

Anderson, Michael (Mt. Wolf, PA) [Norris Muth]

THE EFFECTS OF WHITE-TAILED DEER (ODOCOILEUS VIRGINIANUS) ON PLANT DISPERSAL AND THE SOIL SEED BANK AT LAKE RAYSTOWN

White-tailed deer (*Odocoileus virginianus*) have large impacts on their environments. Combined with the rapid spread of invasive plant species, this raises the question as to whether white-tailed deer aid the spread of invasives through seed dispersal. In this study I examine the efficacy of deer as dispersal vectors for invasive plants. I collected deer pellets from various habitats around the field station where deer densities have been previously described. Following collection, I will plant the pellets in soil and allow germinating seeds to grow until such time as they are identifiable. I expect to observe a positive correlation between deer density and the abundance and diversity of invasive species found in their pellets. Results of this study can be used to understand and possibly contain the spread of invasive plants.

Arnold, Kate (Cardiff, Wales); Bowser, Dan (Hollidaysburg, PA); Gifford, Jill (Meadville, PA); Hodgkins, Shelby (Alexandria, VA); Shehan, Dayle (Lewistown, PA); Showvaker, Megan (Beaver, PA); Winder, Chelsea (Altoona, PA); Hsiung, Rachel (Huntingdon, PA) [Philip Dunwoody]

A LITERATURE REVIEW OF AUTHORITARIANISM: 2000-2008

Since 1981, Altmeyer's right wing authoritarianism scale (RWA) has been the standard measure of authoritarianism in psychology. Critics have pointed out many flaws in the RWA scale and consequently new measures of authoritarians have been introduced. Our research is a literature review of all journal articles listed in Psych info between 2000 and 2008 that have the words "authoritarianism" or "authoritarian" in the title. We are measuring the frequency of various authoritarianism scales to assess their relative popularity. This data could possibly be used to create a more accurate measure of authoritarianism.

Aumiller, William (McClure, PA) [Paul Schettler]

INVESTIGATION OF DIMETHYL ETHER AS AN INITIATOR IN THE CONVERSION OF METHANOL TO GASOLINE USING ZEOLITE H-ZSM-5

The zeolite H-ZSM-5 has been studied extensively as a possible catalyst for the industrial conversion of methanol to hydrocarbons (MTH). A motivating factor for the academic interest in MTH is that the conversion to hydrocarbons is accompanied by several problems. These include the presence of an initiation period and some unwanted hydrocarbons in the product. It is established that the first step for the conversion is the establishment of an equilibrium between methanol, water and dimethyl ether. The establishment of this equilibrium is essential because it coats the pores of the H-ZSM-5 and allows the conversion to take place. Recent studies have shown that hydrocarbons can be formed from dimethyl ether alone. In this study, we have examined the effect of the pretreatment of H-ZSM-5 by dimethyl ether.

Bachinski, Megan (Lowell, IN) [Donna Weimer]

A RHETORICAL ANALYSIS OF THE SHAWSHANK REDEMPTION (1994): THE ACHIEVEMENT OF MORAL COMPLEXITY

Even though adaptation films like *The Shawshank Redemption* closely follow the plot of their original novel, books are consistently praised for achieving moral complexity, an area where films typically fall short. Yet, *The Shawshank Redemption* does address moral complexity through the exploration of institutionalization, corruption, abuse of power, and murder. This paper concentrates on how elements of adaptation affect the transformation of novella to film through shared themes of hope, friendship, and moral ambiguity. Film characters continue to walk the fine, ambiguous line of good and evil that was first established in the novella, resisting and defying categorization into a simplifying binary, and

instead thrive in the moral complexity of the gray area. However, the moral complexity of characterization is compromised for a Hollywood happy ending.

Baer, Dave (Shade Gap, PA) [Donna Weimer]

THE WESTERN GENRE AND THE EVOLUTION OF THE EASTWOOD COWBOY

This research examines the genre of Westerns and their images of masculinity and violence. The research examines what is a genre and why genres are important. Specifically, I perform a comparative analysis of two classic Westerns, both films starring and directed by Clint Eastwood, and compare them with both typical Westerns ideology and with each other. With 1985's *Pale Rider* and 1992's *Unforgiven*, Eastwood offers us two of the more interesting roles of Western hero. *Pale Rider* falls into the "typical" Western and its counterpart, *Unforgiven* does anything but fall into the category of "typical." These two films offer a unique chance to view the evolution of Eastwood's characters as well as an evolution of Eastwood's directing. We will see a change in the genre both in how the story is told and how the hero portrayed.

Bailey, Matthew (East Petersburg, PA) [Xinli Wang]

RIGHTS, UTILITY AND MORALS

A combination of the concepts of rights and utility is able to explain the origins of human morals and allows for morals to be based on the cultural perception of a balance between individual rights of freedom and on the perceived utility of an action toward societal benefit. The ethical systems developed by particular cultures then have been reinforced through leadership, religion and other educational means. Since different cultures developed in different environments, cultures have developed unique moral codes that they perceived to hold the appropriate balance between rights and utility. Culture has reinforced morals perceived to hold the ideal balance between utility and rights.

Baranova, Zuzana (Trnava, SLOVAKIA) [Peter Baran]

COMPLEXES OF PYRIDINE N-OXIDE DERIVATIVES WITH THIOPHENES

Polymers containing metal centers that directly communicate with the organic backbone have shown to be more efficient in various applications than just their organic precursors. Our project focuses on metallic complexes of pyridine N-oxides attached to a polythiophene backbone. Two new ligands of this kind have been synthesized and their complexes are being studied. Electrochemical and spectroscopic analyses of the obtained compounds are of interest for potential applications as electrochemical sensors. The preparation and properties of these new, potentially conducting polymers will be presented.

Baranova, Zuzana (Trnava, SLOVAKIA) [Herlinda James]

CHARACTERS ON THE RUN IN ERNESTO SÁBATO'S NOVELS

Ernesto Sábato, one of the greatest Argentinean novelists of the 20th Century, offers a deep and thorough look inside of the Argentinean society through the perspective of its building unit "human." His characters are struggling and constantly searching for their place in life. Often, the established structure is rejected, that leads to the consequent escape to another space or time. On the run, the empirical sense of logic and reason fail. My analysis focuses on the depiction of Sábato's characters within the novels *El Túnel* (The tunnel) and *Sobre Héroes y Tumbas* (About Heroes and Tombs).

Beaver, Joshua (Mifflinburg, PA) [Paul Ewbank]

SYNTHESIS OF SEXI(3-ETHYLTHIOPHENE)

Oligothiophenes are model compounds for understanding structure in organic semiconductors and have been used to successfully build thin film field effect transistors. The synthesis, characterization of the

stacking, and electronic properties of various sexithiophene derivatives, is present in the literature. However, no crystal structures analogous to commercially important poly(3-alkylthiophene) have been reported. A synthesis of 3-ethyl-substituted sexithiophene has been proposed and the initial steps have been accomplished. The goal of this project is to synthesize sexi(3-ethylthiophene) and to study the crystal packing and electronic effects imposed by the ethyl group.

Beckel, Josh (Hollidaysburg, PA) [Kimberly Roth]

NATURAL FRACTALS

Fractals exist everywhere in nature. Even on our own campus. By using an iterated function system construction program and the collage theorem, I was able to prove the existence of fractals in vegetation. I found a sample tree and leaf on the Juniata College campus to apply the collage theorem to. By taking pictures of them, I could import the images into the iterated function system construction program and develop a metric space and fractal design for each example. After doing so, I used iteration to recreate the original images of the tree and leaf, thereby proving natural fractals.

Betancourt, Kristin (North Apollo, PA) [Norris Muth]

INVASIVENESS AND PHENOTYPIC PLASTICITY IN THE GENUS CENTAUREA

Recent studies suggest that adaptive phenotypic plasticity, the expression of beneficial traits in specific environmental contexts, plays an important role in species invasions. Here, we investigate if the invasiveness of a species is due, in part, to the capacity of the species to thrive in a wide range of nutrient conditions, ranging from meager to plentiful. Our study species are plants in the genus *Centaurea*, common introduced weeds throughout Pennsylvania and the United States. The genus includes cornflower, star thistle, and knapweed. We will use three species of varied invasiveness in our study, grown under three soil conditions: plentiful fertilizer, moderate fertilizer, and unfertilized. It is our prediction that the most invasive species will show the greatest increase in growth rate, biomass and flower production in response to nutrient addition.

Bitetto, Tricia (Ringoos, NJ) [Andrew Belser]

THE PHILADELPHIA

The phrase "everyone has to be someplace," rings true as it is quoted in David Ives' short one-act, farced comedy - *The Philadelphia*. In it, Mark enters a restaurant and quickly discovers that he doesn't receive anything he asks for, only to realize that he is actually in a metaphysical reality called "a Philadelphia." Student directed by Tricia Bitetto, the cast features Skye Hatton-Hopkins as Mark, Noah Denton as Al, and Rachel Domoff as the Waitress.

Bloom, Anna (Eldersburg, MD) [Paul Schettler]

CALCULATING VAN DER WAALS FORCES

We have developed and tested a quantum Monte Carlo (QMC) method for the calculation of Van der Waals forces between neutral gas-phase molecules. While previous QMC work concentrated on total molecular energies, ours focuses on an approach that cancels out contributions to the energy except for those associated with Van der Waals forces. This method may have the potential to estimate these forces more cheaply than existing methods. We examined helium-helium, argon-argon, and ethylene-ethylene interactions by a variety of QM methods. These results, in the form of energy vs. separation curves were compared with experiment. With the caveat of a parameter that can be adjusted to obtain nearly exact agreement with fitted experimental data, our QMC method was both faster and more accurate than the standard Gaussian methods.

Borade, Hiryan (Pune, India) [Susan Prill]

THE GODDESS OF SATISFACTION: SANTOSHI MAA

"Jai Santoshi Maa" a Hindi film (1975) directed by Vijay Sharma was a huge blockbuster in India. The film is based on the Vratkatha (fasting-story) of Santoshi Maa (a Hindu Goddess). The film is about the Satyawati, an ardent devotee of Santoshi Goddess. Satyawatis' faith in Goddess Santoshi, is tested by the three other Goddesses (namely Parvati, Lakshmi and Brahmani) due to their conflict of "power spheres" with Goddess Santoshi. This paper argues that the popular success of this film lies in its devotional style and artistic invention of Hindu pathos. The film faced the constraint of a religious Hindu Indian audience facing a national emergency of political instability and social turmoil.

Borade, Hiryan (Pune, India) [Donna Weimer]

GUIDE, A JOURNEY FROM JAIL TO SAINTHOOD

I analyze the Hindi Film, "Guide" (1965) directed by Chetan Anand. Guide is an entertainment film and below the layers it has the religious message of "Nishkam-Yoga" (Selfless service), "Darshan" (vision) and "Maya" (the concept that this world is real but also an illusion). As the title suggests, Guide, the protagonist, is a tour guide. When the film does end, the true meaning of the film's title is revealed. Guide is not just a tourist guide, but a spiritual guide, who leads us on to higher spiritual pursuits. Guide, is the story of Raju (Dev Anand) who rises to sainthood, through his journey from jail to a village, where he attains sainthood. The paper helps western audience understand how Raju the Guide, became Raju the saint.

Borade, Hiryan (Pune, India) [Donna Weimer]

INDIVIDUAL@CYBERTERROR.COM

Cyber World or Metaverse is being increasingly used for criminal and terrorist activities. The primary purpose of the cyber-terrorist is to gain power, by carrying out attacks, getting support from individuals and communities and through ideological propaganda. In this paper, I explore how the dynamics of cyber terrorism and online identity theft affect the nature of group formation, exertion of power, flexibilities of identity and fluidity of ideas/data. Cyber terrorism and identity-theft are extensions of the literate and oral cultures' need to control and exert influence on their environment, no matter how right or wrong they may be. The underlying aim of this paper is to bring connections between cyber crimes and the effects on the individual and his environment.

Bradley, Brosi (Port Matilda, PA) [Norris Muth]

THE RELATIONSHIP BETWEEN ARBUSCULAR MYCORRHIZAL FUNGI AND *CENTAUREA MACULOSA* IN HUNTINGDON COUNTY, PA: ARE INVASIVE PLANT POPULATIONS LOCALLY ADAPTED TO THEIR OWN SOIL FUNGAL COMMUNITIES?

Although invasive species are known to cause widespread economic and ecological damage, below ground aspects of plant invasions, specifically interactions with mycorrhizae, are not well studied. Here we investigate the relationship between the invasive *Centaurea maculosa* and their mycorrhizal fungal associates. Seeds from each of four local populations of *C. maculosa* will be raised in the greenhouse in their own native soils and in the three soils collected from our other sites. To further identify the specific effects of the soil fungal communities, soils will be subject to fungicide treatments (or control). Differences in plant growth and mycorrhizal infection rates will be analyzed using ANOVA. Concurrently, *in situ* field rates of mycorrhizal infection will be assessed to compare the influence of biotic and abiotic factors on this interaction.

Broadwell, Amanda (Green Pond, NJ) [Alex Metcalf]

SOARING EAGLES: ASSESSMENT OF JUNIATA WIND ENERGY

This project uses Geographic Information Systems to determine the availability of wind energy for

Juniata College. Through the examination of several criteria in Huntingdon County, this research assesses the possibility of using wind energy as an alternate source of power. These criteria include altitude, direction of land slope, wind speed, and property ownership. Mapping Huntingdon County through the use of GIS will determine whether installation of wind turbines is a viable energy source for Juniata College and surrounding communities in the county.

