# celebrate

A CELEBRATION OF Student Research & Creative Activity 2011



# CELEBRATION OF STUDENT RESEARCH AND CREATIVE ACTIVITY

XAVIER UNIVERSITY APRIL 18, 2011

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#### POSTER PRESENTATIONS

#### HIDDEN HURT: A SERIES OF SCREENPRINTS Elissa M. Conte (Suzanne Chouteau)

Department of Art



1.

There is a reason why we suffer. It is not only the things that bring us joy, but the things that cause us pain which unite us. This series of screenprints is a representation of students in the Xavier community and their hidden hurt based on photographs of them looking the way they look every day—happy. These photographs have been incorporated into the prints through a series of layers of stop out fluid, drawing fluid, and photo emulsion techniques. To supplement these figures, each person photographed submitted an anonymous story about

themselves. They consisted of narratives, poems, and incoherent descriptions of powerful emotions and memories. These stories have been mixed up and some have been handwritten by a third party. As a result, the prints consist of one person's portrait, one person's story, and another's handwriting. Much like the layers of the prints themselves, these individual aspects of identity define the complicated layers that make up each of us. It is likely that parts of each of these things; our handwriting, our physical appearance, and our past are similar to that of another person. Therefore, it is likely that the stories represented are not just these people's stories, but each other's stories, my stories, our stories.

#### ANALYSIS OF JAW MECHANICS IN RELATION TO PREDATORY ADAPTATION IN SEVERAL SPECIES OF CARNIVORES

Timothy C. Berghold (Dr. William Anyonge)

Department of Biology



2.

Order Carnivora recognizes approximately 270 species and 11 families. The Order is divided into two suborders based on distinction in skull features: Feliformia (cat-like carnivores) and Caniformia (dog-like carnivores). The carnivores live in a wide variety of habitats across the globe and exhibit unique cranial characteristics that reflect adaptations to specific predatory behaviours, such as how they capture and kill their prey. In the present study interspecific

allometric differences in masseteric fossa (MFL) and temporal fossa length (TFL) are under investigation as to how the size of these muscles impact jaw mechanics (e.g., biting force) in carnivorous species. The size of these muscles determines the amount of force that differently sized carnivores can produce to capture prey. The position of M1 of the carnassial pair in the majority of carnivores is fixed in a relatively constant position. Since this position is held relatively constant among many carnivorous species, the location may be optimal for the greatest bite force generation. Differences in size of the MFL and TFL, and the conserved positioning of M1 of the carnassial pair, may correlate with differences in the Tooth Row Length (TRL) or snout length and the size of the Cranial Angle (CA) among members of the Order. These allometric differences may convey new insight into predatory adaptation. Species with enhanced bite forces (e.g. felids and hyenas) should display a larger masseteric and temporalis muscle size and shorter snout lengths compared to those that have weaker bite forces and longer snouts (e.g. Canids).

### COMPARATIVE SKULL MORPHOLOGY IN LIONS AND TIGERS Samantha Isch (Dr. William Anyonge)

Department of Biology

Department of Biology



3.

Lions live in packs; females live in groups of close relatives and offspring called prides, males live in groups called coalitions. Female lions help each other hunt and raise offspring, whereas male coalitions fight to gain control of female prides to increase their chance of reproductive success. Tigers, on the other hand, live and hunt solitarily. Because the two species are so

similar genetically, they are able to hybridize easily. This makes their skulls and other skeletal elements very difficult to distinguish. This study explores the utility of several cranial characteristics in distinguishing lion skulls from tiger skulls which sometimes can be problematic in museum collections. It is hypothesized here that lions will show a bimodal distribution in cranial measurements thus reflecting the pronounced sexual dimorphism in lions (pride species) compared to the solitary tigers.

#### 4. THE EVOLUTION OF SALTATORY LOCOMOTION IN MAMMALS AS AN ADAPTATION TO DIFFERENT HABITATS AND PREDATOR AVOIDANCE

Amanda Krutzler (Dr. William Anyonge)
Department of Biology



Saltatory locomotion evolved as a means to escape predation in open habitats by moving at a high speed for a long distance. Mammals that utilize a hopping gait have the ability to convert back and forth between kinetic and potential energy using their legs as springs, which allows for long distance travel without fatigue. In order to investigate the relationship between saltatory locomotion and evolutionary modifications in limb anatomy, ten species of mammals

that included marsupials and placentals were studied. Brachial and crural indices were compared using measurements from the principal limb bones in the fore and hind limb, respectively. Results indicate that species such as *Macropus fuliginosus* (the Western Grey Kangaroo) that live and thrive in desert or open habitats have significantly longer hind limbs than fore limbs. This enables them to travel at high speeds for long periods of time to escape predators. The longer hind limbs are due mainly to greatly elongated tibia (high crural indices) rather than a reduction in anterior limb length. In contrast, species that live in closed habitats (forest or bush areas) such as *Sylvilagus floridanus* (the Eastern Cottontail) and *Dendrolagus lumholtzi* (the tree Kangaroo) have similar forelimb and hind limb lengths (comparable crural and brachial indices), making them less effective at maintaining high speeds for long distances but rely on hiding areas and climbing trees to escape predators, respectively.

