Amanda Lee, Butler University. Faculty Sponsor: Katherine Novak

This research explores how the teachers union representative performs his or her duties both as an instructor and in a position of union leadership in an evolving union structure. Using a snowball sample that began by contacting a local union president, I conducted several in-depth interviews of seven individuals, including both building representatives and local union presidents, each of which lasted approximately one hour. Interviews focused on the manner in which representatives manage conflict scenarios, either internal conflict (between union members) or external conflict (between union members and members of the administration). A pattern emerged through this research that highlighted the representative's relationship with the school administration as a key factor in the manner in which he or she handles conflict.

Legalizing Immigration: Is It Legitimate? Angela Levingston, Wittenberg University. Faculty Sponsor: Keith Doubt

Immigration has been a long standing issue in the United States and guidelines have been put into place for people from foreign countries to enter and have the opportunities to become citizens. Entering the United States, immigrants are required to have a passport, but to live here and work they are required to have a visa that sets limits on the amount of time they are allowed to stay. An influx of illegal immigrants, however, tested and questioned the legitimacy of the rules already in place. Illegal immigrants are willing to risk a lot to come to the United States for better pay to care for their families, the pay is often low and the labor hard. The United States is trying to pass the Dream Act, which would allow illegal immigrants' access to the United States legally. The manifest function of the Dream Act would be to change the rules for those wishing to become citizens, offering the immigrants equal treatment. Are these latent functions that will also make scapegoats out of those illegal immigrants? The expectation of illegal immigrants to pay taxes, but not get the benefits of a tax payer for higher education or welfare is a higher expectation than for those born in the United States. Is this an example of discrimination? Is there a difference between manifest and latent function in the Dream Act for U.S. society? Does it create a fair society or more social problems?

A National Analysis of Crime Rates and the Density of the Veteran Population. Tara Maeda, Bellarmine University. Faculty Sponsor: Curt Bergstrand

The purpose of this study was to analyze the correlation and causation between crime rates in 50 States and 50 counties across the United States and the density of the veteran population in that area. The present study used secondary data from the 2000 United States Census & the 2005 and 2009 American Community Survey, both published by the United States Census Bureau, along with the Uniform Crime Report, published by the Federal Bureau of Investigation, from those respective years.

Compassion Fatigue in Social Workers. Kristen McCauley, Katie Woodard, and Andrea Murray, Indiana Wesleyan University. Faculty Sponsor: Katie Sneed

This quantitative correlational study examines levels of compassion fatigue in social workers graduating from Indiana Wesleyan University's social work department between 1982 through 2010. Social work is a field that requires much personal and professional commitment. Skills of empathy, active listening, rapport building, as well as, simply being exposed to vulnerable populations can create compassion fatigue. Compassion fatigue is generally defined as a state of emotional, physical, and mental exhaustion. However, it is not known if specific social work fields of service, years of service in the field, and levels of spirituality are correlated with compassion fatigue. The Professional Quality of Life survey will be electronically distributed to determine the level of compassion fatigue in approximately 300 social work alumni.

Inmate Satisfaction: Do Inmates Believe Community Re-Entry Programs are Helping Them Successfully Enter Back Into the Community? Douglas McDonald, Bellarmine University. Faculty Sponsor: Curt Bergstrand

The purpose of this study was to find out if a former inmate believes the counseling they receive while in a halfway house program helps the offender to adjust to the norms of society. There were 100 parolees surveyed that are located in a small Midwest city. By surveying the inmates the researcher found out what the parolees thoughts are on the re-entry system and what they think should be done to correct the system.

Rap Music: Does a New Generation of Listeners Produce New Thoughts? Dominique McGinnis, Bellarmine University. Faculty Sponsor: Curt Bergstrand

Since the creation of the rap genre negative stereotypes have surrounded it. Forty one years after rap begun a new wave of listeners have emerge on the musical scene. This research examines if the stereotypes from raps early days are still in existence in the minds of listeners today. The study also shows the demographics of people who still believes old stereotypes of rap music and if they are any new positive or negative thoughts about rap music.