Buckley, Elise (Pequannock, NJ) [James Borgardt]

COMBATING NUISANCE ALARMS CAUSED BY THE "SHIP EFFECT" IN ³HE BASED NEUTRON DETECTION RADIATION PORTAL MONITORS

Ship effect neutrons present unique challenges in efforts to interdict illicit nuclear trafficking at border crossings. ³He neutron proportional counters can generate false positives due to these neutron spikes. This work explores methods to mitigate these nuisance alarms through a better understanding of the effects manifested in different materials, the role of a target materials' neutron density, and data analysis techniques to account for its effects. While neutrons from illicit nuclear sources are Poisson in their frequency distribution, those from background are not. Ship effect neutrons deviated from a Poisson distribution when binned over 0.1 sec time intervals, however when averaged over 2.0 sec intervals the distribution is recovered. These findings suggest an analysis algorithm to distinguish between innocent ship effect neutrons and neutron-emitting illegal sour

Bukowski, Daniel (Hastings, PA); Sepulveda, Nicholas (Green Bay, WI); Hull, Travis (Summerhill, PA); Kanar, Brent (Duncansville, PA) [Jennifer Bennett]

ISOLATION OF NOVEL DEVELOPMENTAL MUTANTS OF *STREPTOMYCES COELICOLOR*

Streptomyces coelicolor is a pharmacologically important gram-positive bacterium. We have subjected this bacterium to transposon mutagenesis which results in random insertions in the *S. coelicolor* chromosome. Using visual screens, possible developmental mutants were identified and 160 were subjected to secondary screens by phase-contrast microscopy in the Microscopy laboratory module. We chose eight mutants which were defective in the processes of sporulation or cell division. The mutants were characterized by abnormal spore sizes or displayed a spore separation defect. These insertion mutants are currently being analyzed to determine the insertion sites using the following techniques: chromosome isolation and digestion, ligation, inverse PCR, and sequencing.

Campbell, Michelle (Annville, PA) [Donna Weimer]

NONVERBAL COMMUNICATION DURING FIELD HOCKEY COMPETITIONS

I conducted research to observe the nonverbal behaviors between two field hockey teams, the one which scored a goal and the other which was scored upon. I sought to answer the following question: What are the similarities and differences in touch and body movement among competing athletic teams? By sending various messages through these nonverbal behaviors, I expect to find that these behaviors affect team motivation. I conducted my own research by observing videotapes of Division III college field hockey teams. Having examined this data, I described differences in nonverbal communication between a team which has just scored a goal and a team which has just been scored upon.

Campbell, William (Lewistown, PA); Zhivitskaya, Maria (Minsk, Belarus); Lecrone, Heather (Spring Grove, PA); Naugle, Bret (Quakertown, PA); Nagel, Tricia, (Johnstown, PA)[Sarah Worley]

THE ENTREPRENEUR

Every big business begins as an idea. These ideas are transformed into businesses with the help of business incubators and economic development agencies. Entrepreneurship is a term once used only to describe a business owner. Now it is an entire field that students can earn undergraduates to PhD's in.

We look forward to giving you information about Entrepreneurship, and what Juniata College has been doing to promote Entrepreneurship both on campus and in Huntingdon County. And remember your next idea could become the next big Fortune 500 Company.

Carnahan, Kelly (Latrobe, PA) [John Wright]

COLLECTION OF DIGITAL EVIDENCE FOR COURTROOM USE

With the continuing increase of computer crimes all over the world, the laws and procedures governing the collection of digital evidence have fallen far behind, resulting in inefficiency in investigations and prosecutions. In my research, I am proposing several revisions to be made to current evidence laws, as well as suggesting a standard set of procedures to be used across jurisdictions within the United States, which I believe will lead to more successful prosecution of digital crimes.

Carney, Elaine (Greensburg, PA) [Sarah May Clarkson]

THE AIDS EPIDEMIC IN SOUTH AFRICA

The number of South African citizens infected with HIV/AIDS is at a record high. The South African President Thabo Mbeki and Health Minister Manto Tshabalala-Msimang hold major responsibility for the increasing AIDS epidemic. While other sub-Saharan nations with similar economies and populations, such as Uganda, have success rates with fighting AIDS, government officials are hindering such advances in South Africa. With their public denial of the connection between HIV and AIDS and refusal to supply sufficient amounts of anti-retroviral drugs to suffering HIV victims, Mbeki and Tshabalala-Msimang contribute to the AIDS crisis in South Africa.

Chapuran, Meghan (Hillsborough, NJ) [Belle Tuten]

CHILDREN'S LITERATURE AS PROPAGANDA

This presentation will focus on the propaganda of the Third Reich in Germany aimed towards children through the use of children's literature. Scholars of the Holocaust and the Third Reich have concentrated on propaganda aimed towards adults and the Hitler Youth in the past. However, Hitler and his propaganda ministers took great care in censoring children's literature and reworking much of it to fit the Nazi ideology. Julius Streicher, the publisher of *Der Giftpilz*, was a main force in spreading his own anti-Semitism to the whole nation, especially children, and was greatly supported by Hitler. The presentation will use Julius Streicher and *Der Giftpilz* to discuss how and why the Third Reich used children's literature as propaganda and how effective this was in creating the next generation of Nazis.

Clarkson, Sarah May (Huntingdon, PA) [Herlinda James]

DRAMATIC PRESENTATION OF "RESGUARDO PERSONAL"

Professor James's Introduction to Hispanic Literature (SP 250) class will film and perform a dramatic presentation of feminist Spanish playwright Paloma Pedrero's one-act work, "Resguardo personal," (Personal Claim Check), the story of a couple, their manipulations, and their motives. Each member of the class will have a role, either as an actor, director, film-maker, translator, or coordinator of props and costumes. After the film presentation, the class will be available to answer questions and describe the process of working/creating dramatically (in a large group) in Spanish, finding meaning, and interpreting a theatrical piece that has multiple connotations and implications.

Conaway, Devin (Woodland, PA) [Jill Keeney]

MUTAGENESIS OF *RTT105* IN *SACCHAROMYCES CEREVISIAE* BY ERROR-PRONE PCR

Retrotransposons reverse transcribe RNA molecules into cDNA that then can be incorporated in the genome of a host cell. The Ty1 retrotransposon found in *Saccharomyces cerevisiae* is temperature sensitive. When the gene *RTT105* is over-expressed, Ty1 overcomes the high temperature restriction.

The host cell function of *RTT105* is unknown. Error-prone PCR is being used to randomly mutate the *RTT105* gene. Mutations will be screened for transposition and cell growth.

Copley, Phillip (Lancaster, PA) [Dennis Plane]

YOUSEF TO ATTA: CLUSTER-AGON ANALYSIS OF TERRORISM IN THE NEW YORK TIMES AND WALL STREET JOURNAL, 1993-2001

The news media is one of the most studied aspects of communication research. In this research, I show how the media's coverage of terrorism has fundamentally changed the definition of terrorism. Five attacks are studied through the course of this paper. These attacks are the World Trade Center bombing(1993), the Oklahoma City bombing(1995),the United States Embassy bombings in Tanzania and Kenya(1998), the bombing of the U.S.S. Cole(2000), and the September 11th Attacks(2001). Two sources are analyzed- the New York Times and the Wall Street Journal. The results demonstrate that through the media's increased coverage of terrorism, the definition of terrorism has changed from that of an unorganized group of extremists fuelled by hate alone to the calculated efforts of an ideologically driven organization.

Copley, Phillip (Lancaster, PA) [Emil Nagengast]

ACT 44 OF 2007: THE ILLEGAL TOLLING OF INTERSTATE 80

In July of last year, Gov. Ed Rendell signed into law Act 44 of 2007, authorizing the tolling of Interstate 80 under the Interstate System Reconstruction & Rehabilitation Pilot Program (ISRRPP), a federal program. A review of lease documents and application materials reveals that there are several errors in these forms as well as supporting documentation. A more thorough examination reveals several legal flaws in the application materials and the proposal itself. This research demonstrates that Act 44 is in direct conflict with the Transportation Equity Act of the 21st century, the federal legislation under which the ISRRPP was created.

Couillard, Jean-Denis (Milton, VT) [Grace Fala]

KATE BORNSTEIN'S "DANGEROUS DREAMS, DAMNED DESIRES": A NEO-ARISTOTILIAN ANALYSIS

With the rise of the Queer Rights Movement, 'traditional' ideas of sexuality and gender have been challenged more and more. Kate Bornstein, an author, artist and political figure, is a self-described genderqueer transsexual, anarchist, and BDSM pornographer, among other labels. In this presentation, Bornstein's speech "Dangerous Dreams, Damned Desires" will be analyzed in a neo-Aristotelian fashion. A core characteristic of Aristotelian rhetoric is that of audience persuasion. In this case, much of that persuasive discourse is based around persuading people to do whatever they need to (save for 'being mean') to live another day. The forms of discourse, proofs and appeals, and canons of rhetoric Bornstein uses to achieve this goal in her speech will be presented.

Crumrine, Troy (Roaring Spring, PA) [Belle Tuten]

RINGSIDE AT NUREMBERG: AN ANALYSIS OF TWO NAZI DEFENSE STRATEGIES

An analysis of the defensive strategies used by defendants Hermann Goering and Albert Speer during the Nuremberg War Crimes Trials. Looks at the lives and minds of these two men before analyzing certain aspects of their defenses and theorizing on what they might have hoped to accomplish in light of their grim situation. After all, what COULD they have hoped to accomplish, being two of the foremost Nazis alive and at the mercy of the vengeful Allies? A brief description and analysis of the Trials themselves is included.

D'Orazio, Daniel (Orangeville, PA) [Kimberly Roth]

AN INITIAL FRACTAL ANALYSIS OF THE WHIRLPOOL GALAXY

With the introduction of fractal geometry by Mandelbrot in the 1970's the recognition of fractals in nature has led to a new quantity called the fractal dimension useful for describing the complexity of structures. This study utilizes fractal geometry in the setting of large scale astrophysics in hopes to probe the rich, complex nature of galactic structure. Multiple fractal dimensions of M81, The Whirlpool Galaxy, are calculated from Hubble Space Telescope images by hand and with fractal analysis software. The initial data shows interesting results pertaining to the distribution of Hydrogen gas regions in the galaxy and its current state of collision with a smaller galaxy. This suggests that galactic structures are worthy of further fractal analysis.

D'Orazio, Daniel (Orangeville, PA) [Jamie White]

USING BEAT FREQUENCY LINE SHAPE TO ANALYZE LASER BANDWIDTH

Using saturated absorption spectroscopy, two diode lasers are locked to the peaks of adjacent hyperfine spectral lines in the Rubidium absorption spectrum and made collinear to produce a beat frequency signal at ~30 MHz. This beat signal is characteristic of the two reference spectral lines so it can be used to monitor and minimize the reference line widths thereby providing a superior method for locking and stabilizing diode lasers. This work is supported by the National Science Foundation, Award No. PHY-0653518, "RUI: Enhancement of Nonlinear Processes in Atomic Vapors via Atomic Coherence."

DeCoursey, Catherine (Cherry Hill, NJ) [Dennis Plane]

IS JON STEWART A CREDITABLE NEWS SOURCE?

A University of Indiana study found that Jon Stewart's The Daily Show has just as much substantive coverage of elections as does network news coverage (Fox et al. 2007). Building on Fox et al.'s finding, this research examines whether Stewart provides substantive political news more generally, rather than focusing only on election coverage. The research examines and compares The Daily Show with Jon Stewart and ABC's World News over a two-week period. The results showed that on average, the World News presented three times the number of stories as well as offered over seven times the number of facts.

DeCoursey, Catherine (Cherry Hill, NJ) [Emil Nagengast]

THE SUCCESS OF LE FRONT NATIONAL IN THE 2002 FRENCH PRESIDENTIAL ELECTION

The results of the first round of the 2002 Presidential election in France shocked the world. For the first time since World War II an extremist party had earned enough votes to act as a plausible contender for the role of French President. This project analyzes the reasons why Le Front National received a second round bid in the Presidential elections. Common perceptions suggest racism as the main motivating factor for the party's large political gain but this research argues that voter apathy was the largest influence in the 2002 election.

DeCoursey, Catherine (Cherry Hill, NJ) [Donna Weimer]

WHAT HAPPENED TO THE LOST GIRLS OF SUDAN?

Sudan has been plagued with almost constant strife since it received its independence from Britain in 1956. One of the most well known conflicts in Sudan involved the Muslim north Sudan and predominantly black Christian/Animist south; the most famous refugees being The Lost Boys and Girls of Sudan. This research answers the question: How can the UN Peace Keepers ensure that human rights of all refugees are being met without infringing on traditional cultural ways? The subject looks at the cultural, political, and social reasons why the Lost Girls did not travel to the US as often as the males.

DeMauro, Ashley (Trafford, PA) [Emil Nagengast]

THE POLITICAL FEASIBILITY OF IMPLEMENTING A COMPREHENSIVE SCHOOL COUNSELING PROGRAM

IN PENNSYLVANIA

Though there have been attempts to assuage Pennsylvania's dropout epidemic, these have failed to result in a long-term solution. Pennsylvania must look to the forty-five states that have adopted the most effective preventative measure in their schools: a comprehensive, state-wide school counseling program. An analysis of the longitudinal benefits of these tested policies and an examination of the political obstacles to implementing such a program provides a feasible policy directive for Pennsylvania.

Deptola, Travis (Homer City, PA) [Doug Glazier]

EFFECTS OF PREDATION ON THE ONTOGENETIC SCALING OF CELL SIZE AND NUMBER WITH BODY SIZE IN THE FRESHWATER AMPHIPOD *GAMMARUS MINUS*

Fish predation affects the ontogenetic scaling of metabolic rate with body size in the freshwater amphipod *Gammarus minus*. We are now exploring whether predation causes this effect by altering growth rates and associated ontogenetic changes in cell size and number. In arthropods (including amphipods), the size and number of ommatidia (facets) of the eye have been found to be directly proportional to cell size and number. Thus, we will compare the size and number of ommatidia of amphipods at different growth stages, and from several fish vs. fishless springs, using microscopic techniques and digital media. These data will be used to see whether the ontogenetic scaling of cell size and number corresponds with the scaling of metabolic rate, and whether both are affected similarly by predation.

Dickey, Carlee (Tioga, PA) [Grace Fala]

A LOOK INSIDE PHARMACEUTICAL ADVERTISEMENTS

I will be presenting a scrapbook that portrays twelve different advertisements with an analysis of each. Each ad targets a type of drug or medication. Throughout the scrapbook, one will be able to see the actual advertisement and with a flip of a page, they will be able to see the analysis. The analysis will explain the advertisement and then point out different types of appeals with a brief description of why the appeals are relevant. Finally the scrapbook will end with a summary of what I learned while completing this project.