## 5. CANINE TOOTH STRENGTH IN RELATION TO DIET AND KILLING BEHAVIOR IN CARNIVOROUS MAMMALS

Alexandria Schwei (Dr. William Anyonge)

Department of Biology



The varied shapes in teeth of carnivorous mammals appear to reflect the different requirements for killing and consuming prey. Carnivores display broad, low cusped molars for grinding and cracking, blade-like carnassial teeth for slicing and dagger-like canines for piercing and stabbing. The primary purpose of canine teeth of carnivorous species is to serve for killing and dismembering prey. In addition, many species also use their canines during

fighting. The goal of this study is to examine how the shape and strength properties of canine teeth in living Canids, Felids, Hyaenids, and Ursids correlate to their diet and killing behavior. The results will then be used to make inferences about the canine strength in two extinct carnivorous species. Species that employ stronger killing bites (such as felids and hyeanids) will be expected to have stronger canines that resist bending in both the anteroposterior and mediolateral planes.

# 6. A COMPARISON BETWEEN PENTACLETHRA MACROLOBA PRESENT AND ABSENT RAINFOREST PLOTS AT THE BIJAGUAL ECOLOGICAL RESERVE IN SARAPIQUI, COSTA RICA

Kim Cesafsky (Dr. Brent Blair)

Department of Biology



The *Pentaclethra macroloba* tree is observed in high frequencies in about half of the rainforest at the Bijagual Ecological Reserve in the Sarapiqui region of Costa Rica. However, the tree is absent from the other half of the reserve. This experiment attempted to investigate the reason for the observed separation of Pentaclethra growth. Sixteen randomly selected plots of selectively logged forest were chosen from which to gather data about Pentaclethra present and

absent areas. The Pentaclethra population numbers, soil pH, soil texture characteristics, canopy cover, basal area, slope and aspect, and elevation of each plot were observed and recorded. The Pentaclethra present and absent data averages were later compared. At the end of the experiment, no significant differences between the Pentaclethra present and Pentaclethra absent data were found and no possible reasons for the differences in Pentaclethra growth were realized based on the collected data.

## 7. EFFECTS OF LONICERA MAACKII (AMUR HONEYSUCKLE) ON SOIL RESPIRATION IN SOUTHWESTERN OHIO DECIDUOUS FORESTS

Kelsey M. Gray, Adam J. Mannarino, Thomas C. Rose (Dr. Brent Blair)
Department of Biology







Invasive exotic plant species are known to modify soil properties, such as soil respiration, the sum total amount of CO2 efflux from the soil. An invasive species may affect soil respiration by influencing the microclimate of the soil and changing the quality and quantity of leaf litter on the forest floor. Deviations from the normal rate of soil

respiration may indicate a change in the health and biodiversity of the soil. *Lonicera maackii*, commonly known as Amur Honeysuckle or Bush Honeysuckle, is native to temperate Asia. It has invaded 27 U.S. states, including Ohio, and is continuing to proliferate. This study was undertaken to determine if Amur Honeysuckle influences the rate of soil respiration in Southwestern Ohio deciduous forests, both during and after an invasion. We surveyed 4 10'x10' plots in Mount Airy Forest in Cincinnati, Ohio (USA). Two plots exhibited dense Amur Honeysuckle growth, and two were untouched by the plant. All plots were subsequently divided into 4 subplots. In the Amur Honeysuckle plots, 2 of the 4 subplots had all Amur Honeysuckle removed; this imitated the environment of a previously invaded forest that has since had all Honeysuckle plants eradicated. We measured soil respiration rates *in sito* utilizing an EGM-4 CO2 gas analyser twice per subplot. Soil temperature and moisture were also measured because soil respiration is largely affected by climate. The results suggest that there is no direct correlation between the presence of Amur Honeysuckle and the rate of soil respiration. Furthermore, there was not a significant difference in respiration rates between cleared and uncleared Amur Honeysuckle subplots.

# 8. CORRELATION BETWEEN AMUR HONEYSUCKLE AND INVASIVE EARTHWORM POPULATIONS IN SOUTHWESTERN OHIO FORESTS

Cathlena Martinez, Eamon M. Roach, Josie Watson (Dr. Brent Blair)
Department of Biology







Amur Honeysuckle (*Lonicera maackii*) is a widely-distributed invasive species introduced in the late 19<sup>th</sup> century as an ornamental shrub. This species has been documented as displacing native woody species and disrupting ecological balances. Also of great importance to ecological balance is the activity of earthworm species, whether native or non-native. The effects these species exert on ecosystems

are highly variable, impacting ecosystem balances at chemical, physical and biological levels. Recent studies have explored the relationship between invasion mechanisms of both plant and earthworm species to deduce a correlation between the two. This study intends to investigate possible correlations between amur honeysuckle and earthworm populations in south-western Ohio forests. These insights may facilitate conservation practices by elucidating the roles of both earthworm species and honeysuckle species in ecosystem balance. Certain mechanisms of ecological control could then be utilized to effectively reduce the success of both invasive species. Using a mustard solution extraction method, we collected earthworm samples from both forest and honeysuckle plots within Mt. Airy Forest, in order to draw comparisons between invasive populations. Data collection and subsequent analysis commenced in the Summer of 2010 and is currently ongoing.

# 9. THE EFFECT OF CALCIUM CHANNEL BLOCKERS ON OSCILLATORY CONTRACTILE BEHAVIOR IN BOVINE LEFT ANTERIOR DESCENDING ARTERIES Patrick J. Briody, Kristen K. Dirig, Anne D. Higgins, Erika A. Kettelhut, Nicole M. Shovlin, Kristen C. Stevens (Dr. Lisa Close-Jacob)

Department of Biology













Previous studies have shown that oscillatory contractile behavior in some arteries is due to the alternate activation and inactivation of Ca<sup>2+</sup> channels. We hypothesized that L-type Ca<sup>2+</sup> channels in the left

anterior descending artery (LAD) were responsible for these alternating increases and decreases in force

generation; thus, the L-type Ca<sup>2+</sup> channel blocker, nifedipine, was expected to inhibit oscillations. Upon isolation of the LAD from the bovine heart, we cut two arterial rings and hung them from force transducers. The arteries were submerged in a 37°C Krebs solution with a 95% O<sub>2</sub>-5% CO<sub>2</sub> gas mixture. To induce stable contractions, we treated the arteries with U46619, a receptor-mediated contracting agent. Upon seeing oscillations in force levels, arteries were treated with nifedipine, mibefradil, a T-type Ca<sup>2+</sup> channel blocker, or DMSO, the organic solvent used as a vehicle for nifedipine. Our data illustrated that mibefradil and DMSO did not inhibit oscillations, while nifedipine treatment eliminated them. The data supported our hypothesis that L-type Ca<sup>2+</sup> channels are involved in oscillatory contractile behavior in the LAD.