Do Those Who Do the Crime, Pay the Time? Laura Nitzsche, Nikki Nix, & Kaity Barron, Indiana Wesleyan University, Marion. Faculty Sponsor: Katti Sneed

Grant County Correctional Services have identified variation in lengths of stay among their pretrial inmates. However, reasons for this variation are unknown. This quantitative research study examines if a correlation is present between level of offense (i.e., Class A Felony, Class B Felony, etc.) and length of stay in jail. A representative sample from the 2009 database will be utilized. Results from this study assist Grant County Correctional Services in improving the efficiency of their system. In addition, the study will add to the literature regarding knowledge about criminal offenses and length of stay.

Gender Differences in College Students Substance Abuse. Robert Olszewski, Butler University. Faculty Sponsor: Kenneth Colburn

Much research has in fact been conducted on varying topics within substance abuse and use. The socioeconomic status of the principal users, their racial and ethnic background, and even the age group of these predominant users has been the topic of studies for a long time in sociology. However, up until the late twentieth century very little research had been conducted on gender differences in substance use, abuse and misuse. Even when the studies were conducted originally, the study's had many problems that showed bias, and a clear favoritism toward men being bigger users. Recently, research conducted has shown a slow closing in gaps and even gender differences based on substances that even favor women as heavier users. This being an emerging topic of study has led my research at the collegiate level. Exploring the gender difference in substance abuse attitudes of three primary gateway substances; alcohol, marijuana and tobacco. Additionally, brief opinions of more severe drugs will be questioned. All of this questioning will be done without inquiring about usage by the participant. The aim of this study is to show that at the collegiate, experimental level of substance use/abuse, there is still a gap between the genders and possibly answers the question as to why this gender difference may exist.

Exploring the Lives of Women with Chronic Illnesses. Alexis Pawlarczyk, Ball State University. Faculty Sponsor: Heather Adams

I am exploring the role friendship plays in the lives of women with chronic illnesses. I will be writing a series of poetry based on a woman whose life has been significantly impacted by her chronic illness. I will include poems constructed from the language of her interview in order to create a voice, which is neither the interviewee's nor the researcher's, but a combination of both. This third voice will be created in the hopes of eliminating any distinction between the observer and the observed. Discussion will explore insights from the poetry and determine ways in which it does and does not correlate with the current literature. According to Laurel Richardson, prose may not be the most accurate, valid, or scientific way to "report" speech. Denis Tedlock claims that when people talk as conversants, storytellers, informants, or interviewees, their speech is closer to poetry than it is to prose. This is because, unlike prose, poetry acknowledges pauses, which according to statistics, account for half of the time Americans spend engaging in dialogue (Richardson). It has also been argued that by focusing on language through a variety of writing styles the presentation of ideas is enhanced and, more importantly, the conception of ideas themselves are stimulated and formulated (Rose & McClafferty, 2001). Through this novel approach of poetry as a means of relaying interviews, it is my goal that new ideas will be cultivated and given room to flourish.

Accurate Perceptions: Race and Gender in the University Setting. Sarah Peters, Kelsey Gatza, & Alissa Kretzmann, Valparaiso University. Faculty Sponsor: Matthew Ringenberg

The aim of this study was to conduct research on the perceptions of Valparaiso University (VU) students about the diversity of VU's administration and faculty. In this study the researchers hypothesized that there is a significant relationship between a student's race or gender and the accuracy of their perception of diversity among VU administration and faculty. In order to ensure a diverse sample, researchers surveyed students from minority student organizations in addition to students passing through the campus union. The researchers compared the student estimates of diversity to the actual demographics of VU administration and faculty to determine if the student perception of diversity was accurate. Researchers also gathered student opinions about how successful VU has been in implementing diversity goals as well as student levels of concern and knowledge of the diversity of VU's administration and faculty. The findings of this study will be helpful in determining why some students are either unaware or overly critical of administration and faculty diversity. Additionally, the results can be used as a tool for assessing patterns of perceptions within students' racial and gender groups. This implication is important for universities as they strive to meet the needs of their increasingly diverse student populations.