Draper, Lindsey (Mt. Airy, MD) [Jennifer Bennett]

CHARACTERIZATION OF PUTATIVE CHROMOSOME SEGREGATION MUTANTS OF *STREPTOMYCES COELICOLOR* IDENTIFIED BY A MINI-TRANSPOSON SYSTEM

Streptomyces coelicolor is a filamentous bacterium that produces chains of uninucleoid spores, making it an ideal model for the study of chromosome segregation defects. We have identified a number of mutants that may contain insertions in developmental genes by using an efficient Tn5-based mini-transposon system which randomly inserts itself into the genome. Colonies that were identified in visual screens were then subjected to secondary screens using phase-contrast and fluorescence microscopy. Strains with high frequencies of spores containing no DNA were identified by nucleic acid staining with propidium iodide. Differential interference contrast micrographs overlaid with fluorescence microscopy images showed a high frequency of spores containing no DNA for three of twenty-four tested mutants.

DuBrey, C. Bridget (Plattsburgh, NY) [Don Braxton]

GODDESS WORSHIP PAST AND PRESENT: THE CASE OF ARCHAEOLOGY

Many scholarly and popular analysts have suggested that goddess worship dominated many ancient societies. Due to the lack of archeological evidence little progress has been made clarifying what this assertion entails. The novel approach of archaeomythology claims to succeed where others have failed. Archaeomythology correlates various recovered artifacts with written and oral sources to reconstruct obscured cultural beliefs. This paper analyzes the merits of this approach in the study of ancient

societies. My argument is that, while no one disputes the existence of Goddess worship in ancient societies, some contemporary scholars overreach our best evidence due to their own ideological commitments. In other words, many of these scholars find evidence where it is convenient for their contemporary political and religious agendas.

Eastep, Kazia (Williamsburg, PA) [Judith Katz]

THE BRICKS OF BABEL: LINGUISTIC TOWERS IN ROTH'S "CALL IT SLEEP"

Henry Roth's "Call It Sleep" focuses on young David Schearl, the son of Eastern-European Jewish immigrants. David's struggle to comprehend his environment, New York City's Lower East Side circa 1911, is intensified because it is composed of four individual languages: Yiddish, English, Polish, and Hebrew. My research project, "The Bricks of Babel: Linguistic Towers in Roth's Call It Sleep," examines and analyzes Roth's careful manipulation of language and David's emotional responses to each of the languages. As David develops an understanding of each languages place in his world, he also improves upon his relationships with his family, neighborhood, and religion.

Eastep, Kazia (Williamsburg, PA) [Peter Goldstein]

POETRY ABOUT PEOPLE & PLACES I'VE KNOWN

A presentation of original poetry by Kazia Eastep.

Eatough, Meredith (Rumson, NJ) [Carol Peters]

CLUB WEBSITES: HOW-TO

Learn how to make a simple website for your club and what information should be displayed on your website. These simple tips will be easy to follow for any technology proficient student.

Eger, Caitlin (Littleton, CO) [Xinli Wang]

CAN PHILOSOPHY FULFILL THE FUNCTION OF RELIGION?

In both Christian theism and Chinese philosophy, interpersonal skills are developed by ritualistic enforcement of key social mantras: the ethic of reciprocity, individual accountability, vertical chain of respect, and unconditional love. In contrast with western theistic religion, which acts as a social moderator, eastern philosophy functions as a personal moderator: the primary focus is directed at individual salvation via humanism rather than divine mercy. The Chinese did not develop a national religion because psychological stability, methods of searching for the truth, and social morals were already adequately defined philosophically by Confucius and his disciples.

Ehnts, Ashleigh (Glenside, PA) [James Tuten]

"A LIVING NATION OR THE NATION OF A DEAD PAST?" NOSTALGIC ROMANTICISM IN IRELAND AND THE AMERICAN SOUTH 1840-1930

Nostalgic romanticism is the glorification, and at times, worship of an imagined historical past. In Ireland and the American South, both societies reshaped their respective histories in order to suit their nationalist goals and to slow political and cultural change. Each culture embraced a "lost cause" and select members of these populations worked to preserve, support and romanticize the past. Drawing upon a range of scholarly literature on both societies as well as an extensive collection of primary sources I argue that the similarity of experiences between both peoples caused them to turn away from their defeat and turn to a time in their history in which glory was pervasive.

Eisenmann, Kimberly (Kingston, NJ) [Norris Muth]

EFFECTS OF SOIL PH ON *CENTAUREA CYANUS* GERMINATION, GROWTH AND SURVIVORSHIP

Centaurea cyanus exhibits many flower color variations. Protocyanin pigment contributes to the

common blue coloring, and can be affected by environmental conditions and genetics. Iron is one important component of this pigment's structure, and variation in pH can affect the availability of nutrients in general, including iron. I obtained seeds from different color maternal plants and planted them in combinations of two iron and three pH treatments. Based on my knowledge of pigment production in this species I predict that plants grown in soil without added iron would produce less vibrant flower colors. Additionally, acidic soils may produce flowers towards the red range, basic soil towards the blue range and the untreated soil most similar to the maternal plant.

Eldredge, Nathaniel (Williamsport, PA); Jefferies, Thomas (Pittsburgh, PA); Kochel, Tyler (Lancaster, PA)
[Michael Boyle]

ISOLATION, PURIFICATION, AND CHARACTERIZATION OF AN IgA-BINDING PROTEIN FROM *S. PYOGENES*

Immunoglobulin A (IgA) is found in mucosal secretions and is an important component of the secretory immune system. Certain bacteria express a surface protein that will bind IgA with high affinity. The goal of this project is to use a series of techniques to monitor surface expression of bacterial IgA-binding proteins (IgA-bp) coupled with molecular biology techniques to amplify, via PCR, the gene encoding the IgA-bp. The amplified sequence will then be inserted into a vector and expressed in *E. coli* as a fusion protein to facilitate rapid purification and functional analysis. Bioinformatic approaches will be used to identify functional domains within the sequenced gene. Once completed, these studies will lead to a more detailed structure-function characterization of bacterial IgA-bps.

Elgabrownny, Taurik (Three Springs, PA) [John Wright]

PROOF OF CONCEPT FOR CYBERNETIC ARM, USING A NINTENDO WIIMOTE AND A LEGO MINDSTORMS NXT KIT

What would you do, if you lost an arm 10 years from now? That answer may very much involve making a cybernetic replacement that would allow your brain to connect to and control a robotic prosthesis, for you to go about your normal life. Currently, there is research going on for just this line of thinking. There are both ongoing developments in the Brain to Computer Interaction (BCI) field and in the development of the robotic prostheses themselves. For my research, I did a proof of concept for both aspects: using a Nintendo Wii Remote for the BCI element, and a Lego Mindstorms NXT for the robotic arm.

Evans, Thomas (Jenkintown, PA) [Vincent Buonaccorsi]

DO STANDARD HUSBANDRY PRACTICES PROVIDE ZEBRAFISH (*DANIO RERIO*) OVA WITH IDEAL CONDITIONS DURING DEVELOPMENT

Zebrafish (*Danio rerio*) are a model species in genetic research, and a popular aquarium fish around the world. Little has been published on optimal egg hatching conditions. Instead researchers have relied on standard conditions (~0.12M NaCl, 6mM KCl, 1mM SO₄²⁻, 1mM CaCl₂, 0.6mM PO₄²⁻, pH~7). In this study eggs were exposed to four different pH treatments (4, 6, 7.5, 9) and two calcium environments (1.3mM Ca²⁺ and 2.6mM Ca²⁺) to simulate conditions from their natural environment. Preliminary results show that a higher percentage of eggs hatched at the lower calcium levels and more moderate pH levels (6 and 7), although eggs hatched faster at the higher pH's regardless of calcium level. Zebrafish have highest success in the wild if conditions are moderate, which would be supportive of the hypothesis that zebrafish are seasonally reproductive waiting until the monsoon to deposit ova.

Ewing, Andrew (Pittsburgh, PA) [Norris Muth]

PENNSYLVANIAN PLANTS WITH ANXIOLYTIC ACTIVITY: AN ETHNOBOTANICAL ANALYSIS OF CENTRAL PENNSYLVANIA FOLK MEDICINE

Central Pennsylvania is a region of the eastern-deciduous biome rich in forest diversity and historic

cultural roots. This area is inhabited by unique populations of farmers, laborers and scholars that, despite their differences, are often united in illnesses that would otherwise prohibit them from pursuing fulfilling lives. With the recent rise of stress-induced disorders, anxiolytic medications have become the popular and expensive choice for treatment. Often overlooked are the diverse native species of Pennsylvania - a potentially wealthy source of inexpensive and efficient medicinal treatments. In this study I summarize a survey of botanical texts and interviews with experts on local flora, including members of local Community Supported farms who regularly participate in herbal healing. I further discuss the potential for expanded use of Pennsylvania plants with anxiolytic activities.

Ferlitch, Heather (Houtzdale, PA) [Jeff Demarest]

PYRUVATE-FORTIFIED CARDIOPLEGIA STABILIZES HYPOXIA-INDUCIBLE TRANSCRIPTION FACTOR AND EVOKES NOVEL MYOCARDIAL ERYTHROPOIETIN EXPRESSION IN SWINE UNDERGOING CARDIOPULMONARY BYPASS

Background: Fortification of cardioplegia solution with pyruvate, increased post-surgical cardiac contractile function and shortened post-surgical hospitalization in patients recovering from cardiopulmonary bypass(CPB). Hypothesis: Pyruvate-enhanced cardioplegia provokes HIF-1-driven expression of the cytoprotective cytokine erythropoietin(EPO). Methods: Hearts were arrested in situ for 60 min with 4:1 blood:crystalloid cardioplegia, while pigs were maintained on CPB. The crystalloid contained 24mM lactate or pyruvate. Left ventricular myocardium was sampled at 4h recovery for immunoblot measurements of HIF-1, and EPO, and reverse transcriptase PCR detection of EPO mRNA. Results: Pyruvate-fortified cardioplegia dramatically increased myocardial EPO mRNA abundance vs. conventional, lactate cardioplegia. Conclusion: For the first time, EPO expression was detected in myocardium. Pyruvate-fortified cardioplegia markedly enhanced this novel and potentially cardioprotective EPO expression, at least in part by stabilizing HIF-1.

Fieger, Ashley (Malvern, PA); Woodhouse, Beth (Levittown, PA); Campbell, Michelle (Annville, PA) [Matt Powell]

DENDROCLIMATOLOGY STUDY AT RAYSTOWN FIELD STATION

Our objective is to correlate the growth of tree rings to climate variables from known climate data. Tree cores are readily available on the RFS property. We collected tree cores primarily from Virginia Pines due to their known growth relationship with climate. The cores were mounted, sanded and the rings were measured using the SCION imaging program. Our analyses included correlation of the tree rings with temperature and precipitation measured by meteorological equipment, and analysis of historical climate record for use by cross-dating. This information will be used to determine regional historical climate data where instrumental records are not available.

Finan, Kelly (Hop Bottom, PA) [Uma Ramakrishnan]

DESIGNING AN ILLUSTRATED FIELD GUIDE TO THE INVASIVE PLANT SPECIES OF RAYSTOWN LAKE

The objective of this project is to create a field guide to the invasive plant species of Raystown Lake for educating visitors to the area. The most common invasive plant species have been identified, and information on these species will now be available to the general public in the form of a published, illustrated booklet. Each page, which I have designed and illustrated, will provide the Raystown Lake visitor with the most important information needed to identify each species, as well as details on the origin of the plant. The field guide will be distributed through the Army Corps of Engineers, and will also be available at the Raystown Field Station.

Fischel, Jason (Hockessin, DE) [Dennis Johnson]

ARSENIC MOBILIZATION IN THE CRITICAL ZONE: OXIDATION BY HYDROUS MANGANESE OXIDE

Manganese(IV) oxides represent one of the main redox catalysts in the subsurface environment, while also extensively sorbing a number of anions and cations. Their wide-spread distribution in soil, combined with their highly reactive surfaces, allow manganese (Mn) oxides to oxidize trace metals such as arsenic from arsenite[As(III)], which is fairly toxic and mobile, to arsenate[As(V)], a much less reactive and mobile species. However several variables can influence the oxidation reaction. A variety of Mn (IV) particle sizes can be found in nature ranging from nanometer to micrometer size particles, which impact the exposed surface area. Also, as manganese oxide minerals age under natural conditions they go through Ostwald ripening, where the numerous small crystalline particles formed at first begin to precipitate into a larger, more crystalline structure, further impacting overall reactivity.

Flumerfelt, Eric (Chest Springs, PA) [James Borgardt]

EFFECTS OF PULSE PILEUP AND HIGH COUNT RATES IN SODIUM IODIDE SCINTILLATION DETECTORS

Radiation Portal Monitors (RPMs) are a key component of the Department of Homeland Security (DHS) strategy to detect and interdict illicit nuclear materials at border crossings. The systems currently deployed, which utilize plastic scintillators for radiological detection, have only limited spectral resolution and are mainly used to obtain gross counts, not identification. Because of this, nuisance alarms caused by naturally occurring radioactive material (NORM) can cause delays at border crossings. To counter this problem, the Domestic Nuclear Detection Office (DNDO) has mandated the integration of advanced spectroscopic portals (ASPs), whose increased spectral resolution can identify dangerous nuclear materials. The effects of peak shifting and degraded resolution of spectral features in the new ASP systems, which could possibly lead to isotopic misidentification, were the main concern of our research.

Fornadel, Andrew (Columbia, MD) [Ryan Mathur]

GEOCHEMICAL ANALYSIS OF SOIL DEVELOPED ON THE MARCELLUS SHALE IN CENTRAL PENNSYLVANIA

In order to determine the effects of weathering and the mobility of elements within soils overlying black shales, we conducted a geochemical and physical study of soil developed on the Marcellus Shale. Additionally, we developed a protocol by which we extracted copper from the soils and measured the trends in isotope fractionation with depth in the soil profile. These analyses provide insight as to the pedogenic processes that have occurred at our research sight.

Frye, Elicia (Williamsburg, PA) [Emil Nagengast]

THE BUSH ADMINISTRATION AND GUANTANAMO BAY

This research project assesses the Bush Administration's arguments as to why the prison facilities in Guantanamo Bay are legal and why they should remain open. While my research minimally supports the Bush Administration's arguments as to why the facilities in Guantanamo Bay should remain open, most of the research shows that the arguments presented by the Bush Administration are illegitimate.