# 10. NUMERICAL DISCRIMINATION OF CONTACT PHEREMONES IN TENEBRIO MOLITOR. Nathan J. Day, Kristen E. Lepage, Nicole M. Herman, Kyle M. Raabe (Dr. George Farnsworth)

Department of Biology









Numerical discrimination is the ability of an organism to recognize differences in sets of items based on quantity. This cognitive ability has been studied in many vertebrate species, but studies examining this ability in invertebrates are far less common. Previous research has investigated

this ability in *Tenebrio molitor*, a beetle that produces chemical contact pheromones for reproductive communication. Results from this research have demonstrated male preference for substrates bearing contact pheromones from multiple female beetles over substrates with contact pheromones from a single female. These results suggest that *T. molitor* males may utilize numerical discrimination in assessing relative numbers of mating opportunities. Because *T. molitor* beetles exhibit a polygynandrous mating strategy in which males and females both mate with multiple partners, we investigated numerical discrimination in males and females. Individual beetles were placed in an arena and time spent on each of four substrate sites was recorded. A test arena contained four substrate sites, each bearing pheromones from three beetles of the opposite sex (A, B, and C), with three single-source sites (AAA, BBB, CCC) and one multi-source site (ABC). Our results indicate that neither male nor female beetles spend significantly more time at the multi-source site as compared to the single-source sites. Without a clear preference for the multi-source site in either gender, we conclude that *T. molitor* is unable to utilize numerical discrimination in a reproductive context to assess differences in relative numbers of potential mates.

## 11. THE EFFECT OF SIMULATED ACID RAIN ON THE NITROGEN FIXATION OF GLYCINE MAX

Tyler Basham (Dr. Linda Finke) Department of Biology



Nitrogen fixation is the process of converting nitrogen to a state in which organisms can use it. In plants such as *Glycine max* (soybeans), nitrogen is fixed in root nodules inhabited by symbiotic bacteria. These bacteria use the protein nitrogenase to bind to nitrogen and produce ammonia. As a large commercial crop, soybeans are in constant danger of ecological problems, one of the most notable being acid rain. Normal rain has a slightly acidic pH of 5.6 due to

carbon dioxide in the atmosphere; acid rain, on the other hand, has a pH of 4.3 or lower due to sulfur dioxides. The goal of the experiment was to determine the impact of simulated acid rain applied to soil on the nitrogen fixation rate of soybeans. I hypothesized that the lower the pH value, the less nitrogen fixing activity there would be. The soybean plants were initially grown for a period of around two months and then given a weekly treatment of simulated acid rain at pHs of 5.6, 4.3, 3 and 2 which lasted for five weeks. After completing the acid rain regimen, an acetylene reduction assay was performed to test the nitrogenase activity of the soybeans. The root nodules were then dried and massed.

#### 12. EFFECT OF INCREASED GROWTH TEMPERATURE ON THE CYANOBACTERIUM ANABAENA'S ABILITY TO FIX NITROGEN

Kabir Motiani, Joseph J. Ryan (Dr. Linda Finke)

Department of Biology



Nitrogen compounds are essential for life of both simple and complex organisms. Nitrogen fixation is the process by which atmospheric nitrogen is converted into a more useable form for integration into proteins and other biomolecules. The nitrogen-fixing cyanobacterium *Anabaena* was tested to see how an increase in its growth temperature would affect its

ability to fix nitrogen. Today, the world is faced with the real threat of global climate change. The aim of this project is to apply our results to the real world threat that *Anabaena* and organisms similar to *Anabaena* will face. Organisms were grown at 22°, 27°, and 31° C in aquaria on artificial light racks. Our hypothesis was that the elevated temperatures would cause a decreased level of nitrogen fixation. Nitrogen fixation activity at these temperatures was estimated by the acetylene reduction assay, where acetylene is converted to ethylene. Assays were performed on the specimens after one week and two weeks of growth. A standard curve was also constructed to quantify the ethylene product of nitrogenase, the nitrogen-fixing enzyme.

## 13. DETERMINATION OF CORRESPONDANCE BETWEEN MANATEE VOCALIZATIONS . AND BEHAVIORAL PATTERNS

Monique M. Ayers (Dr. Charles J. Grossman)

Department of Biology



The purpose of this research examined possible correlations between the behaviors of the *Trichechus manatus latirostris*, the Florida manatee (a subspecies of the West Indian manatee), and their vocalizations. The main methods utilized in this research were visual and audio recordings. Approaching this topic there is little known about Manatee vocalizations. Manatees are an endangered species, with no natural predators, with the exception of

accidents caused by mankind. There is also very little known about manatee communication amongst their species. With this in mind it would ultimately be ideal to create a vocalization used as a warning signal for the Manatee. In the presented research, manatees were observed for one hour at a time, and their behaviors were drawn on a mock tank that was printed on paper. After the visual observations were recorded, vocalizations were observed which were recorded using a hydrophone during the same time as the visual observations. Visual behaviors and vocalizations were then recorded on the same sheet in order to be compared and observed. Such manatee vocalizations were hypothesized to be direct correlations to their behavioral patterns, and that such calls are used as a means of socializing to make the presence of a manatee known to surrounding manatees.

