

**Brian Adlich – Economics**  
***Should Immigration Policy for Mexican Workers be Changed***  
**Sponsor / Mentor: Dr. James McCoy**

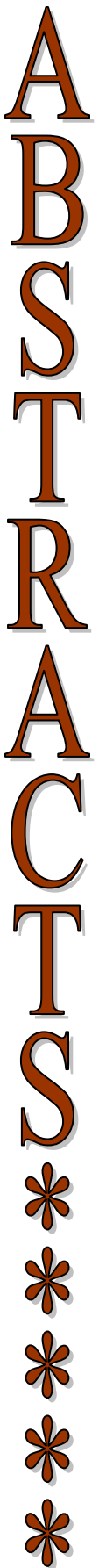
It is estimated that around ten to twelve million undocumented workers live in the United States, of which approximately half are of Mexican origin. These workers tend to work low paying jobs that many American workers choose not to, and many argue that they are vital to the national economy. Recently President Bush proposed that immigration policy toward migrant Mexican workers be restructured with a possibility of amnesty. The proposal lacks many specifics, such as should the work visas only be temporary with possibilities for renewals, or should they be permanent and equivalent to amnesty for workers already living in the U.S. If the possibility for permanency is not implemented in the new policy, it is probable that many Mexicans would remain illegal so as not to be deported after their visa expired. Because of lack of specific detail, the proposal is said to be political rhetoric to sway the vote of Hispanic voters in the upcoming election. No matter the motives behind the proposal, this paper will attempt to discover which policy, continuing business as usual with deportations or permitting an amnesty with Mexican migrant workers, makes the most economic sense for the United States.

**Traca E. Allison – Criminal Justice**  
***Offender Reentry: Programs That Work***  
**Sponsor / Mentor: Dr. Paul Lucko**

Offender reentry programs are a controversial topic in the United States, partly because they represent individuals that many people desire to forget. When such programs seek to reintegrate convicted felons into society, the general public often becomes alarmed. Nevertheless, all but a few of the nearly 1.5 million persons incarcerated in this country will return to society. While difficult, it is nevertheless critical for the criminal justice system to devise effective means for re-socializing former inmates who must search for employment, education, and shelter while adhering to the conditions of their release from prison. Although some policy makers maintain that “nothing works”, there are a growing number of offender reentry programs today. Certain organizations have experienced positive results through the assistance that they provide to released offenders. This study discusses the problems that reentry programs as well as their clientele confront. Agencies working in this area can achieve success by carefully designing their programs and avoiding rather obvious pitfalls.

**Lisa Armstrong – Elementary Education**  
**Janice Vaughn, University Coordinator**  
**Leslie Bizzle – Elementary Education**  
**Jeanie Robertson, University Coordinator**  
**Deonna McCord – English**  
**Sue Outland, University Coordinator**  
***Student Teacher’s Eligibility Portfolio***  
**Jeanie Robertson Coordinator of Student Teaching**  
**College of Education - Teacher Education Services**

Each student teacher is required to present an eligibility portfolio and supporting material to faculty during the student teaching semester. Both a hard copy in notebook format and electronic version of the portfolio must be submitted. Developing an eligibility portfolio involves selecting appropriate artifacts to demonstrate attainment of the professional skills and dispositions represented in the New Teacher Standards. The eligibility portfolio also requires a reflective statement for each standard. While selecting a good artifact that addresses a standard is important, the reflections are where the student teachers are able to communicate their understanding and share their thinking about important teaching and learning issues. Through these reflections, they demonstrate their competencies related to each of the New Teacher Standards. The focus of the Murray State University College of Education’s conceptual framework is to prepare graduates to become reflective decision-makers and to achieve Kentucky Standards. The eligibility portfolios provide the opportunity for student teachers to verify that they have achieved these goals



**Catherine Aubee – German/Global Studies**

***Radio Telemetry of the Arizona Tiger Salamander, *Ambystoma tigrinum nebulosum*, in South-Central Colorado***

**Sponsor / Mentor: Dr. Howard Whiteman**

Understanding the migratory patterns of amphibians is essential to developing successful plans for their conservation and management. Radio telemetry, sometimes called radio tracking, can be used to effectively monitor such patterns and to gather information about habitat utilization, range requirements, and timing of movements. During the summer of 2003, six adult male Arizona tiger salamanders (*Ambystoma tigrinum nebulosum*) were implanted with radio transmitters at the Rocky Mountain Biological Laboratory in Gothic, Colorado. Four of these specimens were captured in kettle ponds within a cattle range (at an elevation of approximately 9,500 feet); two were captured in a wetland complex within the Mexican Cut Nature Preserve (at approximately 12,000 feet). Each animal was released at the site of capture within a week of implantation. Monitoring continued through early September, although some signals were lost prematurely. Data loggers, which periodically record temperature, were then placed in the ground near the last known location of each animal. All positions recorded at the kettle ponds coincided with gopher burrows within 40 yards of the original ponds. Rocky terrain made habitat identification more difficult at the Mexican Cut, but these animals also appeared to remain within 40 yards of the pond. However, the animals may migrate beyond this radius later in the season. This study will continue in the summer of 2004. Implantation will occur earlier next summer, and efforts are underway to secure transmitters with longer battery life so that the monitoring period may be extended.

**Catherine Aubee – German/Global Studies**

***Complexities in Formulating and Instituting Effective Environmental Policy in Post-war Iraq***

**Sponsor / Mentor: Dr. Michael Basile**

When forced regime change and the subsequent need for post-war reconstruction open a country to foreign investment, environmental concerns may be easily lost in the rush to fill that country's apparent economic vacuum. In 2004, as the middle-eastern nation of Iraq emerges from a totalitarian regime dismantled by foreign forces and is pushed by the interim United States administration toward instituting an elected, representative government, the international community waits to see which key people and organizations will shape the country's future. Military might and economic power still yield political influence, whether they serve domestic Iraqi interests or those of the occupying nations. Foreign corporations may overlook their impact on the country and its people if guided solely by short-term profits. Islamic moral codes demand responsible stewardship of natural resources, but the extent to which Islam will be a basis for governmental law in Iraq is as yet undecided. Further, enforcement of such demands requires a long-term commitment to the development of often costly infrastructure. Pending the creation of a stable, elected Iraqi government, general domestic interests may be better protected, but environmental concerns may not be given priority status by the Iraqi people. This study investigates the social, political, and economic challenges to instituting effective environmental policy in Iraq and examines how the burden of responsibility for environmental protection may be divided between the government and the private sector.

**Catherine Aubee – German/Global Studies**

***Von Trotha: A Case Study in the Dynamics of German Aristocracy***

**Sponsor / Mentor: Dr. Reika Ebert**

This project utilizes a case study approach to investigate the dynamic role of aristocracy in German society from the medieval period through the present. Special attention is given to changes in German social structure throughout the World War I, World War II, and Marshall Plan eras. The study begins with an examination of the life histories of Bishop Thilo von Trotha (1143 – 1514 C.E.) and his descendants, with emphasis placed on those family members who remained in the Halle-Salle/Merseburg region of eastern Germany. An attempt is made to retrace familial assets, including the recently renovated castle in Schkopau, and the means by which these passed into and (when applicable) out of the family's possession. The evolution and degeneration of upper-class privileges are reflected in the changing lifestyles of the family members, culminating with their eviction from Schloß Schkopau during the post-World War II occupation of eastern Germany.

**Destiney Baker – Sociology/Psychology**

***The Cult of "Pro Ana"***

**Sponsor / Mentor: Dr. Edmond Armstrong**

Weight and body image are important aspects of American culture. The idea that "thinner is better" is emphasized and encouraged through the media where people with perfect body figures and features are portrayed. Taken to the extreme, some people develop anorexia nervosa, an eating disorder in which individuals starve themselves in order to lose weight. This study examines "pro ana" websites. Data are from a content analysis of these sites. Upon analysis, sites have many commonalities suggesting the presence of a cult of "pro ana". Typically, the sites offer particular concrete recommendations suggesting the benefits of a "pro ana" lifestyle.

**Jason A. Baker – Geosciences**

***Movement of Barrier Islands: Detecting the Relative Position Change of Assateague Island, Maryland***

**Sponsor / Mentor: Dr. Haluk Cetin**

The narrow zone of interaction between land and ocean is quite an intriguing area under study, and it is only in these areas that we find such enormous erosive processes occurring on a regular basis. Our shorelines are shaped by the constant bombardment of wave action and wind. And while our shorelines are forever being shaped and re-shaped, the most interesting of these shorelines are Barrier Island systems. Barrier islands are in constant motion and are not only going through deposition and erosional processes, they are in fact moving. Waves, longshore currents, and overwash are three contributing factors to the shaping and movement of barrier islands. As explained by William Cleary, a professor of geology from UNCW, fair-weather waves supply sand to the beach by moving it in from the offshore continental shelf, while high-intensity storm waves cut into the pre-existing island and move sand off-shore. As waves crash upon the island, their shoreward energy is deflected into longshore currents. As sand is suspended in the water, longshore currents carry this sediment down shore to be deposited further down the beach, thus explaining the longshore growth and movement of barrier islands. With this knowledge and understanding, multispectral aerial imagery from various platforms over various dates was used in order to find a relative change in position of Assateague Island. The relative impact of hurricane and storm activity on this island is also under investigation.

**Natalie Kay Baker – Occupational Safety and Health**

***Ergonomic Case Study***

**Sponsor / Mentor: Dr. Tacey Bernard**

An ergonomics case study was conducted at Food Giant in Murray, Kentucky. Ergonomics is the science of designing the work or task to suit the human. We evaluated the checker/carry-out and stocker positions. We chose these positions due to the high amount of lifting, twisting, repetitive motion and awkward positions which occur. These factors, if present in excessive amounts, can put workers at risk for developing Musculoskeletal Disorders such as Carpal Tunnel Syndrome, tendinitis, and low back pain. An in-depth, hands-on evaluation was conducted at Food Giant using relevant analytical tools that predict worker exposure levels. The analytical tools available at a website sponsored by ErgoWeb include: anthropometric assessment, 2D Biomechanical Tool, Liberty Mutual Psychophysical Maximum Acceptable Weight/Force Tables, NIOSH Lifting Equation, and Rapid Upper Limb Assessment. Relevant task variables that were measured on-site to use in the analytical tools include: the distance an object is lifted, amount of weight lifted, number of repetitions, body posture of the back, neck, and arms/hands. Digital pictures, ergonomic checklists, and questionnaires/interviews were also used to assist in evaluating the job tasks. Recommendations, including engineering and administrative controls, to reduce ergonomic risks and improve the tasks will be provided to Food Giant. Controlling risks can lead to positive results including reduced injury and illness rates, days injured workers are away from work, and workers' compensation costs and improved morale, quality, and productivity.

**Craig R. Bayens – Psychology**  
***Tattoos, Attractiveness, and Perceptions of People's Personalities***  
**Sponsor / Mentor: Dr. Paula Waddill**

A sample of 40 participants from Murray State University rated their impressions of a person depicted in a photograph. The four photographs given to participants depicted either an attractive man or an attractive woman with or without a large tattoo on the upper arm. Participants rated the person in the picture on attributes of character and social distance on a 20-question survey. Hypotheses predicted that the tattooed persons would be considered less favorably, but data analyses indicated that no significant differences or effects were present in ratings among the four pictures. Findings may indicate that a possible effect of attractiveness of the person in the photograph may have been present. Possibly, attractive tattooed people do not fit into cultural stereotypes of tattoo clientele and are perceived as being as normal as nontattooed people.

**Lacosta Beane-Hays – Public Relations and Organizational Communication**  
***How Do Customer Culture and Customer Gender Effect Customer Service?***  
**Sponsors / Mentors: Dr. Lou Tillson and Dr. Ed Brewer**

When Addressing the research question, How do customer culture and customer gender affect customer service, I plan to give an explanatory definition of each variable stated and individually cover three aspects of each variable to support the answer to the proposed research question. For each aspect covered, examples, definitions, statistics, and other further researched materials will be covered. The variables will be analyzed through three theories, Muted Group Theory, Spiral of Silence Theory, and Genderlect. These theories will also help to provide answers to the research question.

**Hannah Morgan Beard – Biology (Pre-Med)**  
***Amplified Ribosomal DNA Restrictions Analysis of Archeobacteria of the Littoral Zone of Ledbetter Embayment, Kentucky Lake.***  
**Sponsor / Mentor: Dr. Timothy Johnston**

The littoral zone of Kentucky Lake reservoir, unlike a natural lake, is flooded at summer pool and dries at winter pool. Essentially nothing is known about the microbial communities of reservoir littoral zones. I used molecular techniques to compare the microbial communities of the littoral zone of this reservoir when the sediment is flooded and exposed. Samples for DNA extraction were taken from five sites along a transect of the littoral zone of the Ledbetter Embayment at summer and winter pools. DNA was extracted from sediment samples using the Ultraclean Soil DNA kit (Bio101) with the FastPrep instrument (Bio101) and used as template to amplify rDNA fragments using Archeobacterial specific primers. The fragments were then inserted into the pGEM cloning vector and transformed into E. coli. Plasmid DNA was reisolated from transformants and used as template in PCR reactions to amplify the inserts. The amplified inserts were then digested with AluI and the fragments resolved on 4 to 20% non-denaturing polyacrylamide gels to yield a restriction pattern for each clone. The restriction patterns were analyzed to reveal identical clones and different species. During winter pool, 60 different Archaeal patterns were found, and in summer pool, 63 different Archaeal patterns were found with 110 total. Only eight patterns were found in both winter and summer pool. These data suggest succession of Archaea species in the littoral zone sediments. The clones are currently being sequenced and compared to the database of rRNA sequences to determine the group from which each clone came.

**Hannah Beard, Emily Vance, and Maggie Grosser – Biology**  
***Methanogenic Diversity in the Sediments of the Ledbetter Bay Littoral Zone in Kentucky Lake***  
**Sponsor / Mentor: Dr. Timothy Johnston**

The microbial diversity of the littoral zone of Ledbetter embayment at Kentucky Lake can be studied by extracting and analyzing DNA from sediment samples taken from the area. Water levels of Kentucky Lake are artificially regulated, causing the littoral zone of Ledbetter embayment to be underwater during summer, and dry during winter. This fluctuation may bring about changes in the diversity of microbial communities that inhabit this area. In an attempt to identify bacterial diversity found at Ledbetter Bay throughout the year, samples of sediment were collected monthly from five wells that lie within the littoral zone. To serve as controls, sediments were also collected from a location that is always underwater, and one that is always dry. DNA was extracted from the sediment samples. One set of extracted DNA was amplified with Bacterial primers and another set of extracted DNA was amplified with Archeal primers. Amplified DNA was purified and digested. Digested DNA was then run on sequencing gels. Terminal restriction fragment length polymorphisms of both Bacterial and Archeal DNA were visualized and analyzed. Specific sequences of strains of Archeal DNA were determined also. Data shows succession in the microbial communities of Ledbetter Bay in Kentucky Lake.

**Jamie Berkheimer, Amber Johnson, Heather White - Organizational Communication**  
***College Life***  
**Sponsor / Mentor: Dr. Roger Weiss**

The American Humanics Department at Murray State University has joined with the Baptist Student Union (BSU) on campus to create a day specifically designed for eleventh and twelfth grade girls to learn about college and college life. There will be three large sessions consisting of a praise band composed of college students, the president of the BSU, Amber Johnson, as the speaker, and creative ministries incorporated throughout the day. Creative Ministries include “Reaching Higher”, the BSU’s sign language ministry and “Action”, the BSU’s Skit team. Together we hope to provide a quality program that will enhance the lives of the girls attending. The freshman year in college is one of the hardest and most wonderful times of these girls’ lives. We are excited to provide a closer look at “college life” for young, Christian ladies, and hope to bridge the gap from ministry in a youth group to college ministry.

**Kelly Jo Boarman – Chemistry**  
***Study of Cisoid 1,4-diphenyl-1,3-butadienes***  
**Sponsor / Mentor: Dr. Jin Liu**

Cisoid 1,4-diphenyl-1,3-butadienes were prepared using Aldol condensation, followed by McMurray coupling. The reactions yielded the desired products, plus two dimers as side products. The isomers of the desired cisoid 1-4-diphenyl-1,3-butadienes were separated using silica gel column chromatography. E/Z photoisomerization via direct irradiation was then studied. Our results indicate that photoisomerization occurs selectively at the carbon-carbon double bonds nearest electron withdrawing groups. The results also reveal that electron-donating groups reduce the regioselectivity of cisoid-1,4-diphenyl-1,3-butadienes.

**Sherry Bone – Psychology**  
***Firefighters and the Impact of Traumatic Rescue - A Review of The Literature***  
**Sponsor / Mentor: Dr. Stephanie Muller**

A review of the current literature concerning firefighters and the impact of traumatic rescue will be discussed. Elements addressed will be critical incident, critical incident debriefing, problems encountered by regular exposure to trauma, and Post-Traumatic Stress Disorder among firefighters. Suggestions will be proposed for additional research that is needed in this area.