The Impact of Economic Stability on Recidivism Rates of Sex Offenders. Hannah Puffer, Casie Tuttle, Matt Kukulka, & Matthew Matteson, Indiana Wesleyan University, Marion. Faculty Sponsor: Katti Sneed

Research supports that global and personal stressors increase risk for maladaptive outlets, such as criminal behavior, addiction, and mental illnesses. Yet it is not known if a relationship exists between county economic conditions and the likelihood of sex offenders re-offending. A representative sample from Grant County Family Service Society was obtained, as they maintain a database of sex offenders admitted to their program and also a risk assessment score predicting the likelihood of each sex offender re-offending, dating back to 2003. This quantitative study compares the recidivism rates of sex offenders treated in the Grant county area during the highest economically expansive time period of 2000 to the lowest economically recessive time period of 2010. The highest and lowest economic conditions were determined through Grant County unemployment rates.

Faith & the Fist: Investigating the Relationship between Religious Beliefs and Intimate Partner Violence. Christiana Redman & Angela Robertson, Valparaiso University. Faculty Sponsor: Matthew Ringenberg

The purpose of this study was to determine if there is a relationship between religious beliefs and attitudes toward intimate partner violence. Domestic violence has been the focus of much research since the 1970s. However, this research often does not consider religious beliefs as a factor in perpetration, especially when focusing on violence toward an intimate partner. Previous research has both confirmed and denied a relationship between the two variables explored in this study. For this study, a sample of 100 college students at a private Lutheran university were surveyed about their religious beliefs and adherence, as well as about their attitudes toward four types of violence against intimate partners: physical, sexual, emotional, and verbal. The ultimate goal of this study was to determine the relationship between the two variables in an effort to educate religious leaders and people of faith about the ways religious faith influences behavior in the modern day and encourage them to promote healthy relationships among their congregations and peers.

Perceived Personal Impact of Community Gardens in Urban Areas. Kaylee Regula, Butler University. Faculty Sponsor:

Community gardens provide several economic and social assets to a community including natural resources, strengthened social networks and increased social organization. Research has focused on the interplay between the community garden and the surrounding neighborhood and has done little investigation with regards to the gardeners. What compels people to partake in a community garden? Are there any underlying values and/or ideologies common to all gardeners? This qualitative study conducts several non-structured, open-ended interviews with gardeners in the Indianapolis, IN community in an attempt to understand reasons for participating in community gardening.

Group Formation/Dissolution of Community Development. Jay Samuelson, Butler University. Faculty Sponsor: Robert Oprisko

I am seeking to explore and undergo research directly related to the grassroots level of participation to promote opportunities for neighborhoods and individuals in the Indianapolis metropolitan area. For this to happen, there must be dedicated involvement not only from citizens but from politicians and community leaders. I aim to gather information not only from web resources, but from high up officials such as Indianapolis Deputy Mayor of Neighborhoods Olga Williams, and President of the Indianapolis Urban League Joe Slash. I have had interactions with these well known leaders in the past, and would politely ask them to work with me in an (interview) to help describe the extended process that is necessary to induce progression with community members to provide valuable resources and services to the metropolitan population to better their quality of living.

Racism in Restaurants. Elizabeth Schmidt, Bellarmine University. Faculty Sponsor: Curt Bergstrand

Servers in American restaurants make wages off of gratuities. The standard tip, gratuity, is 20% of the bill. Nationwide servers generalize that African American and patrons of other ethnic backgrounds do not tip 20%. The purpose of this study is to uncover if the stereotypes are true. This survey study was compiled at a Buffalo Wild Wings, in St. Matthews, Kentucky, over a period of three weeks (n=200). The researcher asked eight servers to collect the needed data. Statistics are analyzed by SPSS software.