Garlow, Juliet (Silver Spring, MD) [Sarah May Clarkson]

BIRTH ORDER: ITS EFFECTS ON PERSONALITY AND INTELLIGENCE

From birth until death, the human mind is constantly changing, learning, and developing. Many factors contribute to a person's street smarts and academic success, as well as his or her disposition. And as time passes, friends grow apart, parents die, careers end, but siblings are unwavering. Their presence, though it may vary from family to family, influences the way each sibling behaves, achieves, and interacts. Measuring intelligence in terms of IQ scores and academic eagerness and achievement, and measuring personality in terms of specified characteristics, researchers across the globe have discovered recurring patterns between siblings that indicates that birth order affects both personality and intelligence.

George, Kara (Bradford, PA) [Karen Rosell]

IDENTITY IN CINDY SHERMAN'S PHOTOGRAPHS: DOES THE DRESS MAKE THE WOMAN?

As a child, Cindy Sherman enjoyed playing dress up and creating convincing disguises. As an adult, she continues this adventure and uses photography to document her various characters. Throughout history, women have been portrayed as the object of male desire rather than the active subject. I will explore how Sherman's photographs create a fiction through the appearance of reality, only to expose the unwanted dimension of that fiction. Sherman's images also employ postmodern theory and devices to further emphasize and undermine mass-culture imagery as constructed by men. I will also discuss how such devices permit Sherman to unveil the system of power that has constructed women's identity.

George, Kara (Bradford, PA) [Peter Baran]

SYNTHESIS OF GUANINE-N-OXIDES AND THEIR COMPLEXES

The chemical structure of guanine-7-oxide has been established, as well as its biological activity as an antitumor agent. Guanine-7-oxide, obtained from *Streptomyces purpurascens*, is active against L1210, P338, and L-5178Y leukemia cells. The synthesis of the other three monoheterocyclic N-oxides of guanine has been reported, yet the antitumor activity of these compounds remains uninvestigated. The inhibitory effect of substituted purines has been shown to increase upon coordination with a transition metal. However, complexes of guanine N-oxides have not been reported to date. Therefore, our study focused on the synthesis of guanine N-oxides complexes with cupric chloride. An interesting trinuclear Cu (II) complex, $[Cu_3L_2Cl_7] \cdot 2H_2O$, was isolated and structurally characterized. The synthesis and structural, spectroscopic, and magneto-chemical characterization of all studied metal complexes of guanine-N-oxides will be discussed.

Gibson, Kelly (Greensburg, PA); Weber, Laura (Lumberton, NJ) [David Widman]

EXAMINING DIFFERENCES IN TARGET ARTICLES OF GENDER-SPECIFIC MAGAZINES: AN EXAMINATION OF SEX, HEALTH, WORLD ISSUES, AND OTHER ARTICLES

The media affects the way society views gender roles. Studies in the past have examined the influence of pictures, words, and advertisements on television and in print media. In our current study, the number of "cover" or "feature" articles in the popular men's magazine, FHM, and the popular women's magazine, Cosmopolitan, were compared. We hypothesize that women's magazines will include more articles related to sex and health as compared to men's magazines with more articles related to world issues and other topics. Results show that it is more likely that articles about sex will be featured in a woman's magazine than a man's magazine. Future studies could examine visual versus print content in men's and women's magazines.

Gouldey, Jennifer (Perkiomenville, PA); Freeman, Elizabeth (Erie, PA); Ree, Christopher (Copake, NY); Bokin, Todd (San Francisco, CA) [Brad Andrew]

OPTIMIZING THE BENEFITS OF LOW CORRELATION

Using various mathematical strategies, it is possible to optimize an investing portfolio to have higher returns with less risk. We will improve upon an article that discusses optimizing a portfolio using low correlation values and produce a portfolio with higher returns and less risk than the one presented in the article.

Hamilton, Ryan (Coopersburg, PA) [Xinli Wang]

DIGGING FOR THE ABSOLUTE IN KIERKEGAARD'S SUBJECTIVE TRUTH

Traditional thinking associates objective knowledge with absolute truth and subjective knowledge with relative truth. Following the philosophy of Soren Kierkegaard, this essay will argue that this strict

traditional understanding is based on a false dichotomy. A close inspection of Kierkegaard's notion of subjective truth will reveal a strong association between the subjective and the absolute. A distinction between the realm of subjective truth, a way of knowing, and the realm of objective truth, the content of knowledge, needs to be clarified. For Kierkegaard, subjective truth is a 'meaning relation' with an emphasis on how, as opposed to what is known. His focus is not on logical and scientific truth, but ethical and moral truth. Kierkegaard's emphasis on subjective truth can offer a fuller understanding of truth and human existence.

Hann, Tessa (Warfordsburg, PA); Roy, Joshua (Fredericksburg, PA) [James Kim]

RATIONAL, IDEOLOGICAL, OR IRRATIONAL VOTER? A STUDY OF COLLEGE AGE VOTERS IN CENTRAL PENNSYLVANIA

In this study, we attempt to revisit the most current hypotheses on voter behavior as applied to the college-age category. In particular, we gather both ideological and simulated election data from a sample of approximately 100 students from a small liberal arts college in central Pennsylvania. Our findings will show, contrary to the popularly held rational voter model, that college-aged voters are motivated more by ideological than economic concerns when it comes to voting and that the transaction costs associated with different electoral arrangements do not seem to play a significant role in voter behavior.

Hann, Tessa (Warfordsburg, PA) [Emil Nagengast]

ORIGINATION OF AMERICAN POLITICAL PARTIES IN THE 1790'S

This research explores how and why political parties emerged in the 1790's despite the precautions taken by the Founding Fathers to prevent their formation. The central argument of this study is that these parties emerged to promote the interests of the political elites, namely Thomas Jefferson and Alexander Hamilton, who started the Jeffersonian Republicans and the Federalist parties.

Hashagen, Carlee (Easton, PA); Cushman, Elizabeth (Lancaster, PA); Wiles, Kenneth (Rhinebeck, NY) [Uma Ramakrishnan]

EVALUATING INCOMING FRESHMEN ATTITUDES AND BEHAVIORS ON SUSTAINABILITY

The objective of this project is to examine Juniata College's effect on students' attitudes and behaviors towards environmental issues. A survey of 2006 incoming freshman at Juniata provided data on their opinions. The survey was split into four sections: the new environmental paradigm, transportation, recycling, and consumption. We placed students into three categories based on their environmental values and examined the relationships between students' attitudes and behaviors. Based on the data analysis of the entry survey, we will construct an exit survey for these students, in order to evaluate any changes in environmental/sustainability attitudes in students after a Juniata education.

Haskins, Patrick (Auburn, MA); Frey, Brian (Tyrone, PA); Elgabrown, Taurik (Three Springs, PA) [Marlene Burkhardt]

FCI- KIOSK DESIGN

The JCTC team of the Innovations for Industry class designed the interface for the kiosk used in FCI's reception area.

Hassinger, Heather (Middleburg, PA) [Mark McKellop]

A COMPARATIVE STUDY OF PRE-COMPETITION ANXIETY IN COLLEGIATE ATHLETES

Competitive anxiety affects the preparedness, self-confidence, and the overall performance of collegiate athletes. The current study utilized a well-standardized self-report measure to assess pre-competition anxiety in college athletes at several different times during one season. It was hypothesized that (a)

freshmen athletes would have higher levels of pre-competition anxiety than their older, more experienced teammates, and (b) freshmen will have higher levels of pre-competition anxiety at the beginning of their season and seniors will have higher anxiety at the end of the season. Discussion will focus on the differences in pre-competition anxiety in upperclassmen compared to freshmen and the pre-competition levels in seniors at the beginning of their season compared to the end.

Hileman, Ashley (Roaring Spring, PA) [Donna Weimer]

CONTENT ANALYSIS OF FOCUS GROUP INTERVIEWS BASED ON "REAL WORLD" SYMBOLISM

This is a pilot study investigating how young adults use language to frame their understanding of the unknown. This research argues that today's young adults have adopted negative ideas about and feelings toward the "real world" as a result of how this concept has been framed by the generation before them, causing them to reflect this in their own language. The content for this analysis will be derived from focus group interviews consisting of college-aged adults as well as members of the "Baby Boomers" generation.

Holm, Roy (Cologne, Germany) [Xinli Wang]

INWARDNESS' IRONY: "DON'T LISTEN TO ME, AND THE UNREVEALED CLARITY

This presentation will walk through the different realms of one human's most complex aspect - his inwardness. Kierkegaard categorizes it as one of the most important characteristics to existence, and builds his ideas of faith, communication and subjective truth around it. Inwardness reveals itself on three different levels according to Kierkegaard: the aesthetic, the ethical and the religious. It is inwardness is critical at each stage and plays the central role at the deepest level for the truly religious existence. To explore inwardness lays bare a paradoxical situation, which allows for it either be completely misunderstood when it is presented or is left open to interpretation by the listener.

Holton, Christopher (Jacobus, PA); Hodgkins, Shelby (Alexandria, VA); Showvaker, Megan (Beaver, PA); Arnold, Kate (Cardiff, Wales) [Philip Dunwoody]

DIFFERENTIAL MOTIVATIONS OF RIGHT-WING AUTHORITARIANISM AND SOCIAL DOMINANCE ORIENTATION AND THEIR RELATION TO WAR AND PERCEPTIONS OF THREAT

The study looked at the personality variables of Social Dominance Orientation (SDO) and Right-Wing Authoritarianism (RWA) and their relationship with perceptions of threat, particularly how these perceptions of threat correlated with support for the Iraq War. Students at a small liberal arts college were given a survey that contained questions that pertained to these perceptions and the personality variables of interest. Results showed that participants high in RWA and SDO tend to support the war in Iraq and also perceive the war as effective. Additionally, those high in RWA and SDO were more likely to believe that false positives do not occur, although this did not hold true for false positives related to the Iraq War. This paper recommends that future research be conducted with a larger, more representative sample and a more refined survey be created in order to obtain more valid results.

Hoover, Jason (Wilmington, DE) [Tom Fisher]

ROBOTICS

Microcontrollers are the tiny chips inside many electronic devices that bridge the gap from the electronic world to the physical world. They are programmable and run small scale applications of computer code. This semester's project with microcontrollers was gutting a robotic arm, designing the inside electronics, and writing the code for it from scratch. Originally controlled through a PC, the old device was hard to use and would constantly overheat and blow fuses, making it impractical to use. The robot was modified into something way more practical than it was originally by designing a more sound application for servo motor control without the previously unwanted design flaws, and is now controlled

by joysticks.

Houck, Joseph (Spruce Creek, PA) [Peter Baran]

TRANSITION METAL COMPLEXES OF PYRAZOLE N-OXIDES

Coordination complexes of aromatic N-oxides are of interest to our group. This presentation deals with pyrazole N-oxides. In the literature, there are a few studies on transition metal complexes of differently substituted pyrazole di-N-oxides. To our knowledge, no metal complexes with the monoxide (existing in a tautomeric 1-hydroxypyrazole form) have been investigated. 1-Hydroxypyrazole has been prepared and characterized by NMR, GC/MS, IR, and melting point. 1-Hydroxypyrazole can coordinate either as a neutral ligand, or as a conjugate base in a form of the pyrazolato N-oxide anion. Preparation, structures, and characterization of transition metal complexes of both ligand forms will be presented.

Hruska, Courtney (Johnstown, PA) [Emil Nagengast]

ASSERTION OF RELIGION IN THE POLITICS OF THE HOLOCAUST

The Holocaust that occurred during World War II will forever mark humanity. Much of the research on this atrocity has focused on the victims and not on the perpetrators. My research attempts to understand how those who committed the atrocities reconciled their vile deeds with their religious beliefs. My research examines the differences between the behaviors of practicing versus non-practicing German Christians during the Holocaust.

Hull, Travis (Johnstown, PA) [Jennifer Bennett]

A NOVEL INVESTIGATION OF MICROBIAL DEVELOPMENT WITH PHARMACOLOGICAL APPLICATIONS

The gram-positive bacterium, *Streptomyces coelicolor*, is an advantageous organism for the study of prokaryotic cell division and sporulation. The identification of new genes in this organism has pharmaceutical and industrial applications; and highly conserved cell division genes represent novel drug targets for combating pathogenic species. Using transposon mutagenesis, we have identified two cell division mutants with insertions in previously uncharacterized genes. Phase-contrast micrographs revealed that one of these mutants exhibits a septum placement defect, while the other is blocked for division completion.

Huston, Genna (Severna Park, MD) [Neil Pelkey]

THE EFFECT OF SALINITY, PH, NUTRIENTS, AND SOIL ON MANGROVE GROWTH: STUDY OF THREE POTENTIAL MANGROVE GROWTH SITES ALONG THE COROMANDEL COAST

Mangroves are an important ecosystem. There are many factors which effect the growth and development of mangrove seedlings including tidal influences, water/ soil salinity, water/soil pH, nutrients, and soil composition. These factors were researched in three sites in Tamil Nadu, India: Chunambar, Madalapattu, and Ediyanthittu. Through analysis of the data and literature review, the sites were looked at their potential for planting sites for mangrove seedlings. Though Madalapattu has the lowest water and soil salinity values (24/5), lowest soil pH values (7.4; 7.9; 8.2), Chunmabar has the highest water and soil salinity (36/10) lowest water pH values (7.9, 8.0) and Ediyanthittu has the highest water and soil pH values (8.3/ 8.5), literature suggests that all sites have potential to support growth of common species of mangroves.

Jackson, Theresa (Bellows Falls, VT) [Mark McKellop]

THE EFFECTS OF PARTICIPATING IN STRUCTURED RHYMING ACTIVITIES ON PRESCHOOL CHILDREN'S PHONOLOGICAL AWARENESS

Phonological awareness can be defined as an understanding of the sound structure of language and its components. This study examines the effects of participating in rhyming activities with an adult on

preschool children's early phonological awareness. Participants included attendees at the Early Childhood Education Center. Participants were divided into an intervention group that would complete four structured, small group rhyming activities and a control group. All participants completed a phonological awareness assessment, evaluating their rhyme and alliteration recognition and generation. It is hypothesized that the intervention group's scores on this assessment should show greater improvement than those of the control group. Statistical analyses will be conducted that should confirm this hypothesis barring a lack of power to detect such differences.