**Whitney Bradley, Keith Morhet, and Mike Dail – Organizational Communication**

***Big Help for Big Brothers Big Sisters***

**Sponsor / Mentor: Dr. Roger Weiss**

This project was developed in order to help the Big Brothers Big Sisters (BBBS) program of Calloway County. The objective of this program was to renovate the BBBS building in order for the participants in the program to have a comfortable, inviting atmosphere to congregate in. For our project, we were responsible for sanding, painting, and redecorating the BBBS building. In order to do this, we had the help of many area businesses who donated supplies and financially contributed to our project. On the last day of our project, our group had a Thanksgiving Dinner with a few of the BBBS participants, and had the little buddies paint their handprints on the wall. Overall, our project was a huge success and helped spread the word about the BBBS organization.

**Denise R. Brazzell – Journalism**

***How Do Culture and Context Impact Health Communication?***

**Sponsors / Mentors: Dr. Lou Tillson and Dr. Ed Brewer**

Culture and context have a definite impact on health communication. To explore this impact, culture is investigated in its definition and its direct relationship to health communication. Causes, treatments, and preventions of illness/disease are considered from the cultural perspective. In addition, religion and spirituality as contained in a culture's world-view are studied. Since communication is systemic and is governed by rules according to the context in which it occurs, context is examined. Context affects both the quality and quantity of communication in health care. Finally, health communication is considered. What constitutes health communication and how it occurs is studied. These variables are then examined using two major theories of communication, the meaning of Meaning and Symbolic Interactionism.

**Jesse Breneman – Psychology**

***Predictors of Attitudes Toward Drug Use***

**Sponsor / Mentor: Dr. Joel Royalty**

Survey research on drug use in adolescents and college students has taken several tacks. The two that are most relevant to the proposed study are attempts to a) estimate the level of drug use in a particular population and b) identify risk factors associated with level of use. There are a large number of studies that have identified demographic, social, educational, and intra-personal risk factors in adolescents. As is the case with research with adolescents, a number of researchers have focused on variables associated with drug use by college students. Among the most frequently cited risk factors are social environment, living environment, age, and gender. The proposed research examines level of drug use by college students not only in the context of college-specific risk factors (e.g., fraternity/sorority membership, class standing), but also in the context of level of drug use and risk factors in existence prior to the transition to college. This "synthetic" approach has allowed the researchers to compare the ability of each of the two categories of variables to predict levels of drug use by college students. The results are discussed in terms of the association between college-specific risk factors and level of drug use in college students after controlling for preexisting correlates.

**Jesse Breneman – Psychology**

***Memory Span and Learning Categories***

**Sponsor / Mentor: Dr. Paula Waddill**

Current theories of learning tend to focus on variables related to environmental stimuli and the type of brain systems responsible for learning categories. However, the effect of memory span on the ability to learn novel categories has been somewhat neglected in the literature. The purpose of this study was to investigate the relationship between learning categories based on strictly defined rules and the length of an individual's memory span. Participants were asked to acquire a series of novel, complicated categories while receiving three different queue conditions. That is, they were allowed to keep zero, one, or two of the category members to use throughout the acquisition process. In addition, working memory span was measured. The results are discussed in terms of the effects that queue condition and memory span have on the ability to learn novel artificial categories.

**Lori Bright – Spanish**

***The Influence of Poe in Horacio Quiroga***

**Sponsor / Mentor: Dr. Leon Bodevin**

Horacio Quiroga is one of the masters of modern Latin American literature that emerged under the influence of modernism and realism during the 19th and 20th centuries. Quiroga was influenced tremendously by the works of several Western authors, and one of the greatest was Edgar Allan Poe. This paper will be an exploration of the similarities in the lives of the authors and how they both reflected the tragedies in their lives in their works. Quiroga parallels some of the same literary techniques that Poe employed in order to create the same intensely horrific experiences for his readers.

**Brooke Brittain, Christina Daniels, Jessica Williams, and Staci Wolff – Nutrition**

***Reward Preferences Among Third Grade Children***

**Sponsor / Mentor: Dr. C. Jeffrey Frame**

The purpose of this study was to identify reward preferences among third grade children by asking five activity and reward specific questions. Research obtained from 78 third grade students at Murray Elementary School in Murray, KY indicates that the majority of third grade students prefer healthy reward options. This information will help to reinforce the regulations regarding the use of nonfood rewards in place within many school systems. With the information gathered we will also be able to better direct parents and teachers in ways that they can address the question of how to reward their children and students in order to promote the development of healthy habits.

**Barrett Brown – Chemistry and Biology**

***Alkyl- and Chlorophenol Concentrations in Sediment and Mussel Tissues from Selected Locations in Kentucky Lake***

**Sponsors / Mentors: Dr. Bommanna Loganathan and Dr. David A. Owen**

Chlorophenols and alkylphenols are widely used in a variety of industries, agricultural pesticides, and consumer products. These compounds are persistent, bioaccumulative and toxic fresh water contaminants causing harmful health effects on aquatic organisms. However, very little is known on the levels of alkyl- and chlorophenol contamination in Kentucky Lake. In this study, sediment and mussel tissue samples were collected from Kentucky Lake and neighboring Lake Barkley. These samples were analyzed for pentachlorophenol (PCP), tetrachlorophenol (TeCP), trichlorophenol (TCP), dichlorophenol (DCP), nonylphenol (NP), and octylphenol (OP). Standard analytical procedures were followed including freeze-drying, Soxhlet extraction, acetylation, and quantitation of the compounds using gas chromatograph equipped with electron capture detector (GC-ECD). Results revealed that the concentrations of PCPs ranged from below the detection limits (0.2 ng) to 140 ng\*g<sup>-1</sup> dry wt. in sediment samples and 660 to 2200 ng\*g<sup>-1</sup> dry wt. in freshwater mussel tissues samples. Elevated concentrations of the compounds in mussel tissues indicate bioaccumulation of chlorophenols in freshwater mussels. The accumulation pattern of chlorophenols in sediment and mussel tissues were similar and showed the following order: PCP>DCP>TeCP>TCP. NP was consistently greater than OP concentrations in both sediment and mussel samples. Additionally, a strong correlation was seen between the levels of NP and OP in sediments from Kentucky Lake.

**T. Travis Brown – Wildlife Biology**

*Interactions Between Body Weight, Parasitism, and Stress of Peromyscus leucopus on Floodplain and Dry Sites.*

**Sponsor / Mentor: Dr. Claire Fuller**

Abiotic and biotic factors have been linked to increased stress and decreased immunity. We assessed the role of flooding and parasitism as stressors. In this study, we examined parasitism and stress in animals living on floodplains adjacent to a reservoir and dry areas outside of that floodplain. We trapped *Peromyscus leucopus* on two dry and two floodplain areas monthly for a one-year period. Each animal was weighed and tested for parasitism by botfly larvae (*Cuterebra sp.*) and gut parasites (helminths and coccidians) each month. In addition, we assessed levels of fecal corticosterone for mice during winter and summer. Male *P. leucopus* on floodplain sites were parasitized significantly more often by *E. arizonensis*, a coccidian, ( $P=0.015$ ) than on dry sites, but there was no significant difference in female parasitism between floodplain and dry sites ( $P=0.660$ ). However, female *P. leucopus* caught during fall/winter months on floodplain sites had significantly lower weights ( $P=0.012$ ) than those caught on dry sites. Animals of lower weight had only marginally higher levels of corticosterone ( $P\approx 0.05$ ). However, animals with gut parasites had significantly higher levels of corticosterone than both those with no parasites and those harboring botfly larvae ( $P<0.05$  and  $P<0.01$  respectively). Our results suggest that the presence of gut parasites such as *E. arizonensis* indicate that an animal is stressed. Therefore, the higher prevalence of *E. arizonensis* in males on floodplain sites, coupled with lower female body weights on these sites, suggests that flooding could be an environmental stressor for *P. leucopus*.

**Michael A. Burkeen – Psychology**

*Concepts of Employment: Attitudes Toward and Possible Employment of People with a Serious Mental Illness*

**Sponsor / Mentor: Dr. Alysia D. Ritter**

This study compared perceptions of potential employability and occupational performance between job applicants with a serious mental illness (SMI) and their non-ill counterparts. Forty-three students ranging in age from 18 to 35 participated. After random assignment, subjects read introductory material and then completed a questionnaire. It was hypothesized that significant differences would exist in how people with a SMI would be 1) Viewed on their potential employability, and 2) Perceived in the quality of their potential overall work-product: as compared to non-mentally ill candidates. There was no support for the first hypothesis however; quality of work produced a significant difference between groups.

**Connor Cantrell – Spanish**

*Race Relations in Mexico and Celestino Gorostiza's Play, "The Color of Our Skin"*

**Sponsor / Mentor: Dr. Jorge Medina**

With a mixture of so many races in Latin America -- from black to Hispanic to Indian -- race relations have been and continue to be a topic of debate and indeed a social problem in nearly every country in Latin America. While there is no definitive literary work dealing with race relations in Latin America, there is one that touches on more points than most. As such, Celestino Gorostiza's drama, *El Color de Nuestra Piel* (The Color of Our Skin), is one of the most useful Hispanic works with which to explore race relations in Latin America. Gorostiza's play takes place in 1950's Mexico, and all of the action of the play takes place within the house of a wealthy Mexican family. Most importantly, though, the play deals with the issue of race and the treatment of races vis-à-vis the color of one's skin. This paper will purport to explore the treatment and issues regarding race relations in Latin America, particularly in Mexico. The paper will be a literary analysis of Gorostiza's work as well as an introduction and exploration into the topic of race relations and the treatment of races in Mexico.



**Connor Cantrell – Political Science/Spanish**  
*The African Presence in Latin America and Afro-Hispanic Literature*  
**Sponsor / Mentor: Dr. Jorge Medina**

The African slave trade in the eighteenth and nineteenth centuries has been a topic of discussion for many years. What few people know about the African Diaspora to the Americas is that nearly three times as many people were brought to South America than were brought to what became the United States. As a result, the African presence in Latin America became and continues to be a significant one. This presence created a new culture, beset with its own economic, political, and social systems and problems. The purpose of this paper is to explore the effects of the African slave trade on Latin American culture and society. It will discuss the extent of the black presence and how it has changed throughout history. Furthermore, as more and more Afro-Hispanic authors make their way into the main canon of American and world literature, this paper will explore how the black presence in Latin America is reflected vis-à-vis these authors and their work. The essay will essentially be divided into two parts. The first part will discuss the slave trade itself and the immediate impacts it had on Latin American society. Then, the paper will explore the literature of the Afro-Hispanic society. This part will discuss the emergence of the black writer in Latin America, the literature from these writers, and what can be ascertained about the black presence in Latin America from the study of this literature. As a whole, then, this essay will discuss how the black presence came to exist in Latin America, what impacts and effects the presence had and continues to have, and finally how the presence is reflected through Afro-Hispanic literature.

**Connor Cantrell and Taylor Ewing – Political Science/Spanish**  
*Science and Technology in Modern Warfare*  
**Sponsor / Mentor: Dr. Howard Whitman**

In the post-9/11 world, the field of political science has shifted its focus. People who were once focused on foreign policy now concentrate their efforts fighting world terror. As such, the worlds of political science and science today are increasingly intertwined. With growing concerns about chemical and biological weapons, not to mention the United States presence in Iraq, the scientific principles and ideology to produce and use this new form of weaponry is of great interest to everyone in society. Being involved in political science has sparked our interest in this topic. As a result, our paper will focus on the topic of chemical and biological warfare. The paper will be divided into three parts. We will first discuss how these fields came to be and how the development of these weapons is related to science. Next, we will discuss the current capabilities of states and terrorist networks vis-à-vis chemical and biological weapons and how these countries or groups use science to maintain or proliferate their weapons systems. Finally, we will discuss the implications that biological and chemical weapons might have in the future. Will someone ever use these weapons? Does the possibility exist for a world biological war like there once was for nuclear war?

**Laramie Carson – Outdoor Recreation**  
*Angel's Attic*  
**Sponsor / Mentor: Dr. Roger Weiss**

Our group participated in getting clothes donated from on- and off- campus for Angel's Attic. We got many donations from the community and very little from the campus, but overall we were very pleased with the outcome of our donations.

**Lindsay Chamberlain – MBA**  
*The Streamlined Sales Tax Project*  
**Sponsor / Mentor: Dr. Don Chamberlain**

The Streamlined Sales Tax Project (SSTP) is an effort to simplify and modernize the sales tax collection and administrative process. State and local governments began the project in an effort to reduce the burden of tax collection while “leveling the playing field” for all retailers. The United States sales tax system is highly complex and terribly cumbersome for businesses to collect. E-commerce and Internet companies have problems calculating, collecting, and remitting sales tax to the thousands of jurisdictions with differing laws. Unfortunately, this has lead companies to omit sales tax collections altogether, costing states millions in tax revenue and making it difficult for local businesses to compete. Forty states and the District of Columbia are involved in the SSTP project, which was organized in March of 2000. The project committee members include state revenue department administrators, representatives from state and local governments, business owners including national retailers, trade associations, manufacturers, direct marketers, accounting firms, and others. This paper highlights the progress made to date, several of the obstacles already overcome, and the remaining agenda. The current budget crises being experienced by state governments across the country have given new impetus to the Streamlined Sales Tax Project.

**Matt Clemson, Amanda Carter, and Eric Geissler – Finance**

***The Science of Economics in the United States***

**Sponsor / Mentor: Dr. Howard Whiteman**

Just like in other sciences, economists use the Scientific Method, known as Economic Methodology. They observe an event, develop a theory, and collect data to test the theory. However, collecting data to test an economic theory is much more difficult than theories in chemistry or physics because economists cannot create data from experiments. Therefore, they often use data gathered from historical economic events. Economists also must make several assumptions (hold everything else constant) to make the world easier to understand. Just as biology teachers use plastic models of the human body that are simpler than the actual human body, economists use economic models that are composed of diagrams and equations that are simpler than economic reality. In this presentation, we will discuss the relationship between “Theoretical Economics” and the “Classical approach to Science,” or “Pure Science”. We will also discuss the relationship between “Policy Economics” and “Applied Science”, or “Technology”. The United States economy was founded on Adam Smith’s “Classical View” of capitalism. In Smith’s theory of capitalism, businesses and resource suppliers, seeking to further their own self-interests in a competitive market system, will simultaneously promote the public or social interests, as though guided by an “invisible hand”. The market system promotes the efficient use of resources according to what goods and services society wants most. This system promotes hard work and innovation because of the incentives of future rewards. Unlike the Command System in which a central planner decides what goods are produced, the market system thrives on personal freedom and allows the laws of supply and demand to determine what is produced. Smith’s theory dominated economic thinking until the 1930’s. After the Great Depression, John Maynard Keynes asserted that the laissez-faire (“let it be”) governmental policy promoted by Smith is subject to recurring recessions. In the Keynesian View, active government policy is required to stabilize the economy and prevent valuable resources from standing idle. Keynes also pointed out a few major flaws in the classical view of supply and demand.

**Deanna Coker – MPAc – Accounting**

***The Federal Accounting Standards Board (FASAB)***

**Sponsor / Mentor: Dr. Don Chamberlain**

In 1990, the Federal Accounting Standards Advisory Board (FASAB) was established, in order to increase the quality of financial reporting in the Federal Government. The board creates accounting standards and principles for the Government of the United States. These standards are created with the users of financial and budgetary information in mind. Therefore, the citizens of the United States are always considered when establishing standards and principles. The FASAB is continuously working on projects designed to provide better financial reporting. This paper provides information on the Federal Accounting Standards Advisory Board. The history and background are discussed along with some of the Board’s current projects. Among the current projects of the FASAB are the treatment of natural resources owned by the federal government, the treatment of fiduciary activities, heritage assets, and stewardship land. This paper discusses these projects and provides some insight into the significance of the FASAB on governmental activities.

**Brooke Comperry, Cherrie Northcutt, Elaine Orr, and Ryan Westbrook – Nutrition**

***Liquid Supplementation Acceptance***

**Sponsor / Mentor: Dr. C. Jeffrey Frame**

Many patients in a healthcare setting are given nutritional supplements in order to improve nutritional status. We propose that the presentation of the supplement in a glass versus a can will be more acceptable to the patient, thereby increasing intake. One single supplement product was chosen for the experiment in order to limit taste variables. Each product was offered first in a can, and then at a later date, in a clear glass. The results showed highly significant ( $p = <.004$ ) differences in the acceptance of the supplements in the can versus the glass. When the supplement was served in the can, a total of 63% of the product was consumed by all patients. When the supplement was served in the glass, 82.5% of the supplement was consumed. Results suggest a need for aesthetic merchandising of supplements in order to increase patient intake.

**Erika Compton, Erin Schauburger, and Kayla Shewcraft – Elementary Education**

***Our Education System's Contribution to a Scientifically Illiterate Society***

**Sponsor / Mentor: Dr. Howard Whiteman**

Teachers seem to have a fear of science that is transmitted to their students and in turn, on to those students' children. There is an overall lack of knowledge in science because teachers are not well equipped to positively present science in their classrooms due to a lack of content preparation. Stereotypes continue to be placed on scientists as isolated individuals who conduct basic science. Teachers are expected to teach hands-on and inquiry based science when they have only been taught out of textbooks. Most of the time, the science classes that they have taken are 100 level chemistry, biology, or physics classes that they cannot apply to elementary science. By the time students get to upper middle school and high school they already have a flawed image of science that is difficult to change. This lack of desire for scientific knowledge affects our communities in the newspapers and magazines that we read, the newscasts that we watch, the movies that we rent, and the shows that we watch. These industries produce what there is a demand for and with a scientifically illiterate society; they are not going to produce any scientific material because they know it will not sell. Our education system is not entirely to blame, there are many influencing factors, but we feel that science should be presented in a brighter light. If teachers who are knowledgeable about in science content make it appealing to students at a young age, then there is hope for change in our country.