Fort Wayne, IN DUI Arrests Compared with Indianapolis. John Sheckler, Grace College. Faculty Sponsor: Paulette Sauders

Since 2005 and perhaps even earlier, the number of drunk driving arrests in Indiana's Allen County have consistently rivaled and even surpassed the figures in Marion County. Allen County includes the State's second-largest city, Fort Wayne, but its population is still only about a third of the population of Marion County, which includes Indianapolis. Some Allen County bar owners have complained that local police unfairly target their patrons, while turning a blind eye to drunk sports fans hitting the roads after sporting events. Additionally, some local economic leaders have criticized such strict enforcement, fearing it will limit the downtown Fort Wayne economy. My goal is to examine police data from Allen and Marion counties and seek the reason behind the discrepancy. I will also analyze police reports to identify a geographical pattern to DUI arrests and see whether statistics suggest more lax enforcement around sporting venues. Ultimately, I hope to discover whether Allen County's high arrest numbers compared with Marion County are simply a result of better resources or if Allen County police are unfairly targeting certain drivers or geographical locations.

Considering the Effects of Demographics on Length of Pretrial Jail Stay. Kayla Short, Kirsten Miller, & Jenna King Indiana Wesleyan University, Marion. Faculty Sponsor: Katti Sneed

The purpose of this correlational quantitative study is to discover if a relationship is present between demographic characteristics and the length of pretrial jail stay. Inmates awaiting sentencing vary considerably regarding how long they are held in jail before appearing in court, yet the reasons for this variation are unknown. Adult pretrial inmates arrested and held within the 2009 calendar will be utilized. The results from this study will enable Grant County Correctional Services to gain a picture of their system in order to improve efficiency and effectiveness. Likewise, findings may further be generalized to other correctional systems similar to Grant County.

Cyber-bullying: The Power of Cyber-bullying and the Effectiveness of Coping Methods Used by Victims. Stephanie Skirvin, Bellarmine University. Faculty Sponsor: Curt Bergstrand

Cyber-bullying and electronic harassment is a unique form of bullying that has been reported to have a more powerful and dangerous effect on an individual than the traditional form of bullying. Cyber-bullying can be defined as an aggressive, intentional act carried out one or more times by a group or individual using computers, cell phones, and other electronic forms of contact. This study will look at the methods the victim uses to stop or cope with the cyber-bullying, and if those methods are effective. A survey will be given to sociology, psychology and criminal justice classes at a small, private university in the spring semester of 2011.

College Students Jobs and Studies. Katie Sublett, Bellarmine University. Faculty Sponsor: Curt Bergstrand

The purpose of this study was to determine how college students feel about how their working effects their college studies. In order to gather data surveys were given to 100 college students at a small private university.

Text Messaging Among Athletes at A Small, Private, Midwestern University. Kaitlin Sweitzer, Bellarmine University. Faculty Sponsor: Curt Bergstrand

The purpose of this study was to determine if athletes at a small, private, midwestern university use text messaging in relation to their respective sport to the point of where texting takes over their social skills and interpersonal communication. The study will be conducted using a purposive sample survey using approximately 100 athletes.

College Drinking: The Factors and Need for Raised Awareness. Erika Thompson, Butler University. Faculty Sponsor: Robert Oprisko

The objective of this article is to research college drinking and the social norms that may or may not influence young adults to partake in drinking behavior. By conducting a literature review, the topic of college drinking and the influences that have been found in recent studies is broken down to fill in the gaps of what researchers could be missing. By looking at indicators such as gender, race, parental and peer norms, class, and Greek life affiliation, colleges could possibly incorporate a variety of awareness programs on the severity of excessive college drinking specifically targeted for certain groups of students.