#### 14. CORRELATION OF SWIM BEHAVIOR AND VOCALIZATION IN THE FLORIDA

MANATEE, Trichechus manatus latirostris Meghan E. Brossia (Dr. Charles Grossman) Department of Biology



The Florida manatee, *Trichechus manatus latirostris*, is an endangered marine mammal that is native to the coastal waters of the southeastern United States. While the Florida manatee has no natural predator, humans and powerboats pose a great threat to these animals. In order to help better protect the species, vast amounts of information must be known about manatees, including their swim behaviors and vocalizations. The purpose of our study was to find a

correlation between the swim behaviors and vocalizations of the manatees housed at the Cincinnati Zoo. The hypothesis of this research was that the manatees will vocalize most frequently when surfacing for a breath. Data was collected by recording various swim behaviors, such as barrel rolls, gravel digging, breathing, sleeping, etc., of two manatees, Turner and CC Baby. This data was then correlated with recorded audio (via hydrophones), and vocalizations were recorded on data sheets according to their respective times. Spreadsheet tabulations were prepared in order to organize and compare the data. Of the data collected, 3.76% of the total number of surfacing events and 13.89% of the total number of vocalizations, reflected occurrences in which the manatees vocalized while surfacing for a breath. The manatees were found to not vocalize most frequently when surfacing for a breath, as these two events were not correlated.

# CORRELATING MANATEE BEHAVIOR WITH VOCALIZATIONS Mark T. Fenker (Dr. Charles Grossman, Professor Richard Hamilton) Department of Biology



15.

The Florida manatee, or *Trichechus manatus latirostris*, is an endangered species. They are common off of the coast of Florida, down to central and South America. There has been quite a bit of research done on the manatee. The research done in the past has found that manatees are very curious, and that females with young will often vocalize more frequently and for longer durations than the males. Researchers want to find out more about their

vocalizations and behaviors in order to develop effective conservation techniques to protect them from such hazards as motorboats. A past study tried to come up with a frequency to attach to boats in order to deter the manatees. This study while a good idea was unsuccessful. Better understanding manatee vocalizations as they correlate to behavior could help to perfect a signal that would work. Our particular study was undertaken to get a better idea of captive Florida manatees' squeaks and the corresponding behaviors. The study was done by observing manatees at the Cincinnati zoo. Swimming and behaviors were observed and the data was taken manually with on-site observations over a four month period. Audio was recorded using hydrophones that broadcast back to the server in the lab at Xavier. The behavioral data was compiled in conjunction with the audio in order to try to find a correlation. Results showed that of any activity, vocalizations occurred most with swimming, and a large number of squeaks also occurred while the manatees were interacting or resting on the bottom.

# 16. FINDING A VOCAL SIGNATURE TO IDENTIFY INDIVIDUAL FLORIDA MANATEES Sarah M. Mueller, (Dr. Charles J. Grossman, Professor Richard Hamilton) Department of Biology



The Florida manatee (*Trichechus manatus latirostris*) is a species of endangered marine mammals and yet little research has been done on them and therefore little is known about them. The ability to identify individual manatees in a noninvasive manner is something that would greatly enhance the research and care of this species. We hypothesize that by isolating vocalizations from individual manatees and comparing their respective characteristics,

vocalization signatures unique to individuals can be found. The individual manatees observed were housed at the Cincinnati Zoo and Botanical Gardens. A hydrophone placed permanently in the manatee tank recorded vocalizations from the manatees at all times, and these recordings were digitally saved onto a file server located at Xavier University. Personal observation aided in the process of gaining reference vocalizations that could be isolated for each individual animal. Measurements of vocalization duration, frequency, harmonics and shape were analyzed and recorded using sound studio software. A mnemonic was created to help encode the many varieties of vocalization shape. We hope that the comparison of the characteristics of these known isolated vocalizations will allow us to find a pattern that indicates a vocal signature unique for each manatee.

# 17. CORRELATING VOCALIZAATIONS OF THE FLORIDA MANATEE (TRICHECHUS MANATUS LA TIROSTIS) WITH ITS BEHAVIORS Andrew M. Sawyer (Dr. Charles Grossman)

Department of Biology



The Florida Manatee, *Trichechus Manatus*, is a large marine mammal that lives in fresh, slant, and brackish water, a mixture of salt and fresh water. This preference narrows manatees' habitats to coastal waters near ports and harbors. Due to the location, manatees have become endangered, because of boating related deaths. Studies of manatees show that manatees are generally solitary creatures; only coming together for a few social activities, like mating. The

original goal of researching manatees was to find a signal that would prevent manatees from approaching an object, thus decreasing boating related deaths and injuries. While this is still the main goal of the research, it has branched out to understand how manatee vocalizations correlate to their behavior. This was done by observing manatees swimming behavior at the Cincinnati Zoo and then correlating the squeaks that were recorded by hydrophones placed in the tanks, to the data sheets. The data was then gathered so that a correlation analysis could be done. From reviewing the data it shows that most of the vocalizations occurred when manatees were swimming

# 18. CORRELATING VOCALIZATIONS OF CAPTIVE FLORIDA MANATEES (TRICHECHUS MANATUS LATIROSTRIS) WITH THEIR BEHAVIORS Caitlin Thomas, Andrew Sawyer, Mark Fenker (Dr. Charles Grossman)