**Craig Coombs and Chanda Smith – Environmental Engineering Technology**

***Atrizene in Drinking Water Wells***

**Sponsor / Mentor: Dr. Mike Kemp**

This project involved the sampling of water and testing for Atrizene contamination. Atrizene is a common herbicide used on row crops through out the country. In high concentrations, atrizene may cause health problems. The research examined if atrizene contamination was a major problem in shallow drinking water wells in Western Kentucky. The study sampled the water from several private wells in the area. The study focused on shallow wells, because these wells are the most susceptible to contamination because of their construction, and the fact that they access a very shallow aquifer. All of the wells that we sampled were the primary source of water for the residences around them. This study also examined the health impacts of atrizene contamination, possible ways to limit atrizene contamination in wells, and alternatives that are safer to use than atrizene.

**Chanel Crutchfield, Maegan Worley, and Courtney Rutledge – Journalism**

***The Party***

**Sponsor / Mentor: Dr. Roger Weiss**

The Party is an American Red Cross affiliated educational program for teens that teaches about HIV/AIDS education and the importance of having good decision-making skills. During the program, we had an icebreaker that involved using Starburst Candy to demonstrate how easily Sexually Transmitted Diseases (STDs) can be transmitted. Then we gave the students facts on HIV, AIDS, and other STDs. We then showed the video provided by the Red Cross about teenagers deciding whether or not to attend a party. The video was open-ended, causing the students to weigh out the options the characters from the video had and what decisions they should make. Finally, we conducted a question and answer session in which the students could ask us any questions and we talked about what the characters should do and what decisions they should make. We conducted Pre and Post Tests and a Final Evaluation and concluded that our program was very successful and the children at CCMS benefited from the program.

**Amanda Davis, Margaret Gough, and Amy Newsom – Social work**

***Steppin' Country Style***

**Sponsor / Mentor: Dr. Roger Weiss**

Stepping Country Style is a line dancing class designed to help senior citizens of the Murray Calloway County area with physical fitness, self-esteem, socialization with peers and younger generations, and depression. Each week on Thursday beginning on October 16 and going thru November 6, we met at the Murray Calloway County Senior Citizen for about 45 minutes to teach the senior citizens the Electric Slide. The senior citizens as while a members in our group had a great opportunity to make new friends while having fun and helping the senior citizens in the above areas.

**Lindsey Donoho, Brandon Chandler, and David Hayden – Agriculture**

***Evaluation of Dark Fire-Cured Tobacco Experimental Varieties***

**Sponsor / Mentor: Dr. Pat Williams**

Five acres of dark-fire cured tobacco were grown on Murray State University's West Farm. Research trials were conducted to better enable dark-fired tobacco producers to select the best varieties of tobacco and improve new varieties for future selection. Replicated trials compared gross pounds per acre yield of current experimental dark tobacco varieties during the 2003 season. The varieties tested include 20 dark-fire hybrids and the following: ms NL Madole, ms TN D94, ms TN D950, ms VA309, NL Madole, TN D94, TN D950, TR Madole, ms TR Madole and VA359. Significant differences were found between commercially available varieties and the hybrid varieties in leaf class and total yield. The varieties or breeding lines with the highest yields were new hybrids.

**Megan Dorgan-Carpenter – Geosciences**

***Mapping Environmental Effects of Chernobyl using Remote Sensing Applications***

**Sponsor / Mentor: Dr. Haluk Cetin**

Chernobyl was the largest nuclear disaster to face the planet up to this point. Its effects have been far reaching for both man, animal, and nature and are still being felt today some 18 years later. The city in and around the area of Chernobyl has been desolate for many years because of the release of radioactive debris that reached miles and miles away harming whatever was in its path. Due to concern by the people of Chernobyl: soil, surface water, and groundwater were all issues that needed to be researched because of its likelihood of being contaminated by the incident. The purpose of this study was to determine the environmental effects caused by the Chernobyl power plant, which had a nuclear accident back in April of 1986. An unsupervised classification of Landsat data was used to map the region. Use of Remote Sensing techniques such as NDVI was performed to test the vegetation of the area after the incident.

**Anis Drira and Thymour Legba – Engineering Physics**

***Development of a Rowing Scoreboard using GPS Technology***

**Sponsor / Mentor: Dr. Ted Thiede**

A key feature in all popular sporting events is the display of information to the spectators on a scoreboard. Recent developments in scoreboard technology have led to cheaper and more reliable scoreboards. Rowing is a sport that is slowly growing in popularity, but to date, has gained little following as a spectator sport. In this research, a cost-effective scoreboard is being developed for rowing events using global positioning system (GPS) technology. This system involves using timed sensors to transmit data from GPS transmitters to a computer that serves as an input to a scoreboard. The scoreboard has been designed to provide information that will enhance the spectators' appreciation for the sport. The presentation will provide some background into the design of scoreboards and into the application of GPS technology, as well as specific details in the design of a prototype rowing scoreboard.

**Jerry Drye – Organizational Communication**

***How Do Humor and Storytelling Impact Organizational Rhetoric***

**Sponsors / Mentors: Dr. Ed Brewer and Dr. Lou Tillson**

The variables humor, storytelling, and organizational rhetoric will be investigated using journal articles, scholarly books, educational web sites, and other pertinent sources. Aristotle's Rhetoric, the Narrative Paradigm, and The Coordinated Management of Meaning theories will be applied. Human communication at the organizational level is the area of interest. Human beings as storytelling creatures with senses of humor interacting within the organization will be considered.

**Candi Duffer – Liberal Arts and Sociology**

*The Effects of Ecotourism on the Environment and Traditional Culture in the Philippines: A Study of Development Policy and Practice*

**Sponsor / Mentor: Dr. Michael Basile**

This study examines environmental and cultural effects of ecotourism in the Philippine Islands. It begins with an explanation of the concept of ecotourism and the benefits it purportedly offers for economic development and globalization. The Philippine Islands comprise a vast archipelago in the South Pacific that harbors fragile ecosystems and many traditional cultures. In recent years, the government and private entrepreneurs have been implementing a policy to foster the commercial growth of ecotourism on many islands. This study begins with a look at that policy in law and then proceeds to examine the effects of practices on the environment and traditional cultures. Conclusions will have implications for evaluating ecotourism policy generally.

**Jamus Edwards – Organizational Communication**

*What on Earth am I Here For?*

**Sponsor / Mentor: Dr. Roger Weiss**

We put on a program on November 11, 2003 entitled, "What on Earth am I here for?" Here, we gave a "talk" on one's purpose in life according to the Holy Bible. Furthermore, we gave a clear depiction of the gospel of Jesus Christ according to the Bible to over twenty college students. It was our belief that if there is one area of interest that many college students are lacking in or searching, it is that of spiritual investigation. We feel that there is nothing more important in this life than for young people to understand that they were created by a purpose and for a purpose. Hence, we gave a thirty-minute, interactive "talk" concerning these things. To say the least, we felt that our program was very effective and instrumental in meeting our purpose to enlighten college students on these spiritual ideas.

**Nora Ehram – Spanish**

*Racism Within Families: An Analysis of "El color de nuestra piel"*

**Sponsors / Mentors: Dr. Janice Morgan and Dr. Michael Waag**

My presentation is an analysis of Celestino Gorostiza's play, "El color de nuestra piel", and how racism is communicated within the family.

**Ronald Elder – Wildlife and Conservation / Wetland Option**

*Effects of Soils and Hydrology in Determining Plant Community Composition in Ledbetter Embayment Mudflat of Kentucky Lake.*

**Sponsor / Mentor: Dr. Howard Whiteman**

Ledbetter Embayment is located in South West Kentucky on the western side of Kentucky Lake at Tennessee River mile 42. Kentucky Lake is a reservoir with a summer water level of 109.4 meters above sea level and a winter water level of 107.9 meters above sea level. Because of this hydrology, distinct plant communities exist on the mudflat. Four plant communities were selected for this project. Lowest in elevation and spending the most time flooded is a community dominated by *Eleocharis acicularis*. Slightly higher in elevation is an emergent community dominated by *Aster prenanthoides*. A scrub/shrub community dominated by *Cephalanthus occidentalis* exists slightly higher in elevation. Finally, a flood plane community dominated by *Betula nigra* is the fourth community. The purpose of this study is to see how the hydrology of Kentucky Lake effects the plant community composition of Ledbetter Embayment Mudflat. The hydrology will also be compared with soil parameters to see if or how a relationship exists between the plant communities, hydrology, and soil conditions. Distinct plant community boundaries appear to be related to soil composition and hydrology.

**Mie Endo – Psychology**

*Aggression and Two Forms of Narcissism*

**Sponsor / Mentor: Dr. Paula Waddill**

Much past research on narcissism has focused on overt narcissism and has neglected covert narcissism (characterized by hypersensitivity and vulnerability). Building on prior research in the area of overt narcissism, the present study examined the relationship of two forms of narcissism (overt and covert) to reported levels of aggression, and to the use of different coping strategies. The results indicated that covert and overt narcissists had not only different degrees and types of aggression, but also had used different types of coping strategies. These findings suggests that past research focused on only overt narcissism might have overlooked the existence of important differences in covert narcissism.

**Natasha Ennels – Organizational Communication**  
***Goodtimes with the Cha-Cha: An After School Program***  
**Sponsor / Mentor: Dr. Roger Weiss**

The after school program is part of the Murray-Calloway County YMCA which is committed to building strong kids, strong families, and a strong community. The Y is the largest provider of childcare in the nation. They are located at the county elementary schools, and provide instruction, recreation, and fun for children attending the elementary school. Other programs are Goodtimes daycamp (when school is not in session) and Summer Day camp says the Murray of Calloway County YMCA brochure. Goodtimes with the Cha-Cha is to be held at the Southwest Elementary School's gym in Murray. The program is to teach the children how to cha-cha. This particular cha-cha is a line dance and not the traditional partnership of two dancers. Goodtimes with the Cha-Cha will begin 3:30 p.m. on November 18, 2003. It is for all the regular students who attend the after school program. There is an estimation of about nine students to be present. The program will end at about 4:15 or 4:30 p.m. The students will be given a short introduction. They in turn will individually introduce themselves. The program shall then start by briefly mentioning the object of the song and its purpose. Next is the oral questioning from the pre test. Finally, we shall all commence cha-chaing and conclude with the oral posttest and final evaluation.

**Taylor Ewing – Spanish**  
***Afrohispanic Poetry***  
**Sponsor / Mentor: Dr. Jorge Medina**

As in the United States, blacks in Latin America have historically been subject to discrimination and persecution. Thus, for many years, their voices remained unheard and their experiences a mystery. However, a relatively new genre of poetry, which focuses on afrohispanic issues, along with some of its most accomplished poets, has begun to bring attention to the struggles and reality of blacks in Latin America. This presentation will examine two renowned afrohispanic poets: Luis Pales Matos and Blas Jimenez. However, despite the similarities in the content of Matos' and Jimenez's, the two have distinct experiences and therefore perceptions. Matos, the most well known in the genre, is not of African descent. Therefore, despite his significant contributions to the field, the realism of his work is often brought into question. On the contrary, Jimenez is afrohispanic and writes about his experiences accordingly. I will discuss the backgrounds of both poets, as well as analyze examples of poetry from each. Furthermore, I will conclude by describing the benefits of diverse perspectives and experiences within a genre.

**Taylor Ewing – Spanish**  
***Number Majority, Power Minority: The Reality of Hispanic Life in the United States***  
**Sponsor / Mentor: Dr. Mica Howe**

The Hispanic community is currently the United States' fastest-growing demographic, as well as the country's largest minority group. However, because of the astounding growth of the Hispanic population, 58 percent in 10 years, the U.S.'s Latin community, which is estimated to number more than 35 million not including undocumented immigrants, continues to be misunderstood, underrepresented, and marginalized, despite its increasing size and prominence. Consequently, stereotypes and misconceptions regarding Hispanics in the U.S. are too often accepted and perpetuated with little consequence or backlash. Furthermore, Hispanics in the United States, whether they are legal residents, new U.S. citizens, illegal immigrants, first-plus generation Hispanic Americans, or migrant workers, are subject to a higher rate of poverty, less adequate education, and disproportionate aid and opportunity than virtually all other demographics. Thus, the purpose of this document is to address the unfounded, yet commonly accepted misconceptions about Hispanics in the United States. To do this I will reveal the complexity of the issues facing the Latin community, for instance, the divisions within the demographic itself and the struggle to integrate and maintain two diverse cultures. Furthermore, I will investigate the government's role in the transitioning reality of Hispanics in the U.S., from immigration policy to federal assistance. To substantiate my thesis statement, my research will include census data; economic and educational statistics; excerpts from Hispanic-American literature, poetry, and cinema; political and sociological analyses; federal programs regarding Hispanics; current and alternative immigration policies; and projections about the future of Hispanics in the U.S.

**Gentzy Franz – Organizational Communication and Psychology**

*What is the Impact of Effective Listening on Job Performance and Role Ambiguity?*

**Sponsor / Mentor: Dr. Lou Tillson and Dr. Ed Brewer**

The title of this paper is a question that is answered by identifying each of the existing variables in the question and analyzing them as they relate to the field of organizational communication. The question is answered through an analysis of the theories of cognitive dissonance and discrepancy arousal; after examining the question accordingly, it is concluded that effective listening improves job performance through the likelihood that it will also ensure a reduction of role ambiguity. The evidence that is used to support this conclusion is documented and cited in the following work.

**Deanna Futrell – Spanish**

*Women in Spain After the Reign of Francisco Franco*

**Sponsor / Mentor: Dr. Leon Bodevin**

With all the discussion in the world about discrimination toward minorities, in one region of the world women have suffered from oppression for many years and have put up a fair fight. The women of Spain have been longing to have equal rights given to them, for some this dream has partially come true, for others they never knew any change to come in their lives. During the reign of Francisco Franco that lasted from 1936 to 1975, women were severely oppressed. However, after this dictatorship, times have changed and are looking better for women in the present day. In order to come to an accurate conclusion one must first answer the following questions: What was life like for women during Franco's era? How do women see themselves after Franco's reign? How does society as a whole view the woman's role in present day Spain? How are women oppressed still today? What steps are being and have been taken to improve this discrimination toward women from 1975 to present? This study will be divided into three parts: a brief background of oppression during Franco's reign, what women have done to try to overcome oppression, and how women are oppressed in Spanish society today.

**Stuart Gibson – Geosciences**

*Detection and Classification of Oil Slicks in the Persian Gulf by Remote Sensing*

**Sponsor / Mentor: Dr. Haluk Cetin**

In early 1991, millions of barrels of oil were dumped into the Persian Gulf causing a major environmental catastrophe. The oil washed up along hundreds miles of shoreline within the Persian Gulf, much of which collected in the Ad Daffi Bay just north of the city Al Jubail. The purpose of this study is to detect oil that collected in the Ad Daffi Bay after it had traveled down the coast from Kuwait. This is accomplished by interpretation of a Landsat TM image collected over Ad Daffi Bay on March 4, 1991. Classification of the image reveals the extent of the oil slicks that were present in the Bay. Several classification methods are used to determine which process is best suited to detect oil slicks on water.

**Veronica A. Godin – Chemistry**

*Elemental "Fingerprinting" of Cigarettes*

**Sponsor / Mentor: Dr. Harry B. Fannin**

This study will examine the possibility of developing a trace element profile or "fingerprint" for cigarettes. It will attempt to examine cigarettes to see if there is sufficient variability to differentiate between an assortment of brands, or if the inconsistency is too large or too small to allow for differentiation. In order to develop a trace element profile, it is important to establish that a single cigarette is entirely homogenous. In order to accomplish this, a single cigarette will be selected at random from a pack and divided into thirds, following the removal of the filter. Trace element profiles will be determined for each third of the cigarette and the results will be statistically examined for any differences. All samples will be dried in desiccators to remove excess moisture. Weighed quantities of each sample will be digested with trace metal graded nitric acid and diluted to a known volume. These samples will be analyzed using inductively coupled atomic emission spectroscopy (ICP-AES). The ICP to be used in this study is an ARL 3560. After the elements have been quantified, the various samples will be subjected to a Student's T test to look for any statistically different concentrations between the samples at a probability level of 95%. Any elements showing a difference could be utilized to differentiate between various brands of cigarettes.

**Maggie Grosser – Wildlife Biology**

***Measuring the Diversity in the Methanogenic Community of Kentucky Lake with TRFLP***

**Sponsor / Mentor: Dr. Timothy Johnston**

The littoral zone of Ledbetter Bay in Kentucky Lake represents a large area of microbial diversity because of the water level fluctuation throughout the year. Differing water levels offers a variety of habitats for bacteria to occupy. Because the littoral zone is not considered an extreme environment, it is expected that methanogens will be the only type of Archaeobacteria found there. Previous research has suggested succession within the methanogenic community of Ledbetter Bay. Sediment samples from Ledbetter Bay were collected once a month from five main wells and two control areas, one that is always underwater and one that is always dry. DNA was extracted from each sample and amplified with fluorescent Archaeal primers. The DNA was then purified and cut with restriction enzymes. It was then loaded on a sequencing gel, and terminal restriction fragment length polymorphisms were visualized through graphs generated. Graphs of each sample from each month were compared to determine if succession is occurring in the methanogenic community in Ledbetter Bay. Data indicates that succession is actually occurring.