The Sources of Increased Drinking and Alcohol Abuse within the Butler Community. Erika Thompson, Butler University. Faculty Sponsor: Kenneth Colburn

Previous research suggests that there is a strong relationship between a parent's alcohol abuse throughout raising their child and the likelihood of the child partaking in extensive drinking behaviors early on as a young adult and progressing throughout life. This paper examines past researched findings explaining a child's early drinking behavior and excessive drinking behavior later on throughout their young adulthood while incorporating the aspect as to whether peer norms, parental monitoring, and income plays a role. By using quantitative data, information was gathered from fifty-five students of the Butler University Community regarding their parent's drinking habits, their personal drinking habits, their friends drinking tendencies, their childhood, and their families' household income. After evaluating the data that was collected through surveys, I expect to find that all variables play a role in the young adult's drinking habits and also plan to find out which variable has the most impact.

The Individual and Group in Jazz. Eli Uttal-Veroff, Butler University. Faculty Sponsor: Robert Oprisko

Jazz music is thoroughly rooted in the existential explorations of the musicians that make it, but due to the nature of playing in bands and association with others, the music relies heavily on the cohesiveness of the musicians. When bands form they face the conflicts and rigors of trying to "make it" as well as the difficulties of trying to be part of popular culture. The resistance that is faced not only galvanizes the groups of musicians, but also categorizes them by success or failure and ultimately affects their perception. Group formation and dissolution can be observed as an integral part of the development of Jazz music and of the sociological elements that surround the musicians. I will discuss specific instances of conflict, both internal and external as well as explore the effects of grouping within Jazz.

Too Queer for the Queer Eye? La Shea Walker, Butler University. Faculty Sponsor: Kenneth Colburn

There has been a substantial amount of research focusing on discrimination against lesbian, gay, bisexual, and transgender people. Surprisingly few studies have been conducted focusing on the prejudices and negative actions of members of the queer community against other queer people. This research explores some of those interactions through qualitative interviews. Data on queer individuals' views towards bisexuals, racial minorities, and transgender people in the Indianapolis area have been gathered over the past few months. Discrimination and prejudices were most noted towards bisexuals and trans individuals.

Patriotism and Nationalism and How They Are Effected By Internationalism. Brian Wanbaugh, Butler University. Faculty Sponsor: Kenneth Colburn

This research project will examine the relationship between patriotism and nationalism and how those feelings affect feelings of internationalism, and vice versa. Previous research has shown that there is indeed a relationship between the set of feelings, with normally a more internationalist

person having lowered feelings of nationalism. However, previous research has not included the concept of culture in its definition of internationalism, which is the major difference between this project and previous research.

Views on the Muslim People and Arab Americans within Bellarmine University: Does the Media Have an Effect on the Stereotypes Students May Possess? John Weber, Bellarmine University. Faculty Sponsor: Curt Bergstrand

This research project was to determine whether students at a small private university have been affected by the media in regards to creating stereotypes about the Muslim people and Arab Americans. It was completed by surveying approximately 100 students at the University about their experiences on the subject as well as their belief in the accuracy of media sources.

Cultural Definitions of Health Care: A Case Study of Burmese Refugees in Indianapolis. Marielena White, Butler University. Faculty Sponsors: Kenneth Colburn & Antonio Menendez

As a result of ongoing civil war and civil unrest in the Southeast Asian country of Myanmar, every year the United States accepts thousands of refugees from Burma. There is a particular population of significance growing in the greater Indianapolis area. When considering options for health care, Burmese refugees may opt for self care as opposed to care from a health care professional as a result of clashing cultural factors and fears of the unknown. This study aims to uncover how members of the Chin ethnic group have been challenged or confronted by the social, cultural, and political institutions surrounding the United States health care system. What meanings and values have these groups assigned to their traditional health care practices? How have these practices been modified or altered as a result of influence by the US health care model or through socio-cultural experiences living within the US? What meanings have this group of refugees attached to their previous beliefs about health care in contrast with the expectations encountered through the utilization of the US model of health care? It is important to understand the meanings and values that Chin refugees place on home remedies and traditional practices of medicines and how these meanings and values have come into contact with the American system. Uncovering the qualitative values of the health care experiences of members of this population will produce a basis for future understanding and a possibility for improved health care in the future.