Department of Biology
Florida manatees are considered an endangered species, but little research has been carried out on them until recently. Previous studies have shown them to be mostly solitary animals that appear to vocalize and communicate with each other or while carrying out certain activities, prompting researchers to look more closely at their

behaviors both in the wild and captivity. The ultimate goal of this research would go towards developing more effective protection and conservation methodologies. Understanding both the physics and ecological significance of manatee vocalizations in accordance with their behaviors may help develop this signal. This study was undertaken to look more closely at captive Florida manatee squeaks and their correlating behaviors by observing, over the course of the study, five different manatees at the Cincinnati Zoo. Swimming and behavioral data was gathered through on-site observation. Audio recording via hydrophones was employed to collect vocalization data that was then compiled manually to obtain a correlational analysis. The results indicate that the majority of vocalizations occurred while swimming, with a large number of squeaks also occurring when the animals were bottom resting in the tank. These may have been impulsive squeaks, or squeaks due to agitation caused by the presence of visitors. Results may be slightly inaccurate, as correspondence between vocalizations and behaviors was estimated. Future studies may employ visual recordings in order to obtain more accurate results.

# 19. NF-κB AND HSF-1 TRANSCRIPTIONAL CO-REGULATION OF THE HSP70.3 PROMOTER Brenden Barker, Thomas Gainey, Bethanie Griffin, Lydia Schmidt, and Michael Werry (Dr. Waltke Paulding)

Department of Biology











It is known that NF-kB-dependent gene expression is required for late phase IPC cardioprotection. Many heat shock proteins have been shown to be among the NF-kB-dependent genes required for late IPC

including Hsp70.3, a stress inducible Hsp70 gene. The stress inducible Hsp70 genes have been widely shown to have anti-apoptotic properties in the heart as well as other tissues, thus understanding the mechanisms of how these genes are regulated is of potential importance to the development of future therapeutics seeking to modulate cell death. While the transcription factor HSF-1 is thought of as a master transcriptional regulator of many heat shock proteins, very little is known about the specific transcriptional mechanisms controlling Hsp70.3 gene expression. The objective of this work is to investigate the role of NF-kB and HSF-1 in coordinated transcriptional regulation of the Hsp70.1 and Hsp70.3 genes.

# 20. THE EFFECT OF CAPSAICIN ON BIOFILM ACTIVITY Nithin Kesireddy, Jennifer Stock, Melissa Wiesman (Dr. Jennifer Robbins) Department of Biology



A biofilm is a bacterial community joined together by an extracellular matrix and is difficult to treat with antibiotics. The study was undertaken to test a novel natural antibiofilm agent, which is economically and readily accessible to treat biofilm infections. The antibiofilm agent investigated was Serrano pepper (Capsicum annuum) extract with active ingredient capsaicin. Biofilms of Escherichia coli, Staphylococcus aureus, and Staphylococcus epidermidis were grown on various surfaces. The

inhibitory and destructive effects of the proposed antibiofilm agent were studied using dose-response curves and bacteria attachment studies. The treated surfaces were compared to the untreated surfaces to determine the effectiveness of Serrano pepper extract. The results of the dose-response curves indicate that Serrano chili pepper extract did not inhibit biofilm activity in comparison to untreated solutions.

## 21. GENETIC SCREEN FOR THE ACTOMYOSIN-RING-INDEPENDENT CYTOKINETIC PATHWAY OF SACCHAROMYCES CEREVISIAE

Oluwasayo Akinyosoye, Masayuki Onishi & John R. Pringle (Dr. Dorothy Engle)
Department of Biology



Cytokinesis is the cytoplasmic division of two daughter cells from one parent cell following mitosis. It has been believed that the actomyosin ring (AMR) and the extracellular matrix (ECM) provide the mechanical force for cleavage furrow formation and ingression. Recent studies have shown that cytokinesis in Saccharomyces cerevisiae is possible without the AMR. Formation of the primary septum, an ECM structure, is another process through which

cytokinesis can occur. Inn1, Hof1, and Cyk3 were identified as proteins that may regulate Chs2, the enzyme that synthesizes chitin in the primary septum (PS). To identify unknown additional genes in this non-AMR cytokinetic pathway, a test for temperature sensitivity in cytokinesis mutants was done followed

by a genetic screen for multi-copy suppressors for a selected mutant,  $hofl\Delta$ . The screening method established in this study will allow us to identify suppressor genes for  $hofl\Delta$  that makes it viable at high temperatures when over-expressed, which will ultimately give us deeper knowledge on the AMR-independent cytokinesis mechanisms.

# 22. WORKFLOW AND STRESS IN HOSPICE CARE Kevin J. Contrera, Douglas R. Smucker, MD, MPH (Dr. Dorothy Engle) Department of Biology



The primary aims of this project were (1) To describe patterns of work flow of hospice nurses during patient visits in the community and (2) To describe tasks during hospice patient care that require greater levels of mental and physical work intensity or are associated with greater levels of work stress. The methods were: direct, time-and-motion observation with continuous tracking of work flow and minute by minute task evaluation of 10 hospice nurses and semi-

structured interviews with detailed notes and transcriptions from audio recordings. After 69 hours of direct observation, we found that travel and documentation alone make up nearly 40% of the average day. Nurse's stress was directly affected by the following: unpredictability of daily work flow, poor patient compliance, unrealistic family expectations, and difficult patient deaths. However, work stress can be mitigated by nursing autonomy, patient appreciation, and extended patient interaction. This study may help inform policy changes that will lead to decreased stress and improved work efficiency by building realistic family expectations and limiting non-patient related tasks.