Karkoska, Kristine (Ellicott City, MD) [Vincent Buonaccorsi]

CHARACTERIZATION OF A PUTATIVE "SPECIATION GENE" IN THE *SEBASTES* SPECIES COMPLEX

My goal is to characterize a gene possibly involved in mate recognition for two recently diverged rockfishes. Analysis of inter-species divergence values from many genetic markers identified a large positive outlier, suggesting natural selection has influenced the DNA region linked to this marker. To find the putative gene, I isolated the sequence upstream of the marker using a PCR based genome-walking technique and sequenced it. In 600 bp upstream of the marker I found only a few single base-pair polymorphisms. These results suggest that the two remain genetically similar, having only recently diverged into separate species. There were no sequence matches to known genes, which implies that either the putative gene is more distant from the marker locus or may instead be a cis-regulatory element, a control segment of DNA.

Katz, Matthew (Yardley, PA) [Cathy Stenson]

THE MANY TILINGS OF A 2 X N BOARD

Tilings are a fun and visual way to view certain mathematical problems. If we take a board of width two and variable length, one problem might be to count the number of ways we can completely cover the board with 1x1 squares and 1x2 dominos without any overlapping tiles. Then, we can try to find the number of these tilings with different types of squares or dominos. For these patterns, we can also find generating functions in order to quickly and easily count the number of such tilings for larger boards.

Kline, Jessica (Altoona, PA) [Belle Tuten]

AN UGLY MEDIEVAL DIVORCE: A CONTEST BETWEEN SECULAR AND ECCLESIASTICAL AUTHORITY

In the ninth century, Lothar II wanted to divorce his wife and marry his concubine to gain a legitimate heir; he concocted a story of sodomy and incest to destroy his wife's reputation. When his wife was proven innocent, the papacy attempted to assert its power over the Frankish kingdom. Unlike previous years when the Frankish laws overruled those of the Church, Lothar's divorce case gave the Church the perfect opportunity to involve itself in Frankish politics with the support of surrounding kingdoms. This divorce case illustrates the struggle between secular and ecclesiastical authority, with the papacy slowly acquiring more power.

Knepp, Jonathan (Mill Creek, PA) [Belle Tuten]

JOHN BULWER, DOCTOR, ROYALIST, HYSTERIC

This presentation has focused on Doctor John Bulwer, and his book, *Anthropometamorphosis*. After placing both in their historical context, something not done before, I found Bulwer to be a paranoid, iconoclastic Royalist stuck in his own personal hell, the Cromwell dictatorship. *Anthropometamorphosis*, regarded by most as a "picture book," or at best, an ethnography, becomes so much more than that; Bulwer's personal rejection of everything which English society in 1650 has become. Feeling helpless, the author picked one of the most capricious, yet trivial, aspects of society and attempted to change at least this one minute, but in his mind, appalling, instance of his country's transformation.

Anthropometamorphosis is on the surface an ethnography, but more importantly, it was Bulwer's

rejection of the reality in which he found himself.

Knoll, Seth (East Windsor, NJ) [Valerie Park]

URBAN TEACHING SEMINAR

An account of an amazing opportunity for education majors to experience teaching in the intercity schools as well as networking with other future teachers across the region.

Kobeski, Justine (Factoryville, PA); Wainwright, Nora (Altoona, PA) [Marlene Burkhardt]

MIGUEL ANGEL ASTURIAS ACADEMY WEBPAGE

For Innovations for Industry we will be redesigning Miguel Angel Asturias Academy, a nonprofit, school located in Quetzaltenango, Guatemala's webpage. The webpage will be fully accessible to screen readers and individuals with low vision. It will also include a mailing list database, "Click and Pledge" software, content management system, and various forms of web marketing. Through this experience we will learn more about the web development process and help a nonprofit organization.

Kochel, Tyler (Lancaster, PA) [Michael Boyle]

ISOLATION OF INDIVIDUAL HUMAN SERUM ALBUMIN-BINDING DOMAINS FROM STREPTOCOCCUS G1400 PROTEIN G

Protein G, an IgG- and albumin-binding protein expressed by human group C and G streptococci exists in 5 distinct structural forms. The variation is due to differing numbers and combinations of IgG and albumin-binding domains in related sequences. The goal of the project is to isolate individual human serum albumin-binding domains from the protein G gene present in streptococcal isolate G1400 protein G (3 IgG and 3 albumin domains). PCR was used to amplify the specific sequence(s) known to encode albumin-binding domains. Initially a construct containing all three binding domains was cloned, and in future experiments, each domain will be subcloned and inserted into a pBAD expression system to compare the functional properties of the related domains.

Korb, Melinda (Morrisdale, PA) [Tom Fisher]

MENTOS® MORPHOLOGY: A STUDY OF SURFACE STRUCTURE USING AFM

The reaction rate between soda and various types of MENTOS® was investigated. It was hypothesized that differences in rate were due to the nature and the morphology of the surface of the MENTOS®. It was expected that MENTOS® that reacted vigorously with the soda would have a surface with greater irregularities and thus a greater surface area. An atomic force microscope was utilized to characterize the surface of the various types of MENTOS®. The findings thus far support the hypothesis. The MENTOS® with larger surface area react more vigorously than those with a smaller surface area.

Kwon, Aggie (Enola, PA); Dunwoody, Marlene (Huntingdon, PA); Pannone, Craig (Wolcott, CT) [Debra Kirchhof-Glazier]

GERMS FROM FOOD THAT DO THE BODY GOOD

Probiotics are microorganisms found in the human intestines that help to balance intestinal microflora. The most commonly known probiotics are *Bifidobacteria* and *Lactobacilli*. Proposed mechanisms by which probiotics produce healthy effects include competitive inhibition with pathogenic bacteria, strengthened intestinal barrier function, and modulation of gut microflora. Through targeted probiotic supplementation, benefits include decreased incidence and duration of certain diarrheal illnesses, extended remission in ulcerative colitis and Crohn's disease, and possible prevention of urinary tract infection by counteracting colonization of uropathologic organisms. Probiotics may thwart development and persistence of allergic rhinoconjunctivitis, asthma, eczema, and irritable bowel syndrome. Probiotics are often administered therapeutically in supplementary form, but are also found in natural sources

such as yogurt, buttermilk, kefir, tempeh, miso, kimchi, sauerkraut, and other fermented foods.

Laird, Amber (Altoona, PA) [Emil Nagengast]

THE GUN CONTROL DEBATE IN THE UNITED STATES

By interpreting the ways in which politicians and the media frame the gun issue, it is possible to gain a better understanding of why the "right to bear arms" is subject to a greater variety of interpretations than other constitutional protections. Whereas the public has generally reached a consensus on issues such as freedom of speech, the gun question remains a contentious debate in the United States. This analysis argues that the lack of decisive rulings by the judiciary allows room for emotionally charged rhetoric to fuel an ongoing and polarizing debate regarding the intent and practical implications of the Second Amendment.

LaPrad, Lindsay (Brunswick, ME) [Karen Rosell]

SCULPTURAL INSPIRATION: HOW NEW YORK INFLUENCED THE ART OF LOUISE NEVELSON

Many art historians attribute Louise Nevelson's noteworthy contributions in sculpture to her ability to construct artworks which are fused with the artistic persona that she fashioned for herself. The success of these assemblages cannot be solely attributed to the artist infusing her own story into her artwork; no story is complete to unfold without a setting, for a setting offers both inspiration and possibility. As culturally rich environment, New York City encouraged the creation of Louise Nevelson's most celebrated sculptures. The artist described her relationship with this urban center best, "I see New York City as one big sculpture".

Latham, Sarah (St. Leonard, MD) [Carol Peters]

BLACK, WHITE, AND GRAY: ALTERNATIVE INTERPRETATIONS OF GOOD AND EVIL IN STEINBECK'S EAST OF EDEN

This paper attempts to further explore commonly held notions of good and evil in John Steinbeck's East of Eden. The novel is frequently looked upon as an allegorical allusion to the biblical story of Cain and Abel. This leads to the generalized interpretation that characters with names of 'C' or 'A' are able to be categorized as "good" or "evil," based on their association with either Cain or Abel. This paper delves in to the complex notions of self-actualization and human nature to present a revised interpretation of Steinbeck's own thoughts regarding the true nature of humanity. The temperament of the presentation would be neither strictly oral nor poster. I would prefer a more interactive situation in which both presenter and audience members may discuss opinions openly and frankly.

Link, Michael (Patton, PA); Beermann, Thomas (Muenster, Germany); Prinz, Moritz (Muenster, Germany); Reed, David (Columbus, NJ) [John Wright]

I4I DSI PROJECT

For Innovation for Industry we are working with DSI ITI in Altoona, PA. We are converting DSI's OMS system from a Web based menu system to an application using Adobe Flex 3. Collaborating with DSI ITI, we have been creating several different screens for the scheduling application.

Locke, Andrea (Sewell, NJ); Erb, Alyssa (Hollidaysburg, PA); Weber, Laura (Lumberton, NJ) [Andrew Belser]

MARISOL

As part of "Bright Visions" I am directing a scene from the play "Marisol". After being brought back to life by her guardian angel, Marisol is told that it will be last time-- her angel is leaving her to join the effort to kill the senile god. Apocalyptic in nature, Marisol is set in a time without a moon, a blueless sky, where apples are extinct and where cows give salty milk.

Lovell, Matthew (Millbrook, NY) [Jim Tuten]

ROOSEVELT'S USE OF THE FIRESIDE CHATS TO SWAY PUBLIC OPINION FOR THE NEW DEAL

Eight days after taking office, Franklin Delano Roosevelt made his first of thirty radio addresses to the nation, addresses that spanned from 1932 until 1944. While these "Fireside Chats" changed slightly over their duration this research shows that the president used them to sway public opinion in favor of New Deal policies. This paper focuses on the first fourteen chats, in which FDR attempted to convince Americans of the wisdom of programs that were new and a government that was more involved in the economy than ever before. This presentation will provide the audience with brief analyses of these chats, showing how Roosevelt employed different rhetorical tools in the chats, and how he effectively used a still-young media form to win popular support for the New Deal.

Machamer, Natalie (Gettysburg, PA) [Richard Hark]

STUDY OF THE BASE-CATALYZED CONDENSATION REACTION OF O-PHTHALDIALDEHYDE WITH MALONIC ACID

The reaction of o-phthaldialdehyde with malonic acid and base has been shown to form 1-indanone in good yield. This unusual condensation reaction was investigated using HPLC and NMR analysis. In order to optimize the isolated yield of 1-indanone, the solvent, reaction time, number of equivalents of base and malonic acid, and temperature of the reaction were varied. Results of the investigation and our attempt to extend the reaction to other o-dialdehydes will be discussed.

Maier, Krystle K (Poughkeepsie, NY) [Emil Nagengast]

THE INACTIVITY OF CONGRESS REGARDING THE US-CHINA TRADE IMBALANCE

This research addresses the question: Why hasn't Congress taken action to address the trade deficit with China, when Congress recently took action to address the smaller trade deficit with Japan? The analysis examines entities that are applying pressure on Congress, whether it is in favor of or against action. The research supports the argument that Congress will continue to be inactive on this issue for several reasons. One of the most important being that corporate America does not want to see tariffs placed on the Chinese, which is a major difference with the earlier situation concerning Japan.

Malcolm, Jill (Newtown, PA) [Donna Weimer]

SEEKING THE GODDESS IN CYBERSPACE: NEO-PAGANISM AND THE INTERNET

By virtue of its design, the internet has become a major support for the practice of non-traditional religions. More so than any other religion, Neo-pagans are enhancing their spirituality on the internet. My research argues that the internet reasserts Pagan identity, defines new realms of pagan spirituality through ritual and supports Pagan communities online and offline. Through websites, forums and virtual pilgrimages, pagans recreate their individual identity in a private haven safe from criticism. This new "virtual" religious experience differs from real world religious experience and thus creates a new vision of spirituality and how religion is effectively practiced.

Mansell, Pamela (Centre Hall, PA) [Donna Weimer]

CURRENT ATTITUDES IN EDUCATION TOWARD CHANGING TECHNOLOGIES

Shifting from a literate society to a digital society is affecting the way the world functions, particularly in the education system. This research argues that while technology creates new opportunities for the education system, these changes will only occur if the attitude towards technology changes. Technology could be a strong compliment to the material being taught in the classroom, if educators can see the benefits of it. This paper explores how the school building is changing and the effect it is having on student learning. Some technology, such as laptops and hand-held devices, are already being used in

schools, but it is having mixed results. This research explores the possibilities for technology in the education system as well as the resistance it is meeting.

Masciello, Gina (Center Moriches, NY); Payne, Tyler (Mansfield, PA); Chatt, Mike (Jay, NY); Pokrivka, Elizabeth (Seven Valleys, PA) [Uma Ramakrishnan]

WHY DID THE DEER CROSS THE ROAD?: USING DEER MOVEMENT DATA TO DETERMINE IMPACT OF ROADS

This project examined the impact of road density, traffic volume and road type on deer movement and home range size. GPS location data regarding 40 collared bucks was provided by the PA Game Commission and analyzed using ArcGIS. We looked at the number of roads within each home range, and investigated deer movement data to determine if there were visible crossing patterns. We also explored the impact of roads, topography and other physically defining features on home range boundaries. Understanding deer behavior in relation to home range and road crossings can have important implications for planners, wildlife managers and private citizens.

Masciello, Gina (Sayville, NY) [Neil Pelkey]

ANTI-CONVERSION LAWS AS A HINDRANCE TO SUSTAINABLE DEVELOPMENT

Arguably, one of the most pressing issues of our time is how to bridge the disjunction between human communities and the natural environment. Perhaps the most plausible solution to this dilemma is a concept known as sustainable development. Sustainable development involves a tripartite relationship between the economy, society and environmental concerns; with the social decision making process as the key to building a sustainable society. However, Indian anti-conversion laws have hindered that process by promoting segregation, the status quo and a universal culture built on principles of Hinduism. This has damaging implications for the future if we cannot build cooperative social networks structured on democratic principles to operate outside of this context.

Maxon, Jessica (West Decatur, PA) [Peter Baran]

SYNTHESIS OF BIPYRIDINE N,N'-DIOXIDE AND TERPYRIDINE N,N',N''-TRIOXIDE TRANSITION METAL COMPLEXES

Copper complexes of bipyridine N,N'-dioxide and terpyridine N,N',N''-trioxide are studied for their interesting optical, namely photo luminescent properties as well as for their magnetic properties. Terpyridine trioxide was prepared by addition of glacial acetic acid and hydrogen peroxide at elevated temperature. Bipyridine dioxide was prepared in a similar manner. Formation of complexes of terpyridine trioxide with copper salts were studied. A yellow copper chloride complex was isolated and characterized. Syntheses of bipyridine dioxide complexes are in progress.