**Trent Haddock – Organizational Communication**

***What are the Effects of Identity Management and Face Negotiation on Courtroom Communication?***

**Sponsors / Mentors: Dr. Lou Tillson and Dr. Ed Brewer**

The opportunity for deception and/or falsehood is ever-present in the courtroom setting, where identity management and face negotiation are two main communication tactics used by human legal entities to prove or disprove a certain case and/or dispute. Also seen as an organization in itself, the modern day legal system includes multiple methods and interpretation of communication. However, these indirect and informal communication characteristics are what make each individual person within the system unique and/or important. Thus, each person involved in this particular "organization" plays his/her own role in achieving a goal, whether it is personal or multi-faceted, but the process in which this goal is obtained is what most people never seem to understand.

**Brian Steven Hale – Electromechanical Engineering Technology**

***Model for Depletion of Resources Due to Growing Population***

**Sponsor / Mentor: Dr. David Roach**

The logistic model is widely used formula that examines the growth and death rates of a species of plant or animal in some environment in which the population can grow until it reaches some stable equilibrium level referred to as the maximum population (M). This state of equilibrium is explained by the logic that if the population's birth rate is less than its death rate then there are not enough resources to support the number of organisms present in the environment. Therefore, the population can never exceed this equilibrium level for extended periods, so essentially the population can never actually reach this maximum level and slight fluctuations can be ignored. A major shortcoming with this model is the fact that for this representation to be true, the resources that the organism relies on must remain at some constant level. For a case in which the resources can be depleted the model fails. To consider this scenario, a more complex model is needed that can account for the decline in resources due to consumption by the growing population. The model that Eric Latendresse and I developed for a Differential Equations class project looks at the case in which a set quantity of resources is initially available and no restrictions exist to prevent a growing population from completely depleting the available resources. The ultimate outcome is that all resources will be depleted resulting in the starvation of the population. The project was done using Maple in the math lab, data gathered by an experiment using a glucose solution and E. coli bacteria, principles of differential equations, and parametric equations.

**Kristin N. Hale – Psychology**

***Mental Illness and Insanity Defenses***

**Sponsor / Mentor: Dr. Paula Waddill**

Many studies have been conducted to assess factors related to verdict choice in insanity defenses. However, few studies have used a repeated measures design to examine factors related to jurors' choosing the guilty but mentally ill verdict option, and even fewer have considered the relationship of attitudes towards mental illness to verdict choice. The purpose of this study was to investigate the extent that attitudes towards mental illness, attitudes toward and knowledge of insanity defenses, and available verdict options (including the guilty but mentally ill option) contributed to verdict choice in a criminal case. Implications of this research for the availability of a guilty but mentally ill option in criminal trials are discussed.



**Chad Hall and Jesse Gray – Agriculture**  
***Weed Control and Crop Tolerance Provided by Potential Herbicide***  
**Sponsor / Mentor: Dr. David Ferguson**

A study was conducted in 2003 at Murray State University to measure the effectiveness of two different herbicide applications that are not currently labeled for tobacco. Two separate experiments were conducted to evaluate the potential for the use of two sulfonylurea herbicides, CGA362622 (Trifloxysulfuron-sodium) and halosulfuron-methyl, in dark tobacco. Currently sulfonylurea herbicides are applied post emergence over-the-top in corn and soybeans to control broadleaf weeds. Sulfonylurea herbicides control a wide variety of weeds at low rates, exhibit crop/weed selectivity, have low environmental persistence, and low mammalian toxicity. Trifloxysulfuron-sodium is currently being tested for use in cotton and halosulfuron-methyl is registered for use in cotton. Both control nutsedge and broadleaf weed species. Each herbicide was applied either post emergence over-the-top one month after setting or post emergence directed eight weeks after planting. The herbicides were planted at rates of 0.07 or 0.10 oz/A for trifloxysulfuron and 0.07 or 1.0 oz/A for halosulfuron-methyl. Applications were made with a CO<sub>2</sub>-pressurized backpack plot sprayer calibrated to deliver twenty gallons per acre with flat fan spray nozzles. The over-the-top applications were made with a 4-nozzle spray boom with twenty-inch spacing. The directed applications were made with drop nozzles placed twelve inches below the top of the plant canopy and directed into the row middle to limit herbicide contact with foliage.

**Meghan Hamilton, Lanah Miller, and Amy Sanders – Nutrition**  
***Calcium and Weight Loss: A Correlation Study***  
**Sponsor / Mentor: Dr. C. Jeffrey Frame**

The prevalence of obesity in the United States has been steadily rising since the 1960's. The total cost of obesity related diseases approaches \$100 billion annually. An abundance of evidence has linked increased dietary calcium consumption with decreased body mass index. A literature review of journal articles in both human and animal studies was performed. Our meta-analysis of the data revealed that the available observational and clinical studies in animals and humans support our hypothesis: increased calcium intake promotes weight loss. This effect was greater with the consumption of dairy products in comparison to calcium supplementation alone. Bioactive compounds found in dairy products could attribute to this finding. Further longitudinal research is needed to determine effective dairy product components and recommended calcium intakes.

**Shelly Harris – Creative Writing and Literature**  
***Louise Erdrich and Lee Smith: Seeking the Future in the Past***  
**Sponsors / Mentors: Dr. Laura Dawkins and Dr. George Hovis**

Louise Erdrich and Lee Smith are postmodern authors who explore their culture's longstanding customs of oral tradition, oral history, place, and voice. Through examining Erdrich's novels, *Bingo Palace* and *Love Medicine*, and Smith's works, *Fair and Tender Ladies* and *Oral History*, one can gain a glimpse of the impact these four issues have had on contemporary Native American and Appalachian/Southern writings, as well as on Erdrich's and Smith's individual writings.

**Lesley Hart – Accounting**  
***A Program for all Americans***  
**Sponsor / Mentor: Dr. Don Chamberlain**

Social Security is an important topic for all Americans. Since its enactment in 1935, the Social Security program has provided Americans of all ages benefits upon retirement, disability, or death. As of 1996, nearly 44 million people were receiving benefits from the numerous programs that make up Social Security. Given these facts alone, it is not difficult to understand why the future of Social Security is one of the most publicized debates at the current time. In addition to a brief overview of the Social Security program in general, this paper addresses where its funding comes from, the Social Security trust fund, what benefits it provides, and who is entitled to those benefits. This paper also discusses the future of Social Security, the impact of our aging population, and some of the proposals for Social Security reform.

**Susan M. Hatcher – Accounting**  
***The Truth Behind Economic Development and Financial Incentives***  
**Sponsor / Mentor: Dr. Don Chamberlain**

As many people know, Kentucky is in a budget crisis. Funding is being cut and programs are near extinction. During this difficult time, however, the state continues to provide benefits to hundreds of companies as incentives to locate in Kentucky. Some examples of typical incentives are loans, tax incentives, and matching grants. These incentives exclude revenues from the state budget that could have been used to fund many other programs. This paper takes a look at the Kentucky Cabinet for Economic Development, more specifically, the Department of Financial Incentives. It examines the reasoning behind providing tax incentives and other such financial incentives to companies. In addition, the paper explores the various incentive programs offered by the state, the benefits of participating in these programs, and how these programs benefit the state as a whole.

**Ricky Hayes – Special Education**  
***The Impact of Inclusion on the Academic and Social Performance of Students With and Without Disabilities***  
**Sponsor / Mentor: Dr. Arlene Hall**

We hear and read a lot about school improvement, school reform and restructuring. However, educators still have many questions about how to provide a quality education for students with disabilities in school. The purpose of this study is to determine the academic and social effect of educating students with disabilities in inclusive general education classrooms on students with and without disabilities. For the purpose of this study, inclusion is defined as providing specially designed instruction and supports for students with special needs in the context of regular education settings. It means that all students in a school's attendance area are full members of that school community and each student participates equitably in the opportunities and responsibilities of the general education environment. Those involved in inclusion efforts understand that classrooms are becoming more and more diverse and that the teacher's job is "to arrange instruction that benefits all students—even though the various students may derive different benefits". Past assumptions about special education and general education as separate systems are giving way to a challenge to work together. Special education is not a place. It is specialized instruction and supplementary aids and services provided to students with disabilities who need specialized instruction. Some students (labeled as receiving special education or not) may need, or want, to spend some of their time learning in a quieter place with fewer people or with additional help from others. The purpose of this study was to investigate the effect of inclusion on the academic and social achievement of students with and those without disabilities in the high school setting.

**Julie Hendrickson – Spanish**  
***Indigenous Themes in the Works of Rosario Castellanos***  
**Sponsor / Mentor: Dr. Michael Waag**

The collection of short stories in "Ciudad Real" by Rosario Castellanos deals with themes related to the indigenous peoples of Chiapas, Mexico. The author demonstrates very well the differences among the "indios" and the "blancos" that constantly cause social struggles between the two groups. Castellanos describes how social inequality, communication problems related to language and different religions encourage and create the separation of these two groups, leading to poor and unhealthy conditions for those living at lower economic levels. The author portrays the Indian, not in an exotic and poetic manner, but in a realistic sense of how the Indian truly lives in his environment with common problems just like any other human being. In effect, her writing demonstrates a clear style of writing classified as "indigenista", a type of social protest writing that surged in Latin America around the time of the Mexican Revolution.

**David Herring – Accounting*****The Single Audit Act*****Sponsor / Mentor: Dr. Don Chamberlain**

The Single Audit Act is legislation that helped establish control over financial aid provided to state and local governments. Established in 1984, the Single Audit Act eliminated the previous grant-by-grant audits with a single, all-encompassing audit. This single audit is designed to enhance the management of federal financial aid programs while diving more in depth into numerous aspects of the recipient agency, including internal controls, financial statements, and compliance with applicable laws and regulations. The Single Audit Act allows for less complicated and more thorough audits of agencies receiving government financial assistance. Before 1984, there were few guidelines for such audits. Without guidelines and standards, millions of dollars of government assistance went unaudited. The Single Audit Act established the needed guidelines for those agencies that receive aid, responsibilities for auditors performing the single audit, and regulations that must be followed in order to comply with the act. By looking at the past methods of auditing government aid recipients, the history and development of the Single Audit Act, and the latest amendments to the act, a greater appreciation and knowledge of how the federal government monitors its money can be gained.

**David Herring – Accounting*****Opportunities with an Accounting Education*****Sponsor / Mentor: Dr. Don Chamberlain**

Accounting is a very versatile and beneficial major. Many people believe that an accounting degree does nothing more than secure you a desk job doing taxes or something involving math. An accountant is normally perceived as someone who is good at math or loves taxes, but this is not necessarily the case. In today's world, an accountant has the opportunity to be so much more. An accounting education places numerous career paths at a student's fingertips. The choices range from large to small business, private or governmental work, or even teaching. An accounting education is also a perfect start to climbing the corporate ladder, since many high-level management positions are open to those with accounting backgrounds. The options of taxes or a small time desk job are possibilities, while a more dynamic work environment that involves extensive travel and responsibility is also available. Whatever your personality and preference, accounting is an amazing major that provides numerous opportunity.

**Cory Hicks and Josh Monroe – Agriculture*****Comparison of Nitrogen Rates for Dark-Fired Tobacco*****Sponsor / Mentor: Dr. Kenneth Bowman**

A study was conducted at Murray State University to measure the yield differences that occur when variable levels of nitrogen are applied to dark-fired tobacco. Suggested rates for nitrogen are between 200 and 300 pounds per acre. Typically, farmers use in excess of 300 pounds in an attempt to increase yields. Although nitrogen requirements vary from year to year, depending on weather conditions, too much nitrogen can result in delayed maturity and curing problems. This experiment employed minimal nitrogen levels (150 lbs/acre), recommended nitrogen levels (300 lbs/acre) and excessive nitrogen (500 and 1000 lbs/acre). The highest yield was obtained from plots where 500 pounds were applied, while the lowest yields were harvested from plots where the recommended levels of nitrogen were used. Unexpectedly, the second highest yield came from plots where only 150 pounds of nitrogen were applied. The reliability of these estimates should not be overstated since an Analysis of Variance test concluded that differences between yields were not significant at the 0.10 level. The treatment did have one distinct effect: leaf chlorophyll levels monotonically increased as nitrogen levels increased. An Analysis of Variance test was conducted and demonstrated that chlorophyll levels were different at the 0.01 level. A post hoc test, Least Significant Differences, showed that the chlorophyll indices of plots receiving the highest levels of nitrogen were significantly different at the 0.01 level from plots receiving the lowest levels of nitrogen.

**Dawn R. Hightree – History**  
***Changing Patterns of Funerary Art in Greco-Roman Antiquity***  
**Sponsor / Mentor: Dr. Zbynek Smetana**

Throughout the course of my research in the Mediterranean in the summer of 2003 and subsequent independent efforts, I have attempted to construct a retrospective model for the interpretation and comparison of a select grouping of funerary imagery with the intent of providing logical transitions in style and in the recurring use of certain symbolism. I have chosen for my primary examples, the relief sculpture of Attic grave stelae from the sixth through the fourth centuries B.C.E., first century A.D. Roman military tombstones from Britain, and a select few themes from the first through third centuries A.D. Roman children's sarcophagi. The choices were the result of intensive research on both the funerary customs of the time, and the awareness of the predominant use of certain themes in their elaborate commemorations.

**Jason Hill – Geosciences**  
***Analysis of Land Use and Its Effects on Neighboring Stream Systems Using Remote Sensing in Western KY***  
**Sponsor / Mentor: Dr. Haluk Cetin**

The main purpose of this project is to examine effects of land use on stream systems in Western Kentucky. The project focuses on land use practices that can significantly alter local stream characteristics. The general idea is to compare streams on the western side of Kentucky Lake versus streams on the eastern side (Land Between the Lakes) using Landsat Enhanced Thematic Mapper Plus (ETM+) imagery and Geographic Information Systems data. Primary land use practices that contribute to stream morphology include agriculture and develop/urbanization.

**Todd Hoffmann, Dustin Blazer, Charles Pruitt, and John Tucker – Engineering Physics**  
***NASA Moonbuggy Project***  
**Sponsor / Mentor: Dr. Ted Thiede**

On April 3, 2004, a competition was held at the Marshall Space Flight Center in Huntsville, Alabama. To enroll in the event, a group of students had to design and manufacture a simulated lunar rover. The lunar rover is unique, as all the power has to be human generated. The human generated power is derived from two human sources - one male, one female. In addition, the moonbuggy had to be capable of fitting inside a 4-foot cube. Another design constraint is that the buggy had to be rigid and tough enough to withstand a half-mile course. Through months of brainstorming, designing, and constructing, the group embarked on a journey to not only compete in the competition but also spread the name of the Engineering Physics Department at Murray State.

**Megan L. Holler – Economics**  
***The Effect of Tax Reductions on a Free Market Economy***  
**Sponsor / Mentor: Dr. Jim McCoy**

After the apparent economic recession, President George W. Bush faced one of his most rigorous tasks, devising a plan to facilitate economic recovery. There are various theories on exactly how to stimulate an economy. In 2001, President George W. Bush proposed a reduction in income taxes for the sole purpose of stimulating the economy. There has been much debate over this approach to assist economic recovery. It is the hope that these tax cuts will not only encourage investment but also increase consumer spending. Some claim that these tax cuts are only increasing the already growing deficit and will eventually increase real interest rates, which will cause investment to fall. Not only politicians, but economists as well have debated over this issue for quite some time. This presentation will examine the reduction in income taxes and its effect on economic growth as well as formulate a proposal for future fiscal policy.

**Megan Hourigan – Social Work**  
***Helping Hands Collecting Cans***  
**Sponsor / Mentor: Dr. Roger Weiss**

The Helping Hands Collecting Cans project was sponsored by the Murray-Calloway County Need Line and Murray State University American Humanics Program. Three students in an American Humanics class ran the program. The program was a weeklong food drive; collection boxes were placed in participating departments. The programs goal was to collect a minimum of 500 units of food. This goal was met.

**Jennifer Hughes – Mathematics**

***Immunotherapy: A Mathematical Control Theory Approach***

**Sponsor / Mentor: Dr. K. Renee Fister**

We investigate mathematical models for the dynamics between tumor cells, immune-effector cells, and the cytokine interleukin-2 (IL-2). In order to better determine under what circumstances the tumor can be eliminated, we implement optimal control theory. We design two control functionals, the first functional having one control and the second having two controls, to maximize the effector cells and interleukin-2 concentration and to minimize the tumor cells. Next, we show that bang-bang optimal controls exist for each problem. After which, we characterize our optimal controls in terms of the solutions to the optimality system, which is the state system coupled with the adjoint system. Finally, we analyze the various optimal controls and optimality systems using numerical techniques.