The Relationship between Stress and Self-Efficacy: College Student-Athletes vs. Non-Athletes. Casey Willard, Bellarmine University. Faculty Sponsor: Curt Bergstrand

The purpose of this study was to determine the stress level and self-efficacy of collegiate student-athletes and the general student population (non-athlete). Further, by determining the stress level and self-efficacy of both populations, the results of both groups were compared to find any relationship between the two variables (stress and self-efficacy), being studied. The study will be conducted using a convenience sample survey of 50 student-athletes and 50 non-athletes at a small, private mid-western university.

VISUAL ARTS

Internal Growth. Ashley Breitenbach, Butler University. Faculty Sponsor: Gautam Rao

As an artist, things from your everyday life are inspiration. These things inspire your emotions, your thoughts, your style, yourself and your art. Sometimes it is not so much important of who you are now, but more your journey from where you started. The internal growth of a person demonstrates more about that person more so than who they are at any given time. I plan to show my internal growth through my art.

“I Felt Like Destroying Something Beautiful”. Jenny Crouse, Butler University. Faculty Sponsor: Elizabeth Mix

My booklet interprets ten different examples of styles and cultures studied in Art105: Introduction to Visual Culture. Furthermore, each of the styles and cultures (Expressionism, Africa, Cubism/Neoplasticism, Dada/Anti-Dada, Surrealism, Native American, Abstract Expressionism, Minimalism, Pop Art, and Postmodern) are used to critique the 1999 American film *Fight Club*. For instance on the page titled Minimalism, it examines Kasimir Malevich’s “White on White” (1918), a very simplified, non-objective piece of artwork, then transitions into how today’s architecture shows influence of Minimalism (geometric shapes, highly structuralized frameworks, and the use of few decorative items). In comparison, Minimalism is found in *Fight Club* as a critique on our cultures need for consumption, as well as Chuck Palahniuk’s own style of writing for *Fight Club*, which is kept minimalist and straightforward.

BSI Work. Lindsay Evans, Butler University. Faculty Sponsor: Elizabeth Mix

During the summer of 2010, I received the honor of being selected to participate in the Butler Summer Institute. During the course of the program, I learned how design is driven by people. I began to develop a "servanthood" design mentality. I now ask myself, "Does my design serve or portray people in a way that they see fitting?" As a result, I have pushed my design to a higher level, and have produced works that are more effective.

Mother's Mantelpiece. Ben Fox, Butler University. Faculty Sponsor: Elizabeth Mix

This is a still life of a mantle inside of my house that shows two urns that my mom remembers my grandmother by. The work was not arranged in by me and is just as you see. I hope the colors and objects arranged provide room for symbolic thoughts and stimulation to the viewer as well.

Recent Work. Abby Hart, Butler University. Faculty Sponsor: Elizabeth Mix

Art is hard to define in words. It is about nuance, expression, and emotion that the artist decides to share with an audience. For me, art is a way to create things I imagine and feel at the moment. Because I struggle putting my thoughts into words, art gives me a voice I would not otherwise have.

Recent Work. Laura Kramer, Butler University. Faculty Sponsor: Elizabeth Mix

I believe in incorporating bits and pieces of inspiration from the world; there is a lot of it to work with. Art is soulful as each piece gives a view into the artist's mind. What makes something beautiful and inspiring is up to the individual.

Recent Work. Maria Porter, Butler University. Faculty Sponsor: Elizabeth Mix

This triptych represents human abuses of nature in three different elements: Animals, Water, and Land. The first photo is my criticism of abuses such as poaching, as well as animal cruelty. The second photo represents the sad human tendency to pollute our oceans, rivers, lakes, and other water sources. The final photo is meant to show the effects of human encroachment on plants, trees, and land.