Mellott, Lindsey (Johnstown, PA) [Michael Boyle]

CHARACTERIZATION OF COAGULATION BY *E. COLI*

Recently, it has been found that *Escherichia coli* can cause clotting under certain conditions. In humans, there is a highly regulated pathway that leads to coagulation. When bacteria cause clotting, it may be as simple as a bacterial protein binding a clotting factor and causing the coagulation. *Staphylococcus aureus*, Group A Streptococci and *Yersinia pestis* are bacteria that have all been known to mediate coagulation. My research project has involved clotting assays to analyze a number of variables. It has been found that the number of bacteria, the temperature, the strain of bacteria and calcium concentration can all affect *E.coli's* ability to cause coagulation.

Mextorf, Tracy (Hollidaysburg, PA) [Norris Muth]

IMPACT OF HOMEMADE FERTILIZERS ON THE WISCONSIN FAST PLANT

Soil nutrient levels are known to affect the morphology and biomass of Wisconsin Fast Plants. In this study I will alter the nutrient source between conventional and natural fertilizers (egg shells, tofu and fruit rinds) and compare resulting growth rates, biomass and morphologies of plants given different treatment combinations. I expect that natural fertilizers have the potential to result in the same amount of biomass production as store-bought fertilizers since the range of nutrients available in both are comparable. I expect the highest biomass production from the combined applications of natural fertilizers and the least from eggshells alone. This study will shed light on whether leftover food can compete with store-bought fertilizer as an environmentally friendly and inexpensive soil amendment.

Milheim, Jessica (Hughesville, PA) [Grace Fala]

CHILDREN'S TOY ADVERTISEMENTS

This project was a scrapbook focused on analyzing magazine advertisements. As an Early Childhood and Elementary Education POE, I chose to focus my scrapbook on children's toy advertisements. Using tenets and theories outlined in the course, I analyzed the advertisements to find the rhetorical appeals that were embedded in the clippings. I focused on similarities and differences based on the target audience of the advertisements while trying to find what techniques the company was using to sell their product. I found the results very intriguing and somewhat surprising. The experience has taught me to read between the lines in advertisements, and I find myself now viewing them in a different way.

Miller, Kellyn (Tyrone, PA) [Andrew Belser]

A SCENE FROM WYCHERLY'S THE COUNTRY WIFE

The Country Wife is a Restoration comedy written by William Wycherley. The play explores the hypocrisy of society through the use of sexuality; infidelity is an acceptable practice as long as we pretend it does not exist. This particular scene stars Pinchwife, a middle-aged man who has married an ignorant country girl in the hope that she will not know to cuckold him. However, Margery, his wife, is being seduced by a man of the town, and this scene depicts Pinchwife's vain attempt to put their affair to rest. Pinchwife discovers his wife is not as ignorant as she may seem.

Mokay, Shiloe (Treadwell, NY) [Emil Nagengast]

WHY HAS FRANCE NEVER COME TO TERMS WITH THE ALGERIAN WAR?

After eight years of fierce fighting, France finally granted Algeria its independence in 1962. Until 1999 France refused to admit that this independence struggle was a war. France still refuses to acknowledge or even to apologize for the atrocities and crimes it committed during the Algerian war, which has caused strained relations between the two nations. This research paper examines why France has never apologized for crimes committed during the Algerian war, and why it has not been able to come to terms with the war.

Monahan, Megan (Pottstown, PA); Hatton-Hopkins, Skye (Bellefonte, PA) [Andy Belser]

SONNETS FOR AN OLD CENTURY

The piece is a series of monologues presented by individuals from across the nation of all different ages and ethnicities. They are each given a final chance to tell their stories, what they've learned or any other information that they would like to be "recycled among the living."

Mongerson, Rachael (Ridgway, PA) [James Roney]

GRAMMATICAL GENDER: AN EXAMINATION OF ASSIGNMENT PRACTICES IN INDO-EUROPEAN LANGUAGES

In language, gender is a grammatical category which differentiates the classes of nouns essential to certain languages. Gender is found in all Indo-European languages, including English. The study of

grammatical gender, its evolution, and examples of irregularities found within its assignment can tell us a great deal about the languages we are speaking. My study examines the historical (or diachronic) explanations for the seeming arbitrariness of the current (or synchronic) system for assigning grammatical gender in Indo-European languages.

Monroe, Hannah (Hyattsville, MD) [Andy Murray]

NON-VIOLENT REVOLUTIONS OF 1989-90 AND THEIR IMPACT ON SOCIETY: AN EVALUATION OF STATISTICS PRESENTED BY THEOLOGIAN WALTER WINK

In recent decades, there has been a small but vigorous debate on the practicality of the use of non-violence as an instrument of social and political change. Yet, information detailing the scope and effectiveness of the use of non-violent action in the world during the past century, or several centuries is often scattered and difficult to piece together. This study was inspired by the dramatic statistics stated by theologian and author Walter Wink- that in 1989-90 alone there were 13 successful non-violent revolutions and one unsuccessful, which affected over a third of the world's population; and in the entire twentieth century, the accumulated non-violent efforts affected over half of the world's population. In this study, I scrutinize the accuracy of Dr. Wink's statistics by investigating the scope of the social effect of the non-violent revolutions of 1989-1990 and touching upon the overall extent and impact of the non-violent efforts of the whole century.

Moyer, Brandon (York, PA) [Peter Baran]

NEW CATALYSTS FOR ORGANIC REACTIONS

Many Schiff base polydentate chelating ligands, complexed by first row transition metals, have proven useful as catalysts in organic reactions, particularly in the chiral epoxidation of olefins. The scope of this work is to investigate new polydentate Schiff base ligands and their metal complexes through condensations of 2- pyridinecarboxaldehyde N-oxide and polyamines with subsequent complexation reactions. To accomplish this, metal cations (V, Cr, Mn, Fe, Co, Ni, Cu, Zn) and counter-anions, as well as stoichiometry are being systematically varied. Syntheses of complexes were attempted by templated and direct syntheses of the organic ligand with vanadyl, iron, nickel, and zinc salts. IR spectra and other results will be discussed.

Murray, Christopher (Roxbury, CT) [John Matter]

MALE REPRODUCTIVE CYCLE IN AN ENDEMIC SCRUB LIZARD, *SCELOPOROUS WOODII*

Sceloporus woodi, a sand-pine scrub lizard endemic to the Florida peninsula, has experienced recent habitat fragmentation. Such vicariant isolations have resulted in strong genetic diversity significant enough for population management concerns. I conducted a study of male reproductive anatomy, at various times during the active season. Morphological measures of the epididymis, testes, and renal sex segment are fit to a fourth order polynomial equation to more accurately predict the timing of male reproductive stages and events. This research is significant in understanding the ecology of *Sceloporus woodi*, as the reproductive biology of any organism is a vital factor in implementing conservation efforts.

Musgrove, Ashley (Cumberland, MD) [Norris Muth]

CASTANEA DENTATA: THE GHOST OF FORESTS PAST?

The goal of this project is to obtain a local survey of *Catanea dentata* (American chestnut) that have been decimated by the Chestnut blight. *C. dentata* was dominant in the forest overstory until 1904; after the devastating fungal infection was introduced its life-history was reduced to 10-15 years. Information will be compiled by talking to local land owners and the Pennsylvania Chapter of the American Chestnut Foundation to find tree locations, followed by ground truthing to locate individual trees. A record of tree locations will be mapped using ArcGIS, and the number and condition of stump sprouts will be counted.

On larger sprouts age data will be recorded. This study will provide access to information about the current distribution and life-history of this formerly dominant tree species.

Musgrove, Ashley (Cumberland, MD); McKenney, Kathryn (Wilmington, DE); Thomas, Rachel (Boalsburg, PA); Hartzell, Thomas (Fleming, PA) [Uma Ramakrishnan]

CREATION OF A MULTI-SPECIES RESEARCH CHESTNUT ORCHARD AT JUNIATA COLLEGE

The objective of this project is to establish a research chestnut orchard containing multiple species of the genus *Castanea*. Our research looked at the over-wintering process in *Castanea dentata*, *C. mollissima*, and *C. dentata* x *C. mollissima* using three growth mediums and three storage temperatures. The radicle development was recorded, and a correlation was found between temperatures and radicle development, and between mediums and different species. Ten of each of the nuts mentioned above were moved to the greenhouse in mid-February and are available for replacements in the orchard. The orchard will consist of 180 trees, thirty each of *C. dentata*, *C. pumila*, *C. sativa*, *C. mollissima*, *C. crenata* and *C. dentata* x *C. mollissima*. Research was conducted in collaboration with the Pennsylvania Chapter of the American Chestnut Foundation.

O'Brien, Joshua (Voorheesville, NY) [Matthew Powell]

GEOGRAPHIC DISTRIBUTION OF APPALACHIAN BOULDER FIELDS AND THEIR RELATION TO CLIMATE

Boulder fields are common features of the Appalachian Mountain range. Boulder fields are often associated with past periglacial environments; however their precise origin is disputed. We constructed a database of geographic occurrences of boulder fields in the Mid-Atlantic and Northeast regions of the U.S. using a combination of Google Earth and Terraserver satellite imagery. If periglacial in origin, we would expect fields to occur at similar elevations, regardless of slope. All boulder fields found were within the valley and ridge province, suggesting elevation as not the sole factor of formation. Our data displayed an inverse relationship of latitude with the average boulder field elevation, but this pattern was paralleled by the average elevation of the mountain range. Our results suggest that these formations are not solely a function of climate.

O'Donnell, John (Coalport, PA) [Jill Keeney]

DETERMINING THE EFFECTS OF GENE OVER EXPRESSION IN DNA REPAIR PATHWAY

Ty1 is a temperature sensitive LTR retrotransposon of *S. cerevisiae*. Following the transcription and translation of the Ty1 retrotransposon, Ty1 RNA is assembled into virus like particles (VLPs) where RT generates cDNA of Ty1, which is either integrated or recombined back into the yeast genome. *RFX1* and *SML1* are negative regulators of the enzyme ribonucleotide reductase (RNR) that controls dNTP levels. This pathway consists of MEC1p, RAD53p, DUN1p; these proteins are known to inactivate RFX1p and SML1p. In this report, we will determine the effects of transposition when upstream regulators such as: *DUN1*, *RAD53*, and *MEC1* are over-expressed in the yeast genome.

Orlousky, Marian (Boiling Springs, PA) [Doug Glazier]

EYE SIZE AND PREDATOR DETECTION BY THE FRESHWATER AMPHIPOD *GAMMARUS MINUS*

Recent research by Juniata College student Travis Deptola has shown that eye size is larger in juvenile amphipods (*Gammarus minus*) living in freshwater springs with versus without fish (*Cottus cognatus*). Our working hypothesis is that natural selection has favored larger eyes because they allow better detection of approaching fish predators. I am testing this hypothesis by examining behavioral activity of captive juvenile amphipods (<4 mm body length) from fish versus fishless springs in the presence and absence of fish. My research design will allow me to determine whether *G. minus* uses visual, tactile and (or) olfactory cues to avoid fish predators.

Orr, Andrew (Knoxville, PA) [Grace Fala]

ANALYSIS OF ADVERTISEMENTS: A JOURNEY INTO THE MOTIVATIONAL APPEALS OF OUTDOOR EQUIPMENT

A detailed analysis of the motivational appeals of outdoor advertisements. A scrapbook collection of advertisements and a breakdown of the strategies used by the ads. This was an assignment done for Grace Fala's Message Analysis class.

Patitsas, George (Huntingdon, PA) [Emil Nagengast]

THE NEW PROHIBITION

In October 2006, Congress and the President ratified and signed the Internet Gambling and Prohibition and Enforcement Act. Although it restricts the use of credit cards on online gambling sites, there is no evidence that overall gambling online has decreased. The only real effect this legislation has had is to make it impossible for American citizens to compete in the global gambling market and contribute to the American tax base. This research examines the implications of this legislation, more importantly, the reasons that it was enacted, and possible strategies for removing this new prohibition.

Payne, Ryan (Medford, NJ); Todd, Tracy (Irwin, PA); Taylor, Jessica (Tyrone, PA); Golej, Carrie (Bridgewater, NJ); Zoubek, Carlie (Dulles, VA) [Uma Ramakrishnan]

BIODIESEL PRODUCTION AT JUNIATA COLLEGE

Our objective is to reach an ideal carbon neutral standard for energy consumption at Juniata College. To that end, we have been creating biodiesel fuel from used cooking oil generated by Sodexho and community businesses. Currently, two 250mL test batches of biodiesel have been produced. Larger batches will be produced using the Fuelmeister II home brewing process. We will then test our product in a diesel engine to analyze efficiency, mixing standard diesel fuel with 5, 10%, and 20% biodiesel. Glycerol is a 10% biodiesel by-product. To minimize the wastefulness of the by-product, we will also examine glycerol and its use in fertilizer and soap production.

Piazza, Maria (Long Valley, NJ) [James Roney]

"SEEING THE POINT IN HOLOCAUST AND GULAG LITERATURE"

This paper and presentation contrasts literature that looks at the mass destruction of people that occurred during the period from the 1920's until the 1950's. Looking at the millions of deaths during this time period which were committed because of a few people's desires, every writer when writing about the Holocaust or the Gulag has considered what many of the individuals who went through this harrowing experience can not discuss. It focuses on literature that looks at the Soviet concentration camps that wiped out a quarter of Russia's population within a few years, and the Nazi concentration camps that wiped out over six million people. In general it examines why these writers scrutinized the implications of the Nazi's and Soviet's actions rather than to remain silent.

Popernack, Daniel (Hummelstown, PA) [Peter Goldstein]

THE BULL AND THE LILY: SEXUAL ARCHETYPES AND REPRESSION IN LORCA AND WILLIAMS

Using two archetypes (the bull and the lily), the study examines similarities and differences in the techniques used by Lorca and Williams concerning sexuality. The comparison identifies which characters represent which archetype and how the playwrights show them in tension. The bull tends to be a character who embodies sexuality, reality, assertion, and youth. The lily is a character who flees from sexuality and who creates mini-narratives to "write" sexuality out of his or her life. The playwrights consistently favor the bull. Whether acting as hero, revealer, or martyr, the bull's ability to assert his or herself is celebrated.