**Meigan Jackson and Scott Lowe – Agriculture**

***Evaluation of Dark Fire-Cured Tobacco Varieties***

**Sponsor / Mentor: Dr. Jay Morgan**

On the campus of Murray State University, we have five acres of dark fire-cured tobacco for research test plots. To better enable dark fire-cured tobacco producers to select the best varieties of tobacco to grow in their operation. We have conducted replicated trials to compare the advantages and disadvantages of current commercial dark tobacco varieties during the 2003 seasons. The varieties tested include: TN D94, TN D950, DF 485, DF 911, DT 508, DT 518, DT 592, KY 160, KY 171, KY 190, Black Mammoth, Little Crittenden, Elliott Madole, Jordan Madole, NL Madole, Smith Madole, TR Madole, VA 309, VA 355, VA 359, DT 595, SN 2105, SN 2108, DFH 2301, DFH 2305, DFH 2311, DT 538, and OS 400. The seven experimental breeding lines this year were DFH 2301, DFH 2305, DFH 2310, DFH 2311, SN 2105, SN 2108 and OS 400. The layout of the test plots was a randomized complete block design with four replications. Each plot was 300ft<sup>2</sup>, with 4,900 plants per acre. The amount of fertilizer applied was 300 lbs N, 30 lbs P<sub>2</sub>O<sub>5</sub>, and 80 lbs K<sub>2</sub>O per acre, respectively. Post emergence herbicides used were Prowl at a rate of 1 and 1/3 qt/acre and Spartan (liquid form) at a rate of 12 oz. per acre. The plots were transplanted into the field on June 9th. On August 4-7, the plants were detopped. Applying Butralin and a fatty alcohol mix to each plant to control suckers. The plants were harvested, or housed in the barn on September 15-19. The tobacco was stripped December 8-31. We will be reporting overall yields, yield of each leaf grade, and the overall income per acre of each variety. Statistical analysis was conducted to determine differences between the varieties but were also included in our research.

**Melissa Jenkins, Laura Culver, and Mandy Jenkins – Social Work**

***Bundle up Murray with Blankets***

**Sponsor / Mentor: Dr. Roger Weiss**

The goal of our project called “Warm Up Murray with Blankets” was to collect 50 blankets for Need Line. Many families each year cannot afford heat and are at risk because they have nothing to keep them warm. We started developing our program by finding places we could promote the program. Then we made a flyer to inform people on what we were doing for the blanket drive. We had drop off points in areas such as Union Planters Bank, Boones Laundry, Senior Citizen Center, Residential colleges, Social Work Office, and the Youth and Non-profit Leadership Organization office. We advertised the program in the Murray State University paper, Froggy 103.7, and flyers at the drop off points. We set up in front of Murray's Wal-mart on November 1, 2003 and passed out flyers to possibly receive donations from shoppers. The program ran for two weeks, October 27-November 10, 2003. We ended up collecting 45 blankets new and used. Boones Laundry donated cleaning for the used blankets. We delivered the blankets to Need Line on November 18, 2003. It was a learning experience to help develop a program and implementing it. It can be a building block to help repeat the program and learn from its mistakes.

**Ross Jones – Chemistry (Pre-Med)**

***The Photo-Degradation of  $\beta$ -Carotene in Chloromethane Solvents***

**Sponsor / Mentor: Dr. Mark Masthay**

Orange solutions of  $\beta$ -carotene ( $\beta$ C) dissolved in the common chlorinated solvents carbon tetrachloride ( $\text{CCl}_4$ ), chloroform ( $\text{CHCl}_3$ ), and dichloromethane ( $\text{CH}_2\text{Cl}_2$ ) rapidly become colorless upon exposure to ultraviolet light. In contrast, these solutions lose color slowly when they are exposed to visible light or are kept in the dark. Our results suggest that the color loss proceeds via two competing mechanisms: (i) a  $\beta$ C-to-solvent photoinduced electron transfer (PET) mechanism in which  $\beta$ C absorbs light and transfers an electron to solvent molecules, which subsequently dissociate to yield carbon-centered radicals, and (ii) a direct solvent photolysis (DSP) mechanism in which solvent molecules absorb light and dissociate to yield carbon-centered radicals. In both proposed mechanisms, the color loss occurs when the radicals add across the double bonds of  $\beta$ C. The rates of color loss follow the trend  $\text{CCl}_4 \gg \text{CHCl}_3 > \text{CH}_2\text{Cl}_2$ , and hence are strongly dependent on the number of chlorine atoms in the solvent molecules. In contrast, the rates depend rather weakly on temperature. In this poster we detail the proposed PET and DSP mechanisms, and demonstrate their relationship to the mechanisms which have been proposed to explain the action of light-activated herbicides used to kill broadleaf weeds in wheat and soybean agriculture. These studies may lead to improved strategies for the design of light-activated herbicides.

**Erin Kirby- Interdisciplinary Early Childhood Education**

***Angel's Attic***

**Sponsor / Mentor: Dr. Roger Weiss**

The purpose of our project was to get as many donations of clothes as possible. While we received a significant amount of clothes from the community, we received very little from Murray State students. Overall, we were very satisfied with the results of the Angel's Attic clothes drive.

**Shauna Kline – Accounting**

***Medicaid***

**Sponsor / Mentor: Dr. Don Chamberlain**

Budget deficits are now looming over state governments and Medicaid, on average, makes up 20 percent of states' budgets. Medicaid is the nation's largest program in providing medical and health-related services to America's poorest people. With Medicaid expenditures continually on the rise, the program has been an unavoidable target for states with budget gaps. States have three options when making cuts: trim eligibility, services, or reimbursements. The Bush administration has considered a number of Medicaid reform proposals that would focus on preventive care and offer beneficiaries more choices to help make each Medicaid dollar go further. This paper discusses the history of Medicaid, how it works, why expenditures are continuously rising, what led to the current state budget cuts, and what the state and federal governments are doing about it. New legislation is appearing to help ease state budget cuts on the program due to the fact that for every dollar a state reduces in its Medicaid expenditures, the state loses one to three dollars in federal matching funds. Medicaid is the states' fastest growing expenditures, and millions of Americans and state economies are going to suffer from the program cuts.

**Jenn Lanning – Organizational Communication**

***How Do Organizational Culture and Leadership Styles Affect Volunteer Motivation and Retention?***

**Sponsors / Mentors: Dr. Lou Tillson and Dr. Ed Brewer**

The question posed in this presentation raises many new issues for the leaders of nonprofit organizations. It begins by analyzing four different variables: organizational culture, leadership styles, volunteer motivation, and volunteer retention. Each one of these is defined by the research of other scholars. The variables will be analyzed based on two separate theories: hygiene and motivation theory and leader-member exchange theory. These two theories will answer the research question: how do organizational culture and leadership styles affect volunteer motivation and retention in nonprofit organizations?

**Brian M. Larbes – Economics**  
***Are Human Rights Good for Business?***  
**Sponsor / Mentor: James McCoy**

This paper studies the relationship between a nation's treatment of human rights and the success of its economy. There are several issues involved in this. Is a nation with recognized and enforced human rights more successful than otherwise? Does discrimination hinder a nation's economy? What are the effects of ending a segregated situation, both short and long term? These and other issues are addressed in this paper by comparing national data over time, with a focus on four countries selected from around the world: the United States, China, South Africa, and Liberia. While individual human rights are generally treasured and well protected in the United States and other Western countries, other cultures disagree and place more importance on the well being of the "group". This paper compares and contrasts these different approaches in terms of their known economic effects with a focus on gender and racial equality. The U.S. federal government and its people make decisions everyday regarding human rights and our stance as to how they are treated in the rest of the world. This paper will provide better information to in terms of the consequences of various policies in this area.

**Amanda Law – Psychology**  
***Caucasian Students' Perceptions of Interracial Dating***  
**Sponsor / Mentor: Dr. Paula Waddill**

This study was conducted to determine if Caucasian college students view interracial dating relationships differently from same race dating relationships. A sample of 44 Caucasian Murray State University students were asked to complete a questionnaire regarding their ideas about a couple that was described in one of four scenarios (African American man and woman, Caucasian man and woman, African American man and Caucasian woman, Caucasian man and African American woman). The questionnaire measured opinions on several aspects of dating relationships, including how often the couple met each other's needs, how often the couple would have problems in the relationship, the amount of success of the relationship, the likelihood of the couple continuing to date for a long time, and the likelihood of the couple eventually marrying each other. There was no difference between how same race and interracial relationships were viewed in terms of how often the couple would be able to meet each other's needs, the likelihood of dating for a long time, or the likelihood of future marriage to each other. However, participants perceived same race couples as having significantly fewer problems as well as significantly more success in their relationship than interracial couples. While the majority of the participants expressed a willingness to date someone from another race or ethnic group, it was clear that they also believed that couples in an interracial relationship would have more obstacles to face than couples in a same race relationship. These results may have important implications for social scientists and relationship counselors.

**Kristina M. Lee – Communication Disorders**  
***Disfluency Treatment Statistics***  
**Sponsor / Mentor: Dr. Pearl A. Payne**

Under the guidance of my mentor, Dr. Pearl A. Payne, Associate Professor and CDI Program Director, I have observed speech pathology intervention for a four-year-old female who stutters. The data were compiled to follow her response to therapy over time. The statistics show a continued decrease of disfluency-to-fluency ratio during structured therapy, verifying successful treatment that fulfills previously set objectives for the client. The poster presentation will utilize graphs and tables to display the above information. Additionally, specific examples of structured treatment used during therapy and illustrations of transfer success from therapy to speech in natural, unstructured play will be presented. Published research will be provided to support the findings and the choice of therapy techniques selected for treatment with this client.

**Pattraranee Limphong – Chemistry**

***The Photo-Degradation of  $\beta$ -Carotene in Chloromethane Solvents: Separation and Identification of Photoproducts***

**Sponsor / Mentor: Dr. Mark B. Masthay**

Orange solutions of  $\beta$ -carotene ( $\beta$ C) dissolved in the common chlorinated solvents carbon tetrachloride ( $\text{CCl}_4$ ), chloroform ( $\text{CHCl}_3$ ), and dichloromethane ( $\text{CH}_2\text{Cl}_2$ ) rapidly become colorless upon exposure to ultraviolet light. In contrast, these solutions lose color slowly when they are exposed to visible light or are kept in the dark. Our results suggest that the color loss proceeds via two competing mechanisms: (i) a  $\beta$ C-to-solvent photo induced electron transfer (PET) mechanism C absorbs light and transfers an electron to solvent molecules, which in which subsequently dissociate to yield carbon-centered radicals, and (ii) a direct solvent photolysis (DSP) mechanism in which solvent molecules absorb light and dissociate to yield carbon-centered radicals. In both proposed mechanisms, the color loss occurs when the radicals add across the double bonds of  $\beta$ C. The rates of color loss follow the trend  $\text{CCl}_4 \gg \text{CHCl}_3 > \text{CH}_2\text{Cl}_2$ , and hence are strongly dependent on the number of chlorine atoms in the solvent molecules. In contrast, the rates depend rather weakly on temperature. In this poster we detail the proposed PET and DSP mechanisms, and demonstrate their relationship to the mechanisms which have been proposed to explain the action of light-activated herbicides used to kill broadleaf weeds in wheat and soybean agriculture. These studies may lead to improved strategies for the design of light-activated herbicides.

**Patricia Lovett – Spanish**

***Julio Cortazar and Fantastic Literature***

**Sponsor / Mentor: Dr. Michael Waag**

The subject of this project is the influence of Julio Cortazar in the genre of Fantastic literature. I will discuss some of his short stories and the manner in which they exemplify the interplay between reality and unreality characteristic of this style.

**Jason W. Marchmon – Sociology / History**

***The Machine Takes Center Stage: Representations of Technology in Early American Art***

**Sponsor / Mentor: Dr. William Mulligan**

In nineteenth century America a pervasive belief in Manifest Destiny and the power of machinery tended to conceal the contradictions between the need for economic growth and an aesthetic desire to preserve the natural landscape. These contradictions, and the cognitive dissonance they produced, are apparent in the works of painters, photographers, printmakers, and sculptors of the era. Images of technology as the symbol of economic expansionism and man's mechanistic triumph over nature were produced alongside grandiose landscape paintings that presented the majestic New World as the utopia of humanity's dreams, and in many the two are intertwined. Artifact studies of the primary artworks, correspondence, reviews, writings, and an examination of the social conditions of the years between 1790 and 1865 reveal the basic attitude of the nation towards the progress envisioned in technology.

**Jason W. Marchmon – Sociology/ History**

***The "No More Hanging Chads" Syndrome: Voting, Democratic Values, and the Technological Fix***

**Sponsor / Mentor: Dr. Lillian Daughaday**

Emphasis in the field of technology and society is often embedded in the notion of technological impacts on society and the interplay of social forces and technology. The expression "technological impacts" is a metaphor that implies that technology is a discrete force with a discernible direction and influence. Are we bound to be what our machines make us? The question of technological determinism speaks to some of our most lively sociological debates, and infuses even our daily discourse—regarding work, leisure, and civic life with the same mechanical attitudes and maxims as our technical systems. "The automobile created suburbia." "Robots put riveters out of work." Phrases such as these place technology as the subject of an active predicate, assigning moral value and agency on an artificial system. This assignment of agency proves pervasive in local, national, and international discourse. An exemplary model is found in the 2000 US presidential election. Value systems and social norms surrounding voter responsibility and election results were improperly assigned to the machines and "antiquated technology". A case study of the May 22, 2001 US House of Representatives Committee on Science Hearing on "Improving Voting Technology: The Role of Standards," and various proposals stemming from the hearing will reveal the flaws of a "technological fix". Decision-making skills, voter education, the subversive nature of technology (from a normative and deviant view), and shared meaning in our visual culture all play a part in directing our behavior, but the ultimate responsibility must be individual, not technological.

**Jason W. Marchmon – Sociology/ History**



***Willing Technocracy: The Extension of Technology as Progress in Post World War II America***  
**Sponsor / Mentor: Dr. Jamie Whidden**

Since the middle of the 20th century, the collaboration of big technology, big business, and big government has gone largely unchallenged. Social divisions often render many powerless to guide the development of emerging technologies. Some of the more recent—and farthest reaching—technologies were not subject to widespread debate at their inception. The history of nuclear power exemplifies the ability of well-insulated elites to impose deep-rooted technological “solutions” on the public. How did this relationship develop between government officials, scientists, and technologists? I propose this involvement is a direct outgrowth of several factors: the vision of technocrats during the period between 1930 and 1970, the “success” of the Manhattan Project, the Cold War struggle, and increased dependency upon—and perhaps more importantly, willingness to allow—government selected “experts” to make decisions concerning science and technology policy in the United States.

**Jason W. Marchmon – Sociology/ History**  
***Beyond the Market Value: Giving Real Value to the Term “Need”***  
**Sponsor / Mentor: Dr. Franklin Robinson**

Do obligations begin and end at the workplace? One of the greatest challenges of any social or political system is the question of equal status and treatment of every individual, and the rights and obligations of those individuals. With rights come duties. The ideas of justice, duty and liberty—inherently a part of the original contract defining our society—only move from theory to practice through moral agency, a requirement often overlooked in daily actions. Obligation to the poor often requires a sense of brotherhood, of humanity. In many cases, this contradicts the American market utilitarian idea—“does it sell?” What place do the poor have in society? What value and rights do they have? I contend that we all share a responsibility for the fulfillment of basic needs that compels us to act in accordance with the idea of sharing burdens as well as bounties.

**Jason W. Marchmon – Sociology/ History**  
***Wrestler or Worker? Mechanization, Individual Accomplishment, and Collective Identity in Collegiate and Olympic Wrestling***  
**Sponsor / Mentor: Dr. Edward Armstrong**

Both individual and team sports contain differences in instrumental and expressive behaviors. Cohesiveness and sublimation of personal preferences and priorities underlie team sports, while individual sports rely upon autonomy and personal dynamics. However, where do sports such as collegiate or Olympic wrestling fit within this classification? Often, personal performance styles conflict with the collective norms of a team. The cyclic nature of athletic performance within a typical match spurs dissonance between the role of wrestler and the role of team member. This tension is codified within the normative order of modern wrestling rules as defined by the governing bodies of collegiate and Olympic wrestling. Teams are ranked, as are the individual wrestlers. Scoring systems reward different types of individual victories with varying points for the team, necessitating a team-oriented mindset in the competitor. Imposing a uniform time limit—generally absent from other individual sports—establishes a normative order within the wrestling community, emphasizing team performance and standardizing individual performance. The team sanction dictates the desired outcome of an individual match, and the timer dictates the outcome when an absolute victory (pinning the opponent) is not achieved.

**Jason W. Marchmon – Sociology/ History**  
***Belief or Science? The Philosophical Framework of Theoretical Science***  
**Sponsor / Mentor: Dr. Gina Claywell**

One of the primary foci of science is constructing theories; however, the empirical consequences of a theory invariably rest on background assumptions—also called auxiliary assumptions—from which scientists derive predictions and even obtain data. Claims that “scientific and philosophical theories cannot help but have religious presuppositions that control and regulate them,” and “no [science] can be interpreted in the absence of at least some implicit body of intertwined theoretical and methodological belief that permits selection, evaluation, and criticism” reveal the often subjective nature of specific theories. Moreover, science can be lifted onto such a pedestal that it is seen as the supreme activity of humanity and its only source of truth; in effect, science becomes a religion. Theoretical Science is largely encased within the rubric of philosophy, sharing a structure of “faith” with philosophies and theologies. This is based upon—and evidenced in—theories of knowledge, design of scientific theory and experiment, and the idea of “fixation of belief”.