# 23. IL-10 IS CRITICAL IN MODULATING THE ACCRUAL OF CNS LESIONS DURING LONG-TERM HSV LATENCY/REACTIVATION CYCLES

Blake F. Frey, Ryan G. Walker, Nancy M. Sawtell (Dr. Dorothy Engle) Cincinnati Children's Hospital and Department of Biology



Immunomodulator, II-10 plays a pivotal role in curtailing inflammatory responses and thus balances resolution and pathogenic outcome. HSV manipulates IL-10 during infection and IL-10 reduces herpetic stromal keratitis. The importance of IL-10 modulating immune responses during long-term HSC infection in the nervous system, however has not been reported. If, as in the PNS, HSV undergoes periodic reactivation in the CNS, balanced regulation of the host

response would be critical for limiting CNS pathology. Utilizing IL-10 deficient (IL-10 -/-) mice and the mouse ocular model, we tested the hypothesis that IL-10 plays a role in limiting reactive damage in the nervous system during latent infection. During acute infection in IL-10 -/- mice and C57bl/6 mice control mice, HSV-1 strain 17syn+ replicated to similar titers in the eyes and TG, although viral clearance was enhanced by day 6 pi in IL-10-/- mice. Examination of TG revealed greatly increased inflammatory infiltrate in the absence of IL-10 compared to control TG, consistent with earlier viral clearance from this site. 100% of the animals in both groups survived with no signs of CNS involvement, an expected outcome based on natural resistance of hte C57bl/6 mice to HSV-1. Despite this, viral genomes effectively seeded the CNS in both groups. Importantly, latent HSV efficiently entered the lytic cycle in TG neurons in vivo following stress, demonstrating that an intact IL-10 signalling pathway is not required for this process. In order to test the hypothesis that repeated cycles of reactivation can result in CNS pathology, uninfected and latently infected mice were periodically stressed over several months. At various times, brains were examined for reactive lesions using GFAP localization and other markers. Lesions were not observed in uninfected animals, and rare focal lesions were detected in the C57bl/6 group. However, abundant variablysized lesions were observed in the IL-10 brains. These findings indicate that in addition to the wellrecognized HSV encephalitis, HSV latency in the CNS has the potential, in a susceptible host background to mediate a silent progressive development of CNS lesions which has significant implications for neurological disorders in an aging population.

# 24. GENETIC COMPARISION OF THE WESTERN ROCKHOPPER PENGUIN Lauren A. Knabel, Shane Mulvihill, Matt A. Paul, Sammy A. Rawas, Johnny Shinn, (Dr. Dorothy Engle)

Department of Biology

Western Rockhopper Penguins (*Eudyptes chrysocome*) are located off the coast of South America. Due to depleting numbers of Rockhopper penguins it is important for conservationists to know if the penguins belong to one species or several sub

species in the different regions in which they reside. This can be determined by creating a phylogenetic tree that compares mitochondrial DNA samples from Rockhopper penguins in several different regions. The ND2 locus of the rockhopper's mitochondrial DNA was used as the comparison model to determine their relatedness. It was hypothesized that the Rockhopper penguins belong in one group and that there are no sub species present. Blood samples were obtained from the Cincinnati Zoo and prepared by the Cincinnati Museum Center laboratory. Polymerase Chain Reactions (PCR) were used to find suitable ND2 primers which were confirmed by gel electrophoresis. Once suitable primers were found the DNA was sequenced and analyzed using Geneius software to determine if there were any significant genetic differences between the populations. The results of the research have shown that there are no significant variations in the genetic makeup of the populations.

## 25. EXAMINING NON-MOTOR SYMPTOMS IN EXPERIMENTAL PARKINSON'S DISEASE: ANHEDONIA

Knecht, K., Swikert, S., Hemmerle, A., Schmeltzer, N., Kyser, T., & Seroogy, K. (Dr. Dorothy Engle)
Department of Biology



Parkinson's disease (PD) and depression exhibit high rates of comorbidity, estimated at nearly 50% of PD patients. Our lab has developed a new combined animal model to examine the effects that depression may have on PD neurodegeneration and associated behavioural dysfunction. Our model involves unilaterally injecting the commonly used neurotoxin 6-hydroxydopamine (6-OHDA) into the striatum of animal subjects. To ensure that both motor

and non-motor (depressive) symptoms, as well as the corresponding dopaminergic neurodegeneration present in PD manifest, the unilateral lesion model is utilized in tandem with an experimental model of depression (chronic variable stress; CVS). The CVS regimen is able to produce symptoms of depression in rats, including anhedonia. Recent data indicate that a bilateral 6-OHDA model of PD was sufficient to induce non-motor, depressive symptoms (anhedonia), without incorporating the CVS regime. We hypothesized that a unilateral 6-OHDA injection alone would not be sufficient to produce depressive symptoms without the combined use of CVS. Sprague Dawley rats were unilaterally lesioned and subsequently tested for depression by measuring the development of anhedonia via the sucrose preference test. Behavioral data were also collected using the forelimb-use asymmetry test to confirm the predicted motor impact of the lesion. Results indicated that the animals injected unilaterally with 6-OHDA experienced significant motor impairment but did not demonstrate differences in sucrose consumption compared to unlesioned controls. TH+ immunostaining indicate dopaminergic neuronal loss, which supports the presence of motor dysfunction as seen with the cylinder test. The results of the sucrose preference test indicate an absence of anhedonia in unilaterally lesioned rats. Consistent with the hypothesis, results indicate that the use of the unilateral, partial-lesion model alone appears insufficient for the study of depression in PD.

## 26. THE EFFECTS OF NOTCH SIGNALING ON ORGAN BUDDING DURING PANCREAS AND BILIARY SYSTEM DEVELOPMENT

Ryan R. Lauf, Jason R. Spence, (Dr. James M. Wells) Cincinnati Children's Hospital Developmental Biology Dept.