Previte, Dana (Duncansville, PA) [Michael Boyle]

BACTERIAL-MEDIATED COAGULATION

Staphylococcus aureus, *Streptococcus pyogenes*, and *Escherichia coli* have been found to be capable of coagulation of human plasma. My studies have focused on investigating the mechanism by which these bacteria mediate coagulation. To do this, bacterial proteins were extracted using various techniques, and tested for their ability to bind human prothrombin, an important factor in blood coagulation. Bacterial extracts were separated by SDS-PAGE and probed with biotinylated human prothrombin using a modified Western Immunoblot technique. A streptavidin enzyme conjugate reporter system was used to visualize reactive proteins. All of the bacterial species studied demonstrated the presence of prothrombin-binding proteins. The quantity of extractable activity was found to vary from isolate to isolate among strains of the same species.

Prosser, Gerald (Hollidaysburg, PA) [Andrew Belser]

BRIGHT VISIONS: THE PROPOSAL

What happens when you mix a contemporary bright colored world with the work of Chekhov? The play focuses on a couple who can't agree on anything except for getting engaged, the sultry mother that initiates the arrangement, how hypochondria will burden the affair, and how all of this can be brought into today's heightened cliché-based society. See John Kyle Apostolides, Allysa Erb, and Mellisa Mellon, directed by Gerald Prosser, put on the work of Chekhov's 'The Marriage Proposal.'

Rattenborg, Elisabeth (Allison Park, PA) [Celia Cook-Huffman]

IMMIGRATION AND NATIONAL IDENTITY: THE CASE OF HAZELTON, PENNSYLVANIA

This presentation will explore how issues of identity play a role in determining negative attitudes that many United States citizens hold in regards to immigration. In particular there will be a focus on the case of Hazelton, Pennsylvania where a recent influx of Latino immigrants led the local government to implement unconstitutional policies designed to make it impossible for undocumented immigrants to live within the town's borders.

Rea, Bennett (Oakmont, PA) [Xinli Wang]

DISPUTATIONS ON DESCARTES' ONTOLOGICAL THEORY

My presentation is a critique of Descartes' ontological theory concerning the existence of God. Basically all of Descartes' "proofs" for God's existence in the context of the theory are able to be falsified and my presentation aims to do just that.

Rée, Christopher (Copake, NY) [Emil Nagengast]

THE LIBERALIZATION OF SHOPPING HOURS: TALES FROM BERLIN AND MUNICH

The current trend towards the liberalization of shopping hours in Germany can be viewed as emanating from many sources, specifically a city's religious culture and political economy. The religious culture of a city has shown itself to be a strong force in advocating traditional shopping hours. The political economy of a city is inarguably affective regarding the liberalization of the Shop Closing Laws, though its effects are not concurrent with regards to each city. Hence, the likelihood of a city liberalizing its Shop Closing Laws cannot be based solely upon analysis of its political economy, because the results were non-conclusive. The liberalization of the Shop Closing Laws in Germany exemplifies the contemporary altercation in a country attempting to modernize while at the same time retaining its traditionalism.

Rée, Christopher (Copake, NY) [Brad Andrew]

THE REALIZATION OF TORTURE IN THE UNITED STATES

There are varying stances within the United States government for classifying and defining acceptable methods of interrogation. Two leading advocates with bifurcating views are Senator John McCain and Vice President Dick Cheney. As influential statesmen, their opposing viewpoints have formed a foundation for the US's debate on drawing the line for what constitutes torture. Herein it is illustrated how successful Vice President Cheney and Senator McCain have been in rewriting the U.S. laws with respect to enhanced interrogation techniques – torture. Although Washington advocates may voice diverging viewpoints, the Washington consensus, as shown by the easy passage of the Military Commissions Act with even McCain's support, has become the doctrine of Cheney: to follow the commander in chief.

Reish, Matthew (Harrisonburg, VA) [Peter Baran]

STUDY ON THE EFFECTS OF ZIRCONIUM DOPING ON THE PHOTOPROPERTIES OF $\text{Na}_2\text{Ti}_3\text{O}_7$ AND TiO_2 (B)

The effect of zirconium doping on the photo-properties of sodium titanate ($\text{Na}_2\text{Ti}_3\text{O}_7$) and TiO_2 (b), which were doped with 1% zirconium, were investigated. Sodium titanate was produced by solid state reaction of TiO_2 and sodium bicarbonate and the TiO_2 (b) phase was produced by ion exchange reaction with the sodium titanate to produce $\text{H}_2\text{Ti}_3\text{O}_7$ followed by slow dehydration. Particle morphology was determined by SEM. The photo-electrical response of both phases were investigated using surface photovoltage spectroscopy (SPS) and by measuring photocatalytic breakdown or contaminants in aqueous solution.

Reveley, Kimberly (Ridgewood, NJ) [Dave Drews]

THE EFFECTS OF STUDY ABROAD EXPERIENCES ON SOCIAL DOMINANCE ORIENTATION

Social Dominance Orientation (SDO) applies to certain people that have the desire for their group to dominate over other groups. It is this desire for inequality that determines one's degree of SDO. Study abroad programs hope to increase feelings of equality by increasing international understanding and concern, creating cultural sensitivity, and teaching students to be accepting and respectful of customs and beliefs outside of their own. Being that the goals of study abroad programs are so similar to many factors that are shown to decrease social dominance orientation, we feel that a successful study abroad program that meets its goals will make students less susceptible to Social Dominance Orientation and possibly even reduce their pre-study abroad levels of SDO.

Rinehimer, Jennie (Berwick, PA) [David Widman]

FAILURES OF TIME-PLACE DISCRIMINATIONS IN RATS: LEARNING VERSUS PERFORMANCE FAILURE

This study investigates whether the failure of time-place learning is due to problems with learning, where rats do not record time during association formation, or due to performance issues where the time association is recorded but not expressed in low-cost situations. Rats were exposed to a Morris water maze twice daily. A submerged platform changed position based on time of day. Rats weighted during the training period formed time-place discriminations. However, these rats began to show location preferences once weights were removed. Previously unweighted rats developed time-place discriminations once weights were applied. These results indicate that failures in time-place discrimination are performance issues and not due to associative failures.

Ritchie, Jessie (Blairsville, PA) [James White]

EFFECTIVE LEARNING IN THE PHYSICS CLASSROOM

This research explores the topic of how students learn physics. Recently, the study has gained much interest, and professional physics education research groups have formed to collect data and investigate why students have difficulty learning physics. Several theories are based on the hypothesis that the

majority of students in the physics classroom learn the mathematical processes of physics, but never actually conceptualize and understand the theoretical basis behind the material. This study reviews results from a selection of physics education research groups, and considers various implementations into the classroom to help strengthen students' theoretical comprehension of physics concepts.

Rohar, Danielle (Greensburg, PA); Dickey, Katie (Huntingdon, PA); Beckel, Josh (Hollidaysburg, PA)
[Andrew Belser]

BABY WITH THE BATHWATER

Baby with the Bathwater follows the male character, Daisy, growing up with his unusual parents, who out of respect for him are too polite to determine the sex of their baby. The scene used for this performance will be from Act 2 when Daisy explains why he is wearing a dress and why he can't seem to make it through Freshman year (after 3 tries), told to a compassionate voice.

Ruggles, Lindsee (East Freedom, PA) [Fay Glosenger]

SOCIAL STORIES AS A TRANSITION STRATEGY

Research on transition to kindergarten suggests the importance of this event and stresses the need for development of new strategies to ease the adjustment process (Pianta et al., 2007). Strong transition plans recognize the importance of communication between families, schools, and communities; they bring interested parties together and examine the context of interactions. By integrating contextualist theory (Trudge & Hogan, 2005; Bronfenbrenner, 1998) and Gray's (2000) work on social stories, we developed a site-specific social story to ease transition. Our presentation describes the research design, the book we created for a local school, and the benefits found with this approach.

Rumery, Shawn (Dayton, ME) [Dennis Plane]

SUSTAINABLE DEVELOPMENT IN RURAL AND SMALL TOWN AMERICA

The dialogue on sustainable development in the United States has quickly expanded in recent years as issues such as global warming and rising oil costs continue to dominate news reports. While much of the research has focused on sustainable development in urban communities, there has been far less written about the plight of smaller communities as they pursue growth policies that are environmentally, socially, and economically sustainable. This research takes a close look at the developmental problems facing rural and small town communities as they adapt to recent changes in demographics and technology. Using an interdisciplinary approach that draws on research and case studies in a number of fields, I synthesize the existing literature into a comprehensive dialogue that details the challenges facing these communities and offers solutions for the future.

Russo, Lisa (Haskell, NJ) [Michael Boyle]

CHARACTERIZATION OF IdeE

IdeE, the Immunoglobulin-G degrading enzyme of *Streptococcus equi*, is a novel extracellular cysteine proteinase secreted by the bacteria whose only known substrate is mammalian IgG. A similar enzyme, IdeS, produced by *Streptococcus pyogenes* has been extensively characterized. In this study the properties of IdeE and IdeS have been compared using a protein G capture CELDI-ToF assay developed in our laboratory. From the initial studies, both sources of enzyme have demonstrated similar properties with respect to the species of IgG they can cleave and in their profile of inhibition by known protease inhibitors.

Sample, Floyd (Baltimore, MD) [Xinli Wang]

THERE'S NO I IN ENLIGHTENMENT

The idea of this presentation is to increase the knowledge about the breadth of argument available in

Chinese philosophy. Rather than rely solely on the concept of heaven and hell to explain the pleasures and sufferings man experiences daily, Chinese philosophy allows the possibility of debate on the cause of man's suffering to be his own ignorance. That rather than being a battle of good vs. evil the real fight could in fact be intelligence vs. ignorance.

Scacco, Joshua (Lebanon, PA) [Donna Weimer]

ROAD TO THE MAJORITY: HOW NEGATIVE POLITICAL ADVERTISING IMPACTED THE 2006 CONGRESSIONAL ELECTIONS IN PENNSYLVANIA

President George W. Bush called it "a thumping." After 12 years of political dominance in the United States Congress, the Democratic Party ended the Republican Revolution on November 7, 2006. The electoral road to a new Democratic congressional majority passed through Pennsylvania. Losing four members of the House of Representatives and one in the Senate, no other state lost more incumbent Republican members of Congress. Important questions were raised after the Pennsylvania Democratic victories as to the role of negative advertising in the electoral outcomes. This research isolates the effect of negative political television advertising on three of these House races decided by six percentage points or less. Using the Neo-Aristotelian rhetorical approach, this research utilizes Aristotle's five canons of rhetoric to study the effectiveness of negative political ads in the races of new congressmen Jason Altmire, Patrick Murphy, and Christopher Carney. As negative advertising becomes more pervasive in campaign discourse, studying the effectiveness of negative constructions can have important ramifications for future electoral contests

Schultz, Justin (Economy, PA) [Cathy Stenson]

THE VALUE OF PI ON SURFACES OF REVOLUTION AND SURFACES WITH DENSITY

Traditionally, Pi is defined to be the ratio of the circumference of a circle to its diameter which in the plane is approximately equal to 3.1415926. However, when we look at circles drawn on a surface such as a sphere or a surface of revolution, we find that Pi can take on other values including the biblical and Indiana's Engrossed House Bill No. 246 value of three. This research investigates the behavior of Pi on surfaces of revolution and surfaces with density. These results are then compared with an alternate definition of Pi--one which describes it as the ratio of the area of a circle to the square of its radius.

Schultz, Justin (Economy, PA) [Jamie White]

BEAM PRODUCTION AND STABILIZATION VIA FREQUENCY UP-CONVERSION IN RUBIDIUM VAPOR

Pumping lasers with wavelengths of 776nm and 780nm produce two-step excitation from the ground state of rubidium. These excited atoms undergo a double cascade through the 6P_{3/2} energy state before returning to the ground state and producing a fluorescence of 420nm photons. This work discusses the attempts to stabilize and characterize a blue beam that also results from this process. In our set up, two co-propagating external-cavity diode lasers at 776nm and 780nm are directed through a rubidium vapor cell with a natural isotopic abundance of Rb85 and Rb87. The vapor cell is heated and can be held to a temperature of 298-573K. It is believed that greater stability in the vapor temperature will lead to the production of a stable beam.

Shaw, Christopher (Phoenix, AZ) [Doug Glazier]

EFFECTS OF FISH PREDATION ON THE BODY-SIZE SCALING OF BEHAVIORAL ACTIVITY IN THE FRESHWATER AMPHIPOD *GAMMARUS MINUS*

According to Kleiber's Law, as body mass increases, metabolic rate increases with a 3/4 slope in a log-log plot. Current theory predicts that this scaling exponent is the result of internal body design rather than external environmental factors. Contrary to this theory, Doug Glazier's students have found that this slope differs significantly between freshwater amphipods (*Gammarus minus*) living in springs with fish

($b=.54-.62$) vs. without fish ($b=.76-.77$). I propose to test the hypothesis that this difference is the result of fish predation favoring the evolution of reduced behavioral activity in large conspicuous amphipods. Behavioral activity will be quantified by estimating the amount of time amphipods spend swimming and crawling vs. remaining motionless. The body-size scaling of behavioral activity will be compared with that of metabolic rate.

Shotts, Aaron (Everett, PA) [Kathleen Jones]

MODIFICATION OF DNA EXTRACTION LAB TO INCLUDE UV-VIS SPECTROPHOTOMETRIC ANALYSIS

I created extensions for Science in Motion's DNA Extraction lab that enable high school students to analyze DNA through UV-VIS spectrophotometry. One lab allows students to see differences between UV spectra of protein and DNA. Another lab demonstrates how the ultraviolet absorbance of DNA changes as its temperature is raised and lowered. I also adapted a chemistry lab to demonstrate how sunscreens protect DNA from UV damage. I developed and gave a pre-quiz to a high school biology class to determine their prior knowledge on the laboratory concepts. I administered the labs and guided the students in their completion. The students took a post quiz consisting of the same questions as the pre quiz, but ordered differently. By comparing the pre and post quizzes for each participating student, I will generate data that will attest to the labs' effectiveness in helping students to learn about DNA and UV-VIS spectrophotometry.