**Jason W. Marchmon – Sociology/ History**

***Shell-shock on the Home Front: Approaching the Sense of Otherness in Frank O'Connor's "My Oedipus Complex"***

**Sponsor / Mentor: Dr. Gina Claywell**

Otherness and human contact play key roles in Irish short stories, and especially within Frank O'Connor's collections. Our own perceptions of otherness, however, cloud the waters of history's river; readers today tend to view O'Connor's stories within a reference of modernity only gained in the past forty years. When we read "My Oedipus Complex" today, we construct the contextual interpretation based upon our knowledge of segments of the text, such as the Oedipal cycle, and conceptions of war. We focus on this information, often at the expense of larger patterns imbedded in the piece. By incorporating an historical approach in the analysis of O'Connor's work, the stories expose the sense of otherness and isolation as the core of O'Connor's characterization of Irish life.

**Jason W Marchmon – Sociology/ History**

***The Machines Had All the Cards: An Exploration of the Dystopian Themes of Kurt Vonnegut***

**Sponsor / Mentor: Dr. Gina Claywell**

In accordance with the philosophy of knowledge, science has to be single-minded in its search for truth, objective and impartial; but it only achieves these ends by ignoring the distraction of moral issues and value judgments. Over the past century, writers of both fiction and nonfiction have placed increased emphasis on the notion of ascendancy of technology and progress over humanity—the concept of dystopia. Throughout his body of work, Kurt Vonnegut stresses the needs of humanity in a technological world and individualism in conjunction with a sense of communitarian spirit; this is often accomplished through the use of satire, typically aimed at the totalitarian mindset, and the mind-numbing effects it produces. Vonnegut's work often centers on the themes of the domination of man over himself or the dominion of man-made technologies over humankind. The notion of dystopia is woven throughout each tale, as tightly knitted as a fine cloth. Vonnegut has a keen eye for the dystopian strains present in our current society, and has played out these scenarios in his works since the early 1950s. An analysis of Vonnegut's body of work reveals the variant themes of dystopia within his stories.

**Lindsay Marlow**

***The Effects of UV-B Radiation on Tiger Salamander (*Ambystoma tigrinum*) Eggs From Different Regions***

**Sponsor / Mentor: Dr. Howard Whiteman**

Biodiversity loss is rampant around the globe. Included among these species are many amphibians, which are highly susceptible to environmental stressors. This susceptibility makes amphibians excellent bio-indicators for environmental quality and especially useful subjects for tests to determine the causes of the decline in biodiversity. Many hypotheses have been proposed for amphibian declines, including toxins, UV-B radiation, parasites, habitat loss, invasive species, and several others. In this study, we investigated the effects of three levels of UV-B radiation on different populations of Tiger Salamanders (*Ambystoma tigrinum*) from different regions of UV-B exposure to determine if some populations were better adapted to cope with radiation than others. UV-B radiation has been shown to be detrimental to hatching in the eggs of some species of amphibians while other species' eggs are seemingly unaffected. We compared mortality and sublethal effects across treatments and populations. Results of our study will be discussed.

**Mary Mather – Music**

***Comparison of the Female Characters in the Musical Works of Richard Rodgers and Oscar Hammerstein and of Stephen Sondheim***

**Sponsor / Mentor: Dr. Sonya Baker**

This performance, presented in lecture and music, compares the female characters in the musicals of Richard Rodgers and Oscar Hammerstein to those of Stephen Sondheim. The musicals of Rodgers and Hammerstein and Sondheim have been chosen because they were innovative for their time. Rodgers and Hammerstein, who began composing together during the 1940's, produced the first musicals that combined the elements of theatre, music, and dance. Their musicals were some of the first to address issues such as racism, war, prejudice, and abuse. Sondheim began composing during the 1960's. While Rodgers and Hammerstein were innovative in their synthesis of theatre, music, and dance, Sondheim is innovative in his marriage of text, music, set, and orchestration, so that each of these elements supports his underlying purpose. Sondheim's musicals also address serious issues; however, while Rodgers and Hammerstein resolve these issues in an "idealistic" manner, Sondheim writes from a more "disillusioned" perspective. The focus of this project is on the choices made by the female characters of these composers' musicals and how the choices reflect the time period in which the musicals were written. The lecture recital includes a brief biographical background of Rodgers, Hammerstein, and Sondheim, an examination of the female characters, the choices made by these characters in a historical context, and a survey of Murray State University students' perceptions of women's issues and how they might relate to the viewing of these musicals. Additionally, musical and theatrical excerpts will be used to illustrate each of these points. This lecture recital will also feature an original scene and song written by Ms. Mather in an effort to further exemplify the differences between the writing of Rodgers and Hammerstein and that of Sondheim.

**Alicia Mathis – Psychology**

***Cosmetic Use, Fashion Magazines, and Self-esteem***

**Sponsor / Mentor: Dr. Paula Waddill**

This study was designed to investigate if the use of cosmetics and the reading of beauty and fashion magazines were related to self esteem. Forty-four Murray State University female undergraduates were asked to complete two questionnaires. The first measured their self-esteem and the second measured their cosmetic use and magazine reading frequency and influence. Although makeup use in general was not related to self-esteem, those women who said they felt better about themselves while wearing their makeup had significantly higher self-esteem. Women who wore makeup more often reported being significantly more influenced by fashion magazines and likely to read them more often. Those who read beauty/fashion magazines more often reported being more influenced by them and had higher self esteem. The cosmetic questionnaire asked the participants what makeup they wore when they wore all their makeup, what make up they wore when they only wore part of their make up, and what three beauty/fashion magazines they read most often. The most frequently worn item of makeup was mascara followed closely by eye shadow. The most frequently read magazine was Cosmopolitan, with half of those responding putting Cosmopolitan as one of top three magazines they read.

**Michelle Matzke – Psychology**

***Tolerance of Relationship Violence***

**Sponsor / Mentor: Dr. Paula Waddill**

Corporal punishment has become one of the most controversial issues in America. This study attempted to find supporting evidence for the relationship between physical punishment during childhood and the tolerance of relationship violence as an adult. A sample of 43 Murray State University students volunteered to participant in this study. Each participant was asked to complete four different questionnaires, two that asked about the kinds of punishment they received as children, one that evaluated the level of family conflict in their home during childhood, and one that asked them to evaluate various scenarios of different levels of violence during a conflict between a married couple (verbal aggression, threatening, throwing an object, hitting). The results indicated no significant relationship between the level of family conflict in childhood and the tolerance for relationship violence as an adult. However, individuals who were more frequently physically punished in childhood were significantly more tolerant of physical violence (hitting) and threatening in a marital relationship than those who had been physically punished less frequently or not at all.

**Clint Metzger, Prashant Bommi, and Beth Kobylarz – Chemistry**  
***PCB Congeners and Chlorinated Pesticide Concentrations in Amphibians Collected From Western Kentucky***  
**Sponsor / Mentor: Dr. Bommanna G. Loganathan**

Polychlorinated biphenyl congeners (PCBs) and chlorinated pesticides such as DDT, hexachlorobenzene (HCB), and chlordane compounds are known for their widespread contamination, bioaccumulation, and biomagnification in food chains and their long-term toxic effects on wildlife and humans. Recent investigators have suggested that the global decline and morphological deformities are disturbing indicators of environmental degradation and possible human health hazards. Although a variety of causes for these problems have been explored, the role of organic contaminants is unclear. The objective of the present study was to measure the organic contamination (PCBs and chlorinated pesticides) levels in normal and deformed amphibians collected at several farm locations in and around Calvert City and Kentucky Lake in western Kentucky. Standard analytical procedures including, Soxhlet extraction, Kuderna-Danish (K-D) concentration, silica gel column chromatography cleanup and GC-ECD analysis were followed. The results revealed that amphibian contamination levels varied with population and species in apparently normal Bullfrog Larva and total PCB congener and total pesticide concentrations ranged from detection limit ( $0.35 \text{ ng g}^{-1}$ ) to  $10.36 \text{ ng g}^{-1}$  wet weight and detection limit ( $0.35 \text{ ng g}^{-1}$ ) to  $< 6 \text{ ng g}^{-1}$  wet weight respectively. In deformed Bullfrog larva, total PCB concentration recorded was as high as  $>22 \text{ ng g}^{-1}$  wet weight. However there was no significant difference in pesticide concentrations that were observed between normal and deformed individuals.

**Bryan Meurer – Accounting**  
***Healthcare in America***  
**Sponsor / Mentor: Dr. Don Chamberlain**

Healthcare in America is becoming a major issue in all forms and areas of government. Rising costs and declining coverage has caused many Americans to become uninsured. This has sparked a raging political debate on how to ensure Americans are provided with the resources needed to continue to live healthy, enriched lives. The current status of healthcare has been shaped by factors such as rising premium rates, more costly and specialized medical procedures, options for more effective, yet expensive, prescription drugs, and a growing elderly population, among others. The federal government, along with other areas of government, has begun to meet the challenges of providing sufficient healthcare head on. Proposals and reforms are being initiated and implemented to combat the rising costs and lack of benefits experienced by many constituents. Through such reforms and initiatives, sparked by the recent political debates, the future of healthcare has the potential to be satisfactory for all Americans. Comparison of healthcare trends internationally and evaluation of political and economic ideas can provide an adequate picture of how healthcare will be handled in the future to the benefit of America.

**Michelle A. Meyer – Sociology**  
***Burden***  
**Sponsor / Mentor: Dr. Ivan Pulinkala**

Women are expected to play clashing roles in today's world: mother/ worker; innocent/ experienced; modest/ confident; intelligent/ weak; sexy/ shy; to name a few. To this end, what is female has become a question that cannot be clearly defined. Fighting to play all of these opposing characters in life can potentially lead to insanity both in women's own minds and a perceived insanity from the world at large that still views us as second class and incomprehensible. I believe much of what is considered insane in women is constructed from the burden of unrealistic social standards to which women attempt to conform. Once a woman learns to strive for only what would make her feel successful and ignore the pressures from society, the insanity dissipates. To portray this societal burden through movement, I will use five dancers: three females and two males. For props, the dance is developed surrounding three of black blocks, creating more interesting shapes. The blocks represent the confinement of societal standards. The music for the piece is Samuel Barber's mournful Adagio for Strings. Choreographically, I am working with strange space designs. Strange space pushes me out of my comfort zone and represents the insanity concept very well. I am drawing inspiration from my view of this issue as well as from other's opinions of insanity by reading feminist writings dealing with society's influence and control: *The Bell Jar* by Sylvia Plath, *The Feminine Mystique* by Betty Friedan, and *The Yellow Wallpaper* by Charlotte Perkins Stetson.

**Amanda Miller – Psychology/Spanish**  
***Humor Styles and Individual Factors: A Correlational Study***  
**Sponsor / Mentor: Dr. Alysia Ritter**

Recently, a number of psychological studies have been investigating individuals' humor styles, or the manner in which humor is used in an individual's everyday life. Perhaps these investigations have been propelled by the discovery of positive correlations between an individual's humor style and a variety of individual factors, including conscientiousness, cheerfulness, self-esteem, and optimism. This study will attempt to further such findings, using the newly developed Humor Styles Questionnaire (HSQ) to assess humor styles. The HSQ is unique compared to other humor scales, because it consists of four subscales: affiliative, self-enhancing, aggressive, and self-defeating humor. A study using this particular humor scale merits investigation for two main reasons: the HSQ is the only scale to assess aggressive and self-defeating humor, and, furthermore, studies using the HSQ to investigate humor styles are scarce and the scale needs further analysis. The individual factors that will be analyzed concerning humor styles include sensation seeking, IQ, procrastination tendencies, birth order, and political conservatism. The study will be performed through a series of questionnaires, and the data will be analyzed using a series of correlations and several multiple regression analyses.

**Amanda Miller – Spanish/Psychology**  
***Representation of Cultural Identity in Mexican-American Literature***  
**Sponsor / Mentor: Dr. Jorge Medina**

The growing Hispanic population in the United States is a dominant and undeniable theme of today's society. According to the U. S. Census Bureau, 37.2 million Latinos were living in the United States in 2002; of these, 66.9% were of Mexican descent. The Hispanics have surpassed all other minority groups and are now considered the largest minority group in the United States. Unfortunately, to many Americans, this influx of Mexican-Americans means little more than cheap labor and Mexican restaurants. It is a pity that the cultural diversity this group represents is not recognized and appreciated. This wave of immigrants has not only introduced a new cultural identity, but also added many contributions to the American literary community. These works represent not only the unique cultural identity of the Mexican-American, but also signify his struggle to maintain and manage his unique identity in an attempt to endure in American society. In order to further investigate the topic of Mexican-American literature, one must begin by considering not only the idea of an individual literary work, but also how this idea can be integrated into the overall theme of the Mexican-American culture. How does the author describe the relationship between the Mexican-American and American societies? How can the views of the Mexican-American about his role in society be compared to the position American society assigns him? How does the Mexican-American use literature to express his identity? These ideas will be explored primarily through a literature review of a play titled *Los Vendidos*, by Luis Valdez. This play is among those that composed the popular "Teatro Campesino", and was written to express the plight of the Mexican-American, as well as motivate them not to succumb to the pressures of American society. In order to analyze this specific work, other pieces of literature by various authors will be used to provide outside references and insight into the Mexican-American identity.

**Melissa M. Miller – Psychology**  
***Factors Related to Memory of Pro- and Anti-War Material***  
**Sponsor / Mentor: Dr. Paula Waddill**

Research has shown that certain personality characteristics can affect the way an individual interprets war-related information. This study evaluated the roles of both personality traits and media exposure on people's memory for war-related photographs. Participants were assessed on their attitudes regarding the war in Iraq. They then viewed and rated the personal impact of a series of slides depicting scenes of patriotism and American military activity in Iraq, as well as scenes that showed civilian casualties and grief. Afterwards, the participants filled out questionnaires measuring a variety of personality characteristics. They finished by recalling as many of the slides as they could remember, and by recording which three slides affected them the most. The relevance of the results to how people remember information depicted in the media is presented.

**Melissa M. Miller – French**

***The Satirical Genius of Voltaire as Shown in Zadig, Micromegas, and Candide***

**Sponsor / Mentor: Dr. Janice Morgan**

Voltaire lived in an age where wit reigned supreme, and political intrigue ran rampant. French society was experiencing a time of turmoil where the government and the church were not to be maligned without severe repercussions. To overcome this righteous hurdle, Voltaire became the master of satire. This research paper explores his use of satirical wit to thumb his nose at the idiosyncracies and dogmas of the government and religion, as well as his disdain for the simplicity of some philosophy as is covered in his philosophical stories: *Zadig*, *Micromegas*, and *Candide*.

**Clark Mills – Economics**

***Profit Through Immoral Behavior on Television***

**Sponsor / Mentor: Dr. Jim McCoy**

In order to create success in the entertainment industry, nothing is more important than establishing an audience. The audience buys the CD, goes to the movie, or watches the television program. One of the most profitable strategies of late has been to shock the audience with offensive behavior in order to have some publicity. Janet Jackson's breast which was revealed during the past year's Super Bowl Halftime Show was publicized on every news broadcast across the nation for at least a week. The majority of the anchors condemned Janet's action and supported a fine. The major argument was that this was neither the time nor the place for such a display. But, could this have been perfect timing? This paper will be a cost/benefit analysis of using immoral behavior in order for promotion and publicity. Although many believe that a fine and a tarnished reputation is harmful to an entertainer, my hypothesis is that the benefits greatly outweigh the costs when someone goes against the moral code established by the Federal Communications Commission. The conclusion of this paper will include recommendations for the FCC and the entertainment industry regarding ethics in television.

**Jonathan S. Minton – Accounting**

***GASB 34***

**Sponsor / Mentor: Dr. Don Chamberlain**

Accountability to the citizenry is the cornerstone of government financial reporting and the linchpin from which all other governmental accounting objectives are derived. GASB Concept Statement 1 states that governments have a responsibility to provide enough information to assist users of financial statements in evaluating their government's adherence to specific constraints. However, for governments to be held fully accountable, GASB Concept Statement 1 stipulates that governments should provide information that includes the cost of services provided, whether or not sufficient revenues have been raised, and the government's overall financial position. Before the introduction of GASB 34, this type of information was not made available. GASB 34, appropriately titled "Basic Financial Statements and Management's Discussion and Analysis for State and Local Governments", properly identifies the way in which a government's accountability should be demonstrated to its citizenry. GASB 34 completely revamps the governmental financial reporting model and prescribes that a set of governmental financial statements should include management's discussion and analysis, government-wide financial statements (the new essence of accountability), fund financial statements (the original, and continuing statements), notes to the financial statements, and any required supplementary information. This paper discusses all of these provisions as well as elaborates on the need for governmental accountability and the benefits that GASB Statement 34 brings to the governmental reporting environment.

**Joseph Moneymaker – Elementary Education**

***Using Award Winning Literature in the Classroom***

**Sponsor / Mentor: Dr. Bonnie Higginson**

This was a unit used with Kindergarten and first grade students that incorporated ideas of the Kentucky Reading Project. Various comprehension and vocabulary strategies were used to reach all students. This unit covered the various parts of the curriculum. In addition, the unit addressed core content that students are required to learn in the state of Kentucky.

**Brianna Moore – Middle School Education**

***The Factors Controlling the Growth of the Ledbetter Embayment Mudflat, Kentucky Lake Reservoir***

**Sponsor / Mentor: Dr. George Kipphut**

The Ledbetter embayment mudflat of the Kentucky Lake Reservoir in western Kentucky has been actively growing for over half a century. This study is focused on identifying the sources, movement, and accumulation of the sediments in the mudflat and documenting the growth of the mudflat through time. The project is aimed at learning more about the interaction between physical, geological, and biological aspects of the mudflat. A major research objective is to determine whether the growth of the mudflat is episodic, as a result of flood and stream events, or if the growth of the mudflat is steady and constant over time. The project is investigating how water movement and vegetation growth move and hold the sediment, and how the sediment types, accumulation, and flow affect the shape and growth of the mudflat. The potential significance of this research lies in the creation of a database about similar environments in reservoirs. Research methods include sediment collection and identification, stratigraphy analysis, mapping of the mudflat, and ground and aerial photograph analysis.