In the United States alone 23.6 million people have diabetes, which is 8% of the population (American Diabetes Association). One major hurdle in treating and curing diseases such as diabetes is the directed differentiation of pluripotent cells into insulin producing beta cells. In order to differentiate stem cells into pancreas cells that produce insulin, an understanding of how the pancreas develops is needed. Our previous studies have demonstrated that strict

regulation of the transcription factor Sox17 is required for lineage segregation of the pancreas and biliary system during the budding stages of development. We demonstrated that Sox17 and the Notch signaling effector, Hes1, appear to regulate each other during this process. We examined budding of the liver, pancreas and biliary system during a notch gain-of-function approach, and the results suggest that notch positively regulates budding in the developing pancreas.

# 27. QUANTITATIVE STRUCTURE-ACTIVITY RELATIONSHIP STUDIES ON INHIBITORS OF 17-BETA HYDROXYSTEROID DEHYDROGENASE TYPE 10, A POTENTIAL ALZHEIMER'S DISEASE DRUG TARGET

Eleanor A. Powell (Dr. Dorothy Engle)

Department of Biology

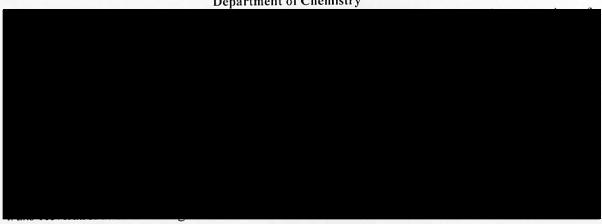


17-beta hydroxysteroid dehydrogenase type 10 (HSD) has been found in elevated concentrations in the hippocampi of Alzheimer's disease patients. HSD may be responsible for the degradation of neuroprotective agents such as estradiol and allopregnanolone. Thus inhibition of HSD has been indicated as a possible mean's of treating Alzheimer's disease. A confirmatory high throughput screen (AID 893) found

5570 compounds which inhibited the enzyme, as determined by dose-response curves. The data set of inhibitors was clustered via common structure and aligned by root mean square alignment. CoMFA and CoMSIA were performed on four of these clusters. Cluster A contained 19 molecules with  $q^2$ =0.906 and  $r^2$ =0.975 using CoMFA and  $q^2$ =0.586 and  $r^2$ =0.744 using CoMSIA. Cluster B contained 26 molecules with  $q^2$ =0.691 and  $q^2$ =0.697 using CoMFA and  $q^2$ =0.618 and  $q^2$ =0.947 using CoMSIA. Cluster C contained 37 molecules with  $q^2$ =0.745 and  $q^2$ =0.999 using CoMFA and  $q^2$ =0.579 and  $q^2$ =0.947 using CoMSIA. Cluster D contained 60 molecules with  $q^2$ =0.510 and  $q^2$ =0.976 using CoMFA and  $q^2$ =0.485 and  $q^2$ =0.864 using CoMSIA. To our knowledge, this is the first 3D - quantitative structure activity relationship analysis (3D-QSAR) on this important Alzheimer's disease target which yields insight into the structural features pertinent to bioactivity.

# 28. THE EFFECT OF TRANS-RESVERATROL, AN ACTIVATOR OF SIRTUIN, UPON THE ACTIVITY OF GLUTAMATE DEHYDROGENASE.

Eleanor A. Powell (Dr. Daniel McLoughlin)
Department of Chemistry



# 29. PROTEIN CONFORMATIONAL STUDIES VIA RAMACHANDRAN PLOTS AS PERFORMED ON SPARTAN

Nicholas Posge (Dr. Daniel McLoughlin)
Department of Chemistry

30.	A VOLTAMMETRIC ANALYSIS OF RIBOFLAVIN IN DIETARY SUPPLEMENTS Sara M. Bartz (Dr. Adam Bange) Department of Chemistry
actermin	red in each of the samples having his
31.	DETECTION OF TRACE METALS USING ELECTROCHEMICAL METHODS
	Rammy R. Rawas (Dr. Adam Bange)  Department of Chemistry
	Department of Chemistry
32.	SYNTHESIS OF NICKEL(II) COMPLEXES WITH TRI-OXIME LIGANDS TO BE
	OXYGEN-ACTIVATING CATALYSTS Ariel Hall, Matthew Werst, and Andrew Zaituna (Dr. Craig Davis)
	Department of Chemistry

51.1	
33.	PHOTOCHEMISTRY EXPERIMENTS USING KRONOS SPECTROPHOTOMETER Bridget Gavaghan (Dr. Barbara M. Hopkins)
	Department of Chemistry
34.	DETERMINATION OF LEAD USING ATOMIC ABSORPTION SPECTROSCOPY Sarah Prebihalo (Dr. Barbara M. Hopkins)
	Department of Chemistry
35.	ANALYTICAL METHOD FOR DETERMINING ORGANO-ARSENIC COMPOUNDS USING HIGH PERFORMANCE LIQUID CHROMATOGRAPHY
	Michelle J. Veite (Dr. Barbara M. Hopkins)  Department of Chemistry

#### 36. SYNTHESIS OF DEOXYMANNOSE DERIVATIVES FOR ELUCIDATION OF PROTEIN-SACCHARIDE BINDING CONSTANTS

Vanessa Barnes and Jennifer Bailey (Dr. Richard J. Mullins)

Department of Chemistry

37. APPLICATION OF ASYMMETRIC CONJUGATE ADDITION REACTIONS FOR SYNTHESIS OF (+)-PILOCARPINE AND (+)-PILOSININE

Megan Segbers and Shea Witkowski (Dr. Richard J. Mullins)