Shughrue, Katie (New Freedom, PA); Rosensteel, Bridget (Fairfield, PA); Stroup, Catie (Bedford, PA); Vasilchenkova, Mary (Buffalo, NY); Luke, Brooke (Tyrone, PA) [Fay Glosenger]

THE JOURNEY OF ADOPTION

As domestic and international adoptions increase, the body of research on adoption and post-adoption services is expanding. However, the general public may be unaware of this research and remain susceptible to common myths and stereotypes surrounding adoption (Narad & et al., 2004). The goal of our presentation is to enhance public awareness and understanding of types of adoption, examine how adoptions affect child development, and dispel common myths. Research findings and interviews with adoptive parents, foster parents, and adoptees will be utilized to promote this understanding. Current practices and post-adoption services will also be addressed.

Skoner, Jonathan (Pittsburgh, PA) [Jennifer Bennett]

CONSTRUCTION OF A *MARINER*-BASED MINI-TRANSPOSON SYSTEM FOR THE RANDOM MUTAGENESIS OF *STREPTOMYCES COELICOLOR*

Random insertional mutagenesis of genomes using a transposon is a technique commonly used to identify new genes. We currently use a Tn5-based *in vivo* transposon system to identify new developmental genes in *Streptomyces*. Despite the primarily random insertion of transposons, they seem to have a propensity for insertion into hot spots. We are creating a *Mariner*-based transposon system as a complimentary tool to our current Tn5-based system. Using this, we should be able to identify additional genes unable to be identified previously. Additionally, our mini-*Mariner* construct should be matable from *Escherichia coli* to *Streptomyces*, eliminating the need for time consuming transformations.

Stanley, Adam (Huntingtown, MD) [Donna Weimer]

POLITICAL CORRECTNESS AND RACE: AN EXPLORATION

Reflecting on the lectures and writings of Tim Wise, I would like to further explore the state of racism in the United States, and how, through framing, political correctness can silence discourse on the subject. This thesis is a literature review of framing theory, the use of political correctness, and the language of racism. By exploring these three subjects individually and in relation to each other, I hope to explore the

issue of race and discourse.

Sykes, Brian (Woodbury Heights, NJ) [Jill Keeney]

INVESTIGATION INTO HIGH TEMPERATURE TRANSPOSITION OF YEAST MUTANTS

The Ty1 element in *Saccharomyces cerevisiae* is retrotransposon whose life cycle imitates retroviruses. Cellular Ty1 mobility events decrease as temperature is increased and is virtually non-existent at 34°C. Two genes, *rfx1* and *sml1*, were identified as negative regulators of RNR, which is responsible for the catalysis of the rate limiting step in the synthesis of dNTPs, which are necessary for DNA repair. Deletion of the genes results in an increase in the levels of dNTPs and theoretically increased RT activity and subsequently more cDNA. RT activity is measured by a PCR-RT assay, and cellular levels of cDNA and dNTP pools through PCR and HPLC.

Sykes, Brian (Woodbury Heights, NJ); Beaver, Joshua (Mifflinburg, PA) [Debra Kirchhof-Glazier]

CONGENITALLY UNGUARDED ATRIOVENTRICULAR ORIFICES WITH DOUBLE CHAMBERED VENTRICLES

Congenitally unguarded atrioventricular orifice is a rare congenital cardiac malformation with some affinities to Ebstein's malformation. Thus far, to the best of our knowledge, it has been described only in relation to the tricuspid valve. We describe here our observation of the occurrence of an unguarded mitral valve orifice in a newborn infant on autopsy. The anomaly was also found in association with a double chambered left ventricle and familial bilateral congenital diaphragmatic hernias. We compare the findings in this patient with those exhibiting congenitally unguarded tricuspid valve with double chambered right ventricle.

Tembo, Sekani (Bridgewater, VA) [Xinli Wang]

ON THE UNCERTAINTY OF SCIENCE

The realization that science, while not as objective as once proposed, is still the best tool for discerning practical knowledge can aid in preventing the repeat of many historical cases of violence, anger, distrust, and prejudice in our society. This presentation focuses on the philosophical works, statistical evidence, anthropological studies, and common observations that question the historically accepted notion that science's methodologies and institutions are objective sources of absolute, accumulative knowledge; through this analysis, science is shown to be far less objective than once perceived. The conclusion drawn from this analysis has the potential to effect views on many popular issues from cloning to creationism, and much more, because it defines science as the current flagship of human ability to understand and manipulate our universe.

Thomas, Jeffrey (Ringoes, NJ) [Xinli Wang]

CONFUCIANISM GRADED LOVE VS. GOLDEN RULE

Confucianism is regarded as a wise, reverend and generally wholesome path to follow in life. These teachings include but are not limited to Graded Love and The Golden Rule, arguably the most famous of teachings. Unfortunately, there is a little known conflict with in Confucian teachings between Graded Love and the Golden Rule. In my presentation, I will go over the basis of each idea and then reveal why these two are conflicted and how even Confucius himself values Graded Love over the Golden Rule, which is regarded as the core of Confucius's teachings.

Todd, Tracy (Irwin, PA) [Dennis Johnson]

FORESTLAND ASSESSMENT FOR HUNTINGDON COUNTY, PA

The purpose of this study is to determine how much forestland is available in Huntingdon County, where the forested areas are located, and the ease with which timber may be acquired based on geographic characteristics such as land slope. Using a GIS mapping system, available forestland was determined

after areas with streams and 100 foot buffers, roads with 50 or 100 foot buffers, and non-forested landscapes were deemed unavailable for use. Results indicate that there are 318,097 acres available for buffers and a 5% slope.

Tolino, Michael (Pittsburgh, PA) [Jill Keeney]

LOCALIZATION AND EXPRESSION OF TY1 AND RTT105 IN SACCHAROMYCES CEREVISIAE

The Ty1 family of retrotransposons in yeast are temperature sensitive. Ty1 transposition is at its highest activity at 22°C and at temperatures above 33°C, transposition is abolished. Overexpression of Rtt105 overcomes this temperature sensitivity in transposition. The host cell function of Rtt105 is unknown. I am looking at expression and localization of galactose inducible Ty1 and Rtt105 proteins in yeast. For detection of actual interactions of Ty1 and Rtt105, GST-tagged Rtt105 is commercially available as well as antibodies to Ty1 and GST. These are used in conjunction with immunofluorescence microscopy as well as western analysis.

Tomlinson, Ken (Westmont, NJ) [Emil Nagengast]

LOCAL ECONOMIC DEVELOPMENT: PROSPERITY OR PAUCITY?

An issue often discussed on the campaign trail is that of local economic development and how best to grow local business. Extant research shows that the current top-down model of economic development is failing in most cases. This research will explore current economic development policy, nationally and locally. A common misconception is that paltry funding is to blame for a policy's failings, but this research shows the problem is much deeper. These findings show that development is failing because of the antiquated structure of funding appropriation.

Tomlinson, Ken (Westmont, NJ) [Dennis Plane]

MORE INFORMATION, LESS CONTENT: A COMPARISON OF TELEVISION, NEWSPAPER, AND INTERNET POLITICAL REPORTING

The lowering of quality in the news is the result of competition with the entertainment industry; this causes a shift to breaking news and being first to report. With the inclusion of advertising, graphics, and other visual elements, actual reporting time and space has been diminished. Extant research about the quality of news reported on the internet is woefully out of date. A comparison reveals that there is a difference in quality between news presented on television, newspapers, and the internet. By obtaining news from the internet, citizens are getting the lowest quality among the mediums. All the while, newspaper readers are getting the highest quality news. The need for a well informed citizenry is an integral part of any Democracy.

Vachon, Adam (Gray, ME) [Andrew Belser]

STUDENT DIRECTED PIECE: 'TRUE WEST

Act one Scene 8 from Sam Shepard's 'True West' is filled with drinking, chaos' destruction, and toast. This piece explores the dynamic of sibling rivalry, the desire of having someone else's life, and the struggle we have with our own lives and nature. Act one Scene 8 of 'True West' is directed by Adam Vachon as a part of Bright Visions student directed pieces.

Vesper, Matthew (Townsend, MA) [Peter Baran]

SYNTHESIS OF MULTIDENTATE SHIFF BASE LIGANDS AND THEIR COMPLEXES

Transition metal complexes of multidentate shiff base ligands containing pyridine N-oxide moiety are of our interest. A ligand was synthesized from 2-pyridine carboxaldehyde N-oxide and 2,2-bisthiobisbenzenamine. Efforts were made to split the disulfide bond in this ligand. The ligand was complexed with Co(II), Co(III), Fe(II), Fe(III), Cu(I), and Cu(II) salts in efforts to split it. Results of these

studies will be presented. In the effort to produce 2-pyridine carboxaldehyde N-oxide, Pyridine carboxaldehyde was oxidized with hydrogen peroxide and acetic acid. This ligand was complexed with Cu(II) salts and structurally characterized.

Voland, James (Cranberry Township, PA) [Kathleen Biddle]

DEAFBLINDNESS: A CASE STUDY IN RESILIENCE

Deafblindness is considered a low incidence disability. Relatively little research exists which identifies factors affecting resiliency, achievement, and quality of life in this population of individuals. This poster will present information on Elaine Ducharme, who is an adult with Usher Syndrome Type I resulting in Deafblindness. Data collection methods include interviews, retrospective examination of health, family, school documents, and the autoethnographic experiences of the author will be utilized to display the diversity of this individual's life, communication methods for individuals with Deafblindness, and comments from individuals with Deafblindness. Accompanying the poster will be a video of Miss Ducharme's presentation to Juniata College on Deafblindness.

Wade, Amy (Schuylkill Haven, PA); Rinehimer, Jennie (Berwick, PA) [Norris Muth]

THE EFFECTS OF INBREEDING ON REPRODUCTIVE SUCCESS OF THE WISCONSIN FAST PLANT, *BRASSICA RAPA*

Brassica rapa can only self-fertilize through human intervention. We are examining the effects of selectively outcrossing and inbreeding *Brassica rapa* individuals in a greenhouse setting. The experiment includes three maternal groups: individual plants (1) entirely inbred or (2) outcrossed, and (3) plants with a mix of randomly inbred and outcrossed flowers. We will compare the number and weight of seeds produced by each individual as a determinant of reproductive success. We predict inbred individuals will exhibit a lower average seed production. We will also investigate whether inbreeding and outcrossing has effects localized to the individual flower or seen throughout the entire plant. This study contributes to the understanding of the effects of unnatural inbreeding and signaling which may occur throughout the plant.

Wagner, Matthew (Reading, PA) [Peter Baran]

STUDY OF ASYMMETRIC POLYDENTATE PYRIDINE N-OXIDE SCHIFF BASES AND COMPLEXES

The goal of my research was to make an asymmetrical tetradentate chelating ligand and its metal complexes. This was to be done through organic synthesis of pyridinecarboxaldehyde N-oxide, ethylenediamine, and salicylaldehyde. Multiple methods of organic syntheses were attempted but no characterizable amount of the desired compound was obtained. A second approach of templated synthesis was utilized using Cu(II) or Ni(II) salts as templating agents. These also proved to give no characterizable amounts of desired compounds. Once desired complexes will be prepared, they will be tested for use as catalysts for oxidation reactions in organic synthesis.

Wainwright, Nora (Altoona, PA) [John Wright]

THREADED SORTING

A study of how a threaded programming approach affects the processing speed of different sorting algorithms. This brings threading into a more relevant light for CS students and helps validate the study of threaded programming in courses such as Computer Organization and SMUI. In addition, a short single-lecture module for CS2 will be submitted to introduce threading earlier in the Computer Science POE curriculum.

Waters, Laura (Norfolk, VA) [Larry Mutti]

DIGITAL MAPPING THE DAMARISCOVE DIKE INTRUSION COMPLEX, MIDCOAST MAINE

Description: I was accepted as part of an REU incorporating digital mapping igneous intrusions in the field using RTK GPS units, Total Stations, and GeoXTs. All collected data was used to create unique and original data layers, that were spatially correct, organized and incorporated into a geodatabase. My individual research was taking field and spatial data to determine the sequence and style of dike intrusion in Damariscove Island, ME. I found that there were a minimum of two syntectonic intrusions during the Acadian orogeny, with concurrent shortening and elongation, giving them a previously undescribed in geology literature intrusion style.

Weller, Jake (Lusby, MD) [Xinli Wang]

KANT ON SUICIDE

I will be presenting the ideas formulated during the writing of an ethical theory paper describing the shortcomings of the Kantian categorical imperative.

I will be focusing on Kant's denunciation of the act of suicide, and the fact that the act of taking one's life can be made morally permissible according to my interpretation of the principles outlined in Kant's moral theory. I will also cover briefly how Kant's religious background may have helped convince him of the immorality of suicide, and the flaws that this realization reveals in the categorical imperative.

Wendekier, Daniel (Patton, PA) [David Reingold]

TOWARD THE SYNTHESIS OF 1,5-METHYLENESEMIBULLVALENE

The ultimate goal of this project is to achieve the synthesis of 1,5-methylenesemibullvalene. This would have a significant impact on the field of physical organic chemistry. Semibullvalenes undergo a transition known as the Cope rearrangement which will be discussed. 1,5-Methylenesemibullvalene is of particular interest because it may have a lower energy during the rearrangement resulting in a stable delocalized form which would be the first neutral homoaromatic system ever observed.

White, Megan (Glen Rock, NJ) [Donna Weimer]

A FEMINIST CRITIQUE OF THE JUICY COUTURE AD IN TEEN VOGUE, FEBRUARY, 2007

In a world where advertisements are essential to the way in which Americans receive messages, the Feminist Critique is used to explore the shared messages that Juicy Couture provides for its onlookers. The three main components of the feminist critique are: women are oppressed by patriarchy, women's experiences are different from men's, and women's perspectives are not incorporated into our culture. Using these components, this paper argues that Juicy Couture affirms the male gaze of patriarchy by showing what women need to do and what their values need to be in order to be accepted in society.

Yeager, Mandi (Curwensville, PA) [Andrew Belser]

THE TEMPEST

A one act production from William Shakespeare's The Tempest exploring comedy in the midst of cruel hierarchical disorder. Produced and Directed by Mandi Yeager. To be presented for four evenings in a festival style collaboration called Bright Visions with the Juniata Theatre Department's Student Directors. Cast members: Josh Beckel, Aggie Kwon, Rachel Gressick.