**Gregory Scott Morgan – Psychology**

***Political Beliefs and Behaviors***

**Sponsor / Mentor: Dr. Alysia Ritter**

Political parties have come to play a significant role in modern U.S. politics. Many have even claimed that our nation is significantly divided along party lines. Indeed, some people strongly identify with a particular party. Still, many others choose to remain un-aligned. The current research examines individuals' party affiliation within the context of two psychological phenomena known as BIRGing and CORFing. In a classic 1976 study, Cialdini et al. uncovered a phenomenon known as basking in reflected glory (BIRGing). During BIRGing, an individual strengthens and / or publicizes their connection with a successful other. Additionally, Snyder, Lassegard, and Ford (1986) discovered a complimentary phenomenon known as cutting off reflected failure (CORFing). During CORFing, an individual weakens and / or conceals their connection with an unsuccessful other. This presentation will discuss the BIRGing and CORFing phenomena, along with several related factors, that influence a person's tendency to express their allegiance to a political party.

**Elaine Moss – Mathematics**

***An Alternative Schedule for Double Elimination Tournaments***

**Sponsor / Mentor: Dr. Scott Lewis**

Double elimination schedules are commonly used for many games and sports, including Olympic sports such as softball and volleyball. The most common form of double elimination begins with a winners' bracket and then places teams in the losers' bracket as they lose games. The winners of these two brackets then play each other in order to determine the winner of the tournament. Some advantages of using a double elimination schedule instead of a single elimination schedule are that a double elimination schedule allows a good team to play poorly in one game without losing the entire tournament as a result and guarantees every participant at least two games in the tournament. An alternative double elimination tournament schedule is constructed for any number of players equal to a power of two. In this alternative schedule, for any two players the difference in the number of wins needed in order to win the tournament is significantly smaller than in the standard double elimination schedule. In addition, the sit-outs of the tournament are more evenly distributed among the players than in the standard double elimination schedule where the winner of the winners' bracket sits out several rounds more than any other player. Our goal is to present a double elimination schedule that is shorter and more equitable to the players.

**Erin Mosser – Sociology**

***Stereotypical Gender Roles***

**Sponsor / Mentor: Dr. Ed Armstrong**

Men and women are always separated by gender roles. Men hunt and women gather. Our society depicts the stereotypes of gender roles in media prime time shows. The most popular shows are centered on the stereotypical gender roles in a feministic society. The purpose of this content analysis is to see if "Friends", the most popular NBC show, depict a stereotype of gender roles in our feministic society. My unit of analysis is volume one of the "Ten Best Episodes of Friends".

**Tera Rica Murdock – Chemistry*****Exploring the Adenine-Binding Region of Antibiotic Resistance Enzyme*****Sponsor / Mentor: Dr. J. Ricky Cox**

The rise in bacterial resistance to antibiotics has reached a crisis level and is considered a public health emergency. Pathogenic bacteria have countered the overuse of antibiotics by expressing a multitude of gene products that render the drugs ineffective. A family of bacterial enzymes that serves as detoxifying agents of aminoglycoside antibiotics has been identified as ATP-dependent aminoglycoside 3'-phosphotransferases (APH(3')). Along with hydrogen-bonding interactions, these enzymes utilize a pi-pi stacking interaction involving an aromatic amino acid to bind the adenine ring of bound nucleotides. Our results derived from steady-state kinetics and quantum-mechanical calculations suggest that these contacts with the adenine ring determine the specificity in the adenine-binding region of these enzymes. Compounds that contain guanine-type ring systems do not block the entry of ATP into the active site of the IIa and IIIa enzymes, while other aromatic systems distinct from the adenine ring are competitive inhibitors of the enzymes with respect to ATP. Overall, the data suggests that there are strict electrostatic requirements for recognition in the adenine-binding region of these kinases and that contacts such as the pi-pi stacking interaction may be exploited to design inhibitors of these antibiotic resistance enzymes that may serve as potentiators of aminoglycoside action.

**Lauren Noel, Amanda Edmondson, and Annie Leigh Cruse – Organizational Communication*****What a Girl Wants*****Sponsor / Mentor: Dr. Roger Weiss**

On November 19, 2003, Lauren Noel, Annie Leigh Cruse and Amanda Edmondson gave a presentation to a group of young girls at Cadiz Baptist Church in Cadiz, Kentucky. Lauren Noel spoke to the young women on the issue of eating disorders. As a survivor of anorexia nervosa, Noel had very personal and knowledgeable things to share with the young women. She was also able to inform them on how to identify different eating disorders by being observant of specific symptoms. Amanda Edmondson spoke to the young women about inner and outer beauty. She used the Bible to define how God defines beauty. Amanda worked to show the girls that their beauty could not come from external adornment, but that it had to come from a personal relationship with Jesus Christ. Finally, Annie Leigh Cruse spoke to the young women on the topic of sexual abstinence and purity. As a candidate for Miss Kentucky, Cruse is dedicated to her platform topic of sexual abstinence. Cruse was able to use several illustrations to demonstrate the dangers of sexual activity outside of marriage.

**Casey Osburn – Psychology*****HANDS (Helping Area Needy with Donations)*****Sponsor / Mentor: Dr. Roger Weis**

The HANDS program was developed to help Needline raise hygiene and household items for over a thousand families in the Murray-Calloway area. In the course of a week, HANDS raised 555 items for Needline. The program also increased awareness across the campus.

**Jennifer Oyler – Elementary Education*****Veteran Teachers Receive Professional Development from High-Tech Student Teacher*****Sponsor / Mentor: Dr. Nancy Boling**

I am completing my student teaching at Crofton Elementary School this semester. Because of the integration of technology that I have used in teaching my students, the principal requested that I conduct a workshop for the veteran teachers at my school. (See <http://coed.murraystate.edu/jennifer.oyler/Artifacts/pd%20agenda.doc>). I used the school's Smart Board Interactive Whiteboard, which is a device that projects the computer screen onto a large board. I used a PowerPoint presentation to explain ways to integrate technology into the classroom setting. (See <http://coed.murraystate.edu/jennifer.oyler/Artifacts/pd%20presentation.ppt>). One technique I demonstrated to the teachers was how to use the Internet to research classroom topics. I gave examples of how to search using Boolean symbols and quotation marks to narrow the results of search topics. I also demonstrated specific teacher-related and education web sites in several areas. (See list at <http://coed.murraystate.edu/jennifer.oyler/Artifacts/bookmark.htm>) I used this technology presentation as part of my College of Education Eligibility Portfolio, which is required of education majors in order to graduate with a teaching degree. In addition, I put the entire presentation online as part of my electronic portfolio. The entire site can be viewed at (<http://coed.murraystate.edu/jennifer.oyler/default.htm>). After researching, organizing, and presenting the content of the professional development session, my presentation exemplifies "the student teaching the teacher".



**Steven Quarcelino – Geoscience**

***Using Landsat Thematic Mapper Data to Detect Turbidity Levels in Lake Barkley, Kentucky***

**Sponsor / Mentor: Dr. Haluk Cetin**

This study focuses on using Landsat Thematic Mapper (TM) data to map turbidity levels in Lake Barkley, Kentucky. Similar studies have been done on Kentucky Lake. TM data from 1997 and ground data collected for a previous study during the same year are compared to map the turbidity in Lake Barkley.

**Alicia Ray – Spanish and Print Journalism**

***Hispanic Feminists***

**Sponsor / Mentor: Dr. Mica Howe**

My presentation will explore the existence and prominence of feminism in Spanish-speaking countries, countries that are stereotyped as antifeminist. I studied three Spanish poets, Gabriela Mistral, Julia Alvarez, and Alfonsina Storni in order to show the existence and definition of Spanish feminism.

**Mehnaz Reza – Economics**

***Outsourcing of American Jobs in the IT Industry***

**Sponsor / Mentor: Dr. James McCoy**

The outsourcing of jobs to foreign countries is a serious problem for the U.S. economy. As thousands of U.S. information-technology jobs continue to depart the U.S. for India, Russia, China and other low-wage countries, predictions of economic ruin have reached a fevered pitch. The overseas challenge in technology came from linking nations to technically trained people who are ready to work at cheaper wages. The Internet also had a very important role to play. The spread of high-speed Internet connections in the last few years meant that foreign programmers were just a mouse-click away from American corporations that were eager to cut their software development costs. When one person is laid off in the United States, for the same amount of money, two or three people can be hired in India or China. Developing countries such as India or China are the perceived threats. One generally does not worry about American jobs going to wealthy industrialized countries like Canada and Germany because the workers in these countries are also highly paid. Because Indian or Chinese workers are paid only a fraction of what a comparable American or a Canadian makes, the competition is viewed as unfair. This caused many people, including government representatives, to take actions in order to stop American jobs from being outsourced. Despite the voices of protest in the United States, outsourcing seems likely to continue. This paper will explore the costs and benefits of labor outsourcing and how US and foreign economies are being affected. It will also look at the current policies taken by the government both in US and foreign economies. Finally, it will make recommendations as to US policy concerning this issue.

**Erin Richards – Journalism**

***Do Horses Neigh With an Accent? The Importance of Studying Abroad for Collegiate Equestrians***

**Sponsor / Mentor: Dr. Ann Landini**

Bizarre landscapes. Strange customs. People you cannot understand. Studying abroad in college is now one of the best ways for students to expand their education and world knowledge, so it is no surprise colleges and universities across the nation are coming up with more and more ways to help students study overseas. For the collegian with a specialized interest in horses, however, schools with study abroad programs may not offer these students with an opportunity to learn more about the international aspect of equine management, showing, and business. This paper is an in-depth freelance article I wrote for USA Equestrian magazine that highlights the importance of studying abroad for collegiate riders and includes comments from study abroad professionals, teachers and students. It explains how students can prepare for the experience, what to expect when they are overseas and what kinds of experiences they should pursue. Personal journal entries from my experiences studying at Hartpury College's equine program in England last year parallel the main text.

**Erin Richards – Journalism*****The Doctor is Out: The Effectiveness of Aromatherapy, Herbs, and Homeopathy in Horses*****Sponsor / Mentor: Dr. Howard Whiteman**

As horse owners and horse care providers struggle to come up with new and better ways of caring for equines, the use of alternative medicine has grown in popularity. Therapies such as massage, chiropractic, osteopathy, laser treatment, hydrotherapy and ultrasound have been used with documented success (success which parallels the positive results in human studies), yet the effectiveness of lesser-used, "natural" remedies is still being debated. Many veterinarians and equine professionals discount the largely "unscientific" use of aromatherapy, herbs, and homeopathy. Although the studies are scarce and often difficult to find, reports show there may be potential for improving equine health with these treatments. Until more studies are conducted on horses, experiments and anecdotal evidence from the use of aromatherapy, herbs, and homeopathy on humans will be referred to in this report, as results are often similar across species. Equine professionals agree competition horses (which are far more susceptible to health problems and injury than pleasure horses) need as many avenues for treatment as possible, but the inconsistent evidence about the efficacy of aromatherapy, herbs and homeopathy continues to divide horse people into those who support and those who oppose the use of natural alternative therapies.

**Catherine Seaton, Andy Shadburne, and Ulysses Odms – Therapeutic Recreation/YNL*****F.A.C.T.*****Sponsor / Mentor: Dr. Roger Weiss and Ms. Holly Webb**

Each group in the American Humanics/Youth and Nonprofit Leadership 351 class is required to plan, implement, and evaluate a program for the Murray/Calloway County community. Our program, F.A.C.T., stands for First Aid for Children Today. Our mentors for the program were Dr. Roger Weiss, Director of the AH Program at Murray State University and Ms. Holly Webb, executive director of the local American Red Cross (ARC). We presented our program that prepares students to be knowledgeable in first aid to the 3<sup>rd</sup> grade children at East Elementary School here in Murray. All of the first aid information was provided by the local ARC. We taught them how to handle various emergencies, how to stay calm in emergencies, and how to get in touch with the appropriate help during certain kinds of emergencies. We provided learning experiences through various activities. For instance, we would present a scenario then provide each child with a phone to simulate dialing 911 to explain the emergency to the 911 operator. We also taught them various first aid techniques they would be able to perform on their own. They also learned how to perform the Heimlich maneuver when someone is choking.

**Herbert E. Sharp – Geosciences*****A Study of Seismic Anomalies in the Mississippi Embayment*****Sponsor / Mentor: Dr. Haluk Cetin**

The goal of my project is to detect seismic anomalies in the northern section of the Mississippi embayment area. The area of study stretches from the New Madrid fault area to certain counties of Western Kentucky. I will study the area to see if any seismic anomalies exist in the area and to see if any trends or patterns can be detected in the area of study. I also would like to see if any seismic "curiosities" exist in the area of study.

**Satinder Sidhu – Biomedical Sciences*****Inhibition of Differentiation by Chondroitin Sulfate in the Presumptive Head Region of Early Chick Embryo*****Sponsor / Mentor: Dr. David Canning**

Previous studies have established that various signaling molecules and inducing factors regulate the crucial phenomenon of head development. In this study, we have developed a model for studying head development and differentiation by investigating the molecular mechanisms responsible for the regulation of this event. We have examined the state of specification of CAPE cells from the onset of gastrulation through the definitive head stage. Isolation experiments of the presumptive head region were designed to map the time-course of the degree of commitment of epiblast to specific cell fates and morphogenetic processes. Our studies have revealed specific roles for molecular components of the extracellular matrix in the allocation of cell fates during gastrulation and head formation. One of these components, the glycosaminoglycan Chondroitin Sulfate (CS) appears to be influential in suppressing certain cell fates relative to others. It plays a critical role in head development and differentiation via regulating N-cadherin. CS assists in the formation of head structures from the prechordal plate region. As the head develops, CS delineates nervous tissue areas from mesenchymal tissues. When CS is experimentally removed during cultures, it causes altered head development and differentiation. Taken together our results demonstrate an inhibitory role of CS in cellular mechanisms of differentiation mediated through localizing of N-cadherin to specific regions in the developing head region.

**C. Dewayne Sims – Geoscience**

***Comparison of Tasseled-Cap Transformation and Principal Component Analysis in an Unsupervised Classification of a Small Wetland Environment***

**Sponsor / Mentor: Dr. Haluk Cetin**

Identification of wetland environments for preservation is an important task for those involved in environmental and conservational decision-making. Until recently, identification of small wetland environments from orbiting platforms had been restricted due to coarse spatial resolutions. With the successful launch of the IKONOS satellite in 1999, high spatial resolution data has enabled researchers to discriminate much smaller areas in much finer detail and far more accurately than in the past. This study compares two image enhancement techniques in the discrimination of a small wetland environment. A Tasseled Cap Transformation (TCT) was compared to a Principal Component Analysis (PCA) using the unsupervised classification method. Overall accuracy of the TCT was 85.16%, with a wetland identification accuracy of 38%. The overall accuracy of the PCA was found to be slightly less at 84.38% with wetland identification accuracy at only 20%. Problems identified with the classification technique include, inability to discriminate between forested wetland and forested upland and vegetated (non-forested) wetland and vegetated (non-forested) upland. Further research is needed with accurate ground control points and a supervised classification technique should increase the degree accuracy for discrimination of wetlands.

**Josh Smith – Psychology/Biology**

***Authority and Attributions About Diseases***

**Sponsor / Mentor: Dr. Paula Waddill**

This study investigates the attributions made toward individuals diagnosed with Chronic Fatigue Syndrome (a disorder of some debate in the medical community) compared to those diagnosed with either depression (an agreed-upon psychological disorder) or hyperthyroidism (an agreed-upon physiological disease). Another goal of this research was to measure the effect that authority in the doctor-patient interaction had on these attributions. Participants read three scenarios (one for each of the three diseases) that portrayed the information coming from a neutral source (no authority) or from a doctor (authority) and rated their perceptions of the individuals described in the scenarios. The results are discussed in terms of factors that may lead to internal attributions about a disease's effects and to fault being attributed to the person suffering from a particular kind of disease. Possible applications of these results are also discussed.

**Nathan Smith – German**

***From Immoral Love to Lonely Death in the German Novella***

**Sponsor / Mentor: Dr. Meg Brown**

This presentation will examine three German novellas from three different literary periods to evaluate how they each dealt with the themes of love and death. Johann von Goethe's "Die Schoene Kraemerin" from the Classical period, Heinrich von Kleist's "Das Erdbeben in Chili" from the Romantic period, and Paul Heyse's "L'Arrabiata" from the Realism period will be the three novellas used. The presentation will first take a brief look at the three authors, for to understand an author's work one should look at his own person. A short discussion of each literary period will then be presented. Each work will be reviewed as to how love and death are presented therein. Finally, a short analysis and summary of the differences between the three novellas and what each author was trying to reveal about humanity will be discussed.