Department of Chemistry

38. APPLICATION OF ASYMMETRIC CONJUGATE ADDITION REACTIONS FOR SYNTHESIS OF (+)-KALKITOXIN

Ken Schwieter (Dr. Richard J. Mullins)
Department of Chemistry

Department of Chemistry

ANALYSIS OF THE "LIGHTS OUT" GAME

William P Meyers (Dr. Michael Goldweber, Dr. Esmeralda Nastase)

Department of Computer Science and Mathematics

The Lights Out game is played on an n x n rectangular grid with an on/off light at each vertex. When a light is toggled, the light's adjacent non-diagonal neighbours and itself



39.

changes to its opposite state. An NP-complete problem arises from this game. "Given a starting configuration (with m lights in the on state) on a n x n grid, G. By using a sequences of toggle operations, can G be transformed to a grid with at least k switches off." We propose a new algorithm, called Row Reduction, which seemingly reduces the search space for this problem to significantly smaller exponentially sized set of states to be examined.

40.

#### RIOT SIMULATION Brendan E Polak (Dr. Gary Lewandowski) Department of Computer Science



I have created a computer simulation which models a riot occurring in a densely populated area. The simulation models both the reaction to the riot by civilians and the counter measures taken by the police to reduce the damage caused by the riot. Each agent in the simulation follows a set of simple local rules which generate global behaviors. The tactics used by the police can be changed, so that various methods of riot control can be compared and tested to see which is the most effective.

41.

#### FURTHER RESEARCH USING THE AFM Xabier Aizpuru (Dr. Steven Herbert) Department of Physics



The use of the Atomic Force Microscope (AFM) has increased in the last decade due to its high scanning precision and its mechanical interactions with any type of sample. What started as a simple mechanism to scan surfaces has now become a fundamental tool in science, reaching into all kinds of sciences including Physics, Chemistry, and Biology. I will present results of my work using the AFM as a probe to understand

phenomena from disparate areas of natural science. I will first present work which examined red blood cells, their morphology and topography using the AFM. I focused on different types of red blood cells and how mechanical interactions created by the AFM tip produces adhesion forces with the cell. This helps differentiate cell types and examines how cell tissues decay at different conditions and stages. Further research on the same field could help in the study of some types of anemia, where the cytoskeletal abnormalities can be identified by the AFM. More recent research will focus on adhesion of different conductive metals, such as gold and lead, to the AFM cantilever which will help develop a different technique to find electron valences of these metals.

42.

#### THE ARTIFICIAL PACEMAKER Brian W. Starr (Dr. Steven Herbert) Department of Physics



An artificial pacemaker is required when the heart's natural mechanisms are unable to stimulate a regular heartbeat of adequate rate. The artificial pacemaker design at hand relies on three central components: a frequency sensor, a pulse generator, and a simple relay. The most complex of these components is a microcontroller that is responsible for sensing the heart rate of the heart being manipulated. If the microcontroller detects

a heart rate below a predetermined "healthy" rate, it will output a signal that activates the relay and inputs a pulse of adequate frequency into the heart. In order to test the pacemaker, a separate artificial "heart circuit" was designed to mimic the electrical activity of the natural heart. This "heart circuit" generates a standard ECG wave with a rate-adjustable heartbeat. By interfacing the pacemaker with this "heart circuit," we are not only able to test the pacemaker's viability, we are also able to determine the voltage threshold at which it can effectively overcome the intrinsic input voltage of the heart.

## 43. PAVING THE PATHWAY TO UNDERSTANDING THE UNFOLDING OF REDUCED CYTOCHROME C

Caroline Jesica Akinyi (Dr. Justin Link)
Department of Physics



Cytochrome c has been used as a model protein for scientific studies. It consists of a single 104 amino acid peptide with a heme group covalenty attached. Unfolding of reduced cytochrome is studied via circular dichroism (CD) and UV-Vis absorption techniques. The

reduction of cytochrome c is completed in an anaerobic environment with the addition of the reducing agent dithiothreitol (DTT). In order to create the anaerobic condition, a high purity argon purging system is built. To observe protein stability and unfolding, absorption and CD spectra are taken as the concentration of the chemical denaturant guanadine hydrochloride (GndHCl) is increased. Obtaining accurate measurements requires that anaerobic conditions exist at all times. However, as the protein unfolds, the heme becomes more exposed and has an increased likelihood of being oxidized. Absorption is taken before and after experiments to ensure that the reduced state exists. This work lays a foundation for studying the unfolding of 13 different site-directed mutants of reduced cytochrome c.

#### 44. EXPLORING HELICOPTER FLIGHT

# Brittny L. Barney (Dr. Justin Link) Department of Physics



Helicopters are one of the most complex vehicles used today. This is because it has the ability to move in six directions; that is more than can be done by a train, car, or airplane. The helicopter uses rotating wings to provide lift, control forces, and propulsion. Due to the rotating wings, the lift force in helicopters is much more complex than that of other aerospace devices. Therefore, the scope of this project was to investigate the properties of lift produced by helicopters as a

function of the pitch and speed of the rotor blades. The experiment was conducted by creating a simulated helicopter using an electric motor and five different pitched propellers. The apparatus was placed on a balance and for each of the propellers; the rotor speed was increased and determined using a stroboscope. Through this experiment, the lift was shown to increase as the pitch and speed of the rotor blades increased.

#### 45. EFFECTS ON SIGNAL PROPAGATION TIME FROM GPS SATELLITES DUE TO ATMOSPHERIC DISTURBANCES

Nick Makley (Dr. Marco Fatuzzo