**Kevin Smothers – Political Science/Spanish**

***Transitional Government in Spain***

**Sponsor / Mentor: Dr. Leon Bodevin**

My paper will review the changes in the government of Spain due to the death of dictator Generalissimo Franco and the reinstatement of the Bourbon King Juan Carlos I back to the throne. I will briefly cover the Spanish civil war and the causes that brought about the military dictatorship of Franco but will focus on the governmental policies and consequent effects on the Spanish people. I will devote attention also to the changes in attitudes of the Spanish people in the waning years of Franco's regime that would eventually bring about great changes in Spanish society sometime after the constitution was drafted and a constitutional monarchy restored.

**Tyler B. Swavely – Geoscience**

***An Analysis of Automatic Feature Detection of Murray Kentucky using Quickbird Satellite Imagery and ArcMap***

**Sponsor / Mentor: Dr. Haluk Cetin**

The study of urbanization and urban areas is an area of interest to many people. One can extract information from remotely sensed imagery of urban areas by using today's Geographic Information Systems software. By reviewing and analyzing Quickbird satellite imagery of Murray, Kentucky, pertinent information can be gathered to accomplish a variety of tasks, including making more precise maps, detecting growth or population change, and even updating different statistics of the city. By comparing existing data with automatically generated data from the digital image processing of remotely sensed data, error can be analyzed. By analyzing urban features in a GIS database and comparing them to imagery's automatically extracted and generated features, one can predict and even calculate error for upcoming automatically generated features. By doing so, one can also seek to correct for error in spatial analysis.

**Scott Swisher – Economics**

***American Health Care: Where Do We Go Now?***

**Sponsor / Mentor: Dr. James McCoy**

This paper will discuss the current problems facing America's employer-based health care system. The primary focus will be on the cost and benefits associated with privatizing health care further, socializing health care, or doing nothing. Pharmaceutical companies and their marketing practices will also be explored to determine whether their benefits outweigh their cost. The paper will also look at the health care systems of at least two other countries, Sweden, and Canada, to make comparisons to a socialized health care system. Health care spending, research and development progress, general health of the population, the quality of the available health care, and the quantity of the health care provided will also be analyzed and compared among the different systems. Several groups of people will be studied to find out how different types of health care systems affect or might possibly affect them. These groups will include the uninsured, the middle class, and retired individuals. These three groups will be at the center of the policy decision because they constitute the majority of the American public most directly affected by health care policy. This paper will recommend the direction the American health care system should take based on the findings presented in the paper.

**Jennifer G. Thomas – Economics**

***“Legalizing Gambling: Effects to the Economy on the State Level”***

**Sponsor / Mentor: Dr. James McCoy**

Many factors must be looked at in deciding whether gambling has a positive or negative economic impact. The economic impacts of legalized gambling are tangible and quantifiable. The basic economic impacts that are tangible include: the construction of a casino, which leads to many jobs for construction employees and suppliers, employees to staff the casino, and the ongoing suppliers for the casino. Costs such as these are seen with all types of gambling. Multiplier effects such as tax revenues will then flow through the whole economy. Although a casino creates jobs and a facility is built, that does not necessarily mean the economic impacts are always positive. Non-economic impacts such as social costs are usually intangible, difficult to measure, and on the whole negative. Establishing a casino creates new jobs, such as a card dealer, that did not exist before. Although this may be true, they may not be new jobs for the economy. Money spent on a gambling facility is money that already existed but was spent on other things. That is probably an obvious point, but it is one that needs to be made. Creating and managing a gambling facility does not create wealth, it simply relocates it. The benefit for a region comes from transfers outside of the state/region. In contrast, there is not a stimulus or net benefit if development of the casino leads to more money being spent outside of the state/region. With this paper, I will analyze the costs and benefits and make recommendations impacting the regulation of gambling at the state level.

**Drew Thompson – Political Science**

***Operation Iraqi Freedom and the Just War Tradition***

**Sponsor / Mentor: Dr. Winfield Rose**

This essay examines the history and philosophical development of the Just War doctrine. Additionally, the essay traces the tradition's various components with biographical and contextual information given on some of his key proponents. Having articulated and explained the elements of Just War's political philosophy, the criteria are then applied to the events surrounding the United States' preemptive attack on the Saddam Hussein regime in March 2003. Using primarily Jus Ad Bello criteria, the essay considers the events leading up to the opening of hostilities in March 2003 and then examines them beneath the lens of the Just War tradition and asks the question: "Did Operation Iraqi Freedom meet the requirements of a Just War?"

**Ingrid Mabel Thompson – Spanish Education**

***Hispanic Immigration in United States***

**Sponsor / Mentor: Dr. Mica Howe**

This presentation is going to be a brief discussion of the reasons individuals emigrate to the United States and the problems that the immigrants face when they arrive in the United States.

**Lindsay Tooley – Political Science**

***Who Has Power in the German Political System?***

**Sponsor / Mentor: Dr. Gene Garfield**

The German political system is complex making it difficult to identify the person or governmental body that is really in control. As the country continues to evolve, power relationships are ever changing. The system, a modified parliamentary system, contains the office of the Chancellor who is believed by some to have the most power. The Chancellor leads the German Cabinet and is the head of government. He or she has the power to appoint all ministers and to delegate powers to them. The framework of government policy is established by the Chancellor. The German President, or head of state, is weak and serves a primarily ceremonial role. The President does, however, technically have the power to appoint such offices as federal judges and civil servants. Perhaps the most difficult relationship in German politics is that between the primary power institutions: the Chancellor, the Bundestag, and the Bundesrat. The relationship is further complicated by German federalism. The people, through direct election, elect members of the Bundestag. This branch is powerful as it elects the Chancellor and contains the Budget committee that symbolizes Parliament's direction of the budget. It oversees federal matters, but does not have veto power over the Bundesrat. Members of the Bundesrat are elected from the sixteen states by members or representatives of the respective state governments. A state's representation in the Bundesrat is based upon its population. Over half of all bills cannot become law without the approval of this body. The governments of the states or Länder are very powerful and this is reflected in the Bundesrat. The reserve powers given to the Bundesrat furthers its influence. Alliance with one's Länder in Germany is much stronger than existing political parties. The purpose of this paper is to explore the various powers and relationships of different parts of the German political system and ultimately, if possible, to determine who really has the power in German politics.

**Elizabeth Trice – Spanish and Radio/Television (double major)**

***Spanish Cinema Under the Dictatorship of Francisco Franco***

**Sponsor / Mentor: Dr. Leon Bodevin**

Under the dictatorship of Francisco Franco, the production and distribution of motion pictures was censored in Spain. While some works were outlawed in the country due to content, clever filmmakers found paths around the government censorship and succeeded in creating works that expressed their opinions despite the regulations banning them. Despite attempts at censorship, films that commented on the fascist regime through a language of symbolism known as the franquista aesthetic were produced. These films spoke to a global audience when first released and today they continue to demonstrate the reality of living in Spain during Franco's dictatorship. What has been written about cinema under Franco? What parts of the research are incomplete? What was filmmaking like in Spain before Franco came into power? How did the early cinema school affect the filmmaking process? What were the laws restricting filmmakers? What content was illegal? Who enforced the laws? What happened when a filmmaker was accused of breaking them? What types of films were banned in Spain during the Franco years? Which films survived the censors despite their content? How did filmmakers work around the laws? How do these films convey the reality of life as it was from 1936 to 1975? This study will be divided into four parts: a brief history of Spanish cinema before Franco, an overview of the laws that limited film production under Franco, a look at the films that were banned, and an analysis of the films that the censors overlooked.

**Elizabeth Trice – Spanish and Radio/Television**

***The Color of Our Skin: Race Mixture in Mexico***

**Sponsor / Mentor: Dr. Jorge Medina**

Racial prejudice exists in all parts of the world, without right or reason. Throughout history, groups have existed who believe they were superior because of the color of their skin. The history of Mexico has not been different. Since the arrival of the Spanish conquistadors, a mixture of races has existed, and that mixture has created modern Mexican culture. Generally, pale skin gains respect or at the least power. Racial discrimination still existed in Mexico in the 1900s, even within one family, as is evident in the drama *The Color of our Skin* by Celestino Gorostiza. *The Color of our Skin* explores the problems that mestizos had in Mexican society in the middle of the twentieth century. This project consists of an analysis of each character in the drama, a comparison of the play to other Mexican works of fiction of the time, and historical accounts of the period.

**Kayla Turner, Patrick Howell, Brandon Dick, and Laura Kight – Honors Seminar in Science**

***Stem Cell Research***

**Sponsor / Mentor: Dr. Howard Whiteman**

A glimpse into the history of stem cell research, its foundations and place in popular science, leads us to an exploration of the controversy--moral, scientific, and political--that surrounds its impacts on and contributions to modern science.

**Emily Vance – Molecular Biology**

***Temporal Change in Methanogenic Diversity in the Sediments of the Ledbetter Bay Littoral Zone at Kentucky Lake***

**Sponsor / Mentor: Dr. Timothy Johnston**

The microbial diversity of the littoral zone of Ledbetter embayment at Kentucky Lake can be studied by extracting and analyzing DNA from sediment samples taken from the area. Water levels of Kentucky Lake are artificially regulated, causing the littoral zone of Ledbetter embayment to be underwater during summer, and dry during winter. This fluctuation may bring about changes in the diversity of microbial communities that inhabit this area. In an attempt to identify bacterial diversity found at Ledbetter Bay during months of transition between summer and winter communities, samples of sediment were collected monthly from five wells that lie within the littoral zone. To serve as controls, sediments were also collected from a location that is always underwater, and one that is always dry. DNA was extracted from the soil sediments, and genes for 16s ribosomal RNA were amplified with PCR using bacterial primers. The genes were then cut with a restriction enzyme, and the terminal restriction length polymorphisms were visualized on a sequencing gel. Previous data suggests that there is a broad diversity of microorganisms in the area, and that succession occurs between summer and winter communities.

**Brittany Varvel – Psychology**

***Impressions of Stay-at-Home and Working Parents***

**Sponsor / Mentor: Dr. Paula Waddill**

This study was conducted to determine how people form impressions of parents who work or stay at home. Forty-six Murray State University undergraduate participants were given one of four scenarios (stay-at-home father, working father, stay-at-home mother, and working mother) and were asked to complete a questionnaire estimating the percentage of time they thought each parent assumed responsibility for a particular child-care task. The child-care tasks included both emotional and physical tasks. Results indicated that the only time the father was rated as performing a task significantly more often than the mother was when he stayed at home and the mother worked. The mother was perceived as performing a significantly higher percentage of childcare tasks than the father both when she and the father worked and when she stayed at home.

**Maninder Kaur Virk – Biology**

***The Effects of Habitat Fragmentation on the Health of White-Footed Mice (Peromyscus leucopus).***

**Sponsor / Mentor: Dr. Terry Derting**

Anthropogenic disturbances leading to fragmentation of white-footed mouse habitat may affect the health of animals in disturbed areas. To determine those effects, if any, we tested the null hypothesis that anthropogenic disturbances have no effect on immunocompetence, stress level, and masses of gastrointestinal or reproductive organs. We studied two types of habitat patches; those disturbed by human activities, specifically agriculture and urbanization, and those that were undisturbed. Adult males were trapped live. Blood samples and white blood cell counts (WBC) were prepared after capture. To challenge humoral and cell-mediated branches of the immune system, subjects were injected with sheep red blood cells (SRBC) the morning after capture and phytohemagglutinin (PHA) seven days later. Final blood sampling and dissection were performed on the eighth day. Animals from disturbed habitats had a significantly greater cell-mediated immune response and a reduced humoral immune response compared with those from undisturbed habitats. Animals in disturbed habitats also had a lower hematocrit and tended to have a smaller increase in WBC in response to SRBC injection. Mice caught in disturbed habitats also tended to have heavier masses of adrenal glands, and significantly greater masses of the stomach and caecum. Masses of reproductive organs showed no significant differences. We concluded that white-footed mice from disturbed habitats exhibited reduced humoral immune function compared with animals in undisturbed habitat. In contrast, cell-mediated immunity, diet quality and stress level were not adversely affected by anthropogenic disturbances. These results suggest that habitat fragmentation and human disturbances have specific, rather than general, detrimental effects on health of white-footed mice.

**Danielle Walsh – Liberal Arts**

***Gender Construction in American Children's Television Programming***

**Sponsors / Mentors: Dr. Ted Brown, Dr. Staci Stone, and Dr. Ed Armstrong**

This project is a content analysis of gender construction in American children's programming. It is hypothesized that gender is becoming less rigidly defined in children's programming than it has been in the past. The paper will discuss television's effect on children's formation and acquisition of gender roles, as well as the difference between gender role portrayals in public television versus cable television, if any. The results of the content analysis will be examined using postmodern and critical theories.

**Allison Watson – Accounting**

***E-government***

**Sponsor / Mentor: Dr. Don Chamberlain**

E-government has been recognized as a powerful tool to help all types of economies. As such, there is a growing interest in the use of E-government as government agencies are switching from old legacy systems to the newer and much improved IT systems. Several ways are proposed in which governments can increase citizen trust and promote the adoption of this potentially significant mode of government service. The result is a transformation in relations with citizens, businesses, and other governmental systems that can ultimately improve service at a reduced price. The efforts of the City of Corpus Christi to establish such an E-government system are examined along with the challenges of undertaking such an endeavor. Likewise, implementation and effectiveness issues along with recognition of advantages and disadvantages continue to play a large part in assessing the viability of adopting E-government. Finally, the ramifications of legislation aimed at E-government, and more specifically the E-government Act, are explored at length.

**Kirby Watts – Fisheries and Aquatic Science**

***Fall Crappie Study Of Kentucky Lake***

**Sponsor / Mentor: Dr. Kelly Rogers**

A poster based on my 15 hours of volunteer service with the Kentucky Department of Fish and Wildlife Resources will be presented. The poster includes activity photos, information about the study (processes, funding, demographics, etc), and a discussion on how this experience led me to pursue my current major.

**Allison Webster and Lindsey Phillips – Public Relations**

***Disaster Institute***

**Sponsor / Mentor: Dr. Roger Weiss**

Our group hosted a disaster-training program for 23 volunteers of the Red Cross. The program consisted of three classes: Family Services, Weapons of Mass Destruction, and Logistics. Family Services was a class that taught volunteers how to provide relief to Red Cross clients who have experienced a disaster. The Weapons of Mass Destruction class was an overview on how to respond to and assist a mass disaster such as a terrorist attack. Logistics gave an overview on how to work behind the scenes and taking care of paperwork. My group was in charge of all the logistics of putting together this program. We were responsible for establishing a budget, writing letters to every volunteer, sending out an email to other area chapters, creating a PSA and a flyer, reviewing risk management, setting up, preparing refreshments, and cleaning up. We meet both our qualitative and quantitative goals and saw the project as an overall success.

**Natalie Wendt – Chemistry and Biology**

***Study of Cisoid 1-Alkyl-1,4-diphenyl-1,3-butadienes***

**Sponsor / Mentor: Dr. Jin Liu**

The purpose of my research project was to prepare and study cisoid 1-Alkyl-1,4-diphenyl-1,3-butadienes. The synthesis and unique properties of these compounds will be discussed in the presentation.

**Lindsey K. White – Chemistry**

***Cooperative Interactions in the Laser-Induced Purple-to-Blue Transition of Bacterial Purple Membranes: Implications for Degenerative Diseases of the Retina.***

**Sponsor / Mentor: Dr. Mark Masthay**

Epidemiological evidence suggests that age-related macular degeneration (AMD), the leading cause of blindness in the elderly, is caused in part by toxic free radicals generated when the visual pigment rhodopsin absorbs light. Characterizing these free radicals has proved difficult because of the difficulty of obtaining large quantities of rhodopsin, and because of its photolability under laboratory conditions. Hence, the use of model visual pigments in free radical studies is highly desirable. We are characterizing blue color change of the model visual pigment—the laser-induced purple bacteriorhodopsin (BR), which imparts the purple color to halobacterial purple membrane (PM). BR – which is a close structural relative of rhodopsin – is both readily available and photostable. PM – which consists of a tightly packed lattice of BR molecules – converts to “laser-induced blue membrane” (LIBM) upon exposure to green laser pulses. Our studies to date indicate that the generation of LIBM is photocoperative (i.e., that photodamaged BR molecules facilitate the photodamage of other BR molecules in their immediate vicinity). In this poster, we describe results from recent experiments designed to test this “PM-to-LIBM photocoperativity” hypothesis. Because the PM-to-LIBM photoconversion appears to be mediated by free radicals, these studies may provide new insights regarding the origin and treatment of AMD.

**George "Rob" Whitfield – Political Science and Philosophy**

***The Political Significance of Islam Throughout History***

**Sponsor / Mentor: Dr. Winfield Rose**

According to Karen Armstrong's Islam: A Short History (New York: The Modern Library, 2000), “Muslims developed their own rituals, mysticism, philosophy, doctrines, sacred texts, laws and shrines like everybody else. But all these religious pursuits sprang directly from the Muslims’ frequently anguished contemplation of the political current affairs of Islamic society. [...] Politics was, therefore, what Christians would call a sacrament: it was the arena in which Muslims experienced God and which enabled the divine to function effectively in the world.” This presentation will explore the political influences of Islam from ancient times up to the present.

**Rhonda Wicker – Spanish**

***Ten Rules of the Perfect Short Story According to Horacio Quiroga***

**Sponsor / Mentor: Dr. Michael Waag**

Horacio Quiroga was a Latin-American author of twentieth century Spanish-American short stories. He published his "Decalogo del perfecta cuentista" in which he gave his ten guidelines for writing the perfect short story. I will discuss the use of these rules in some of Quiroga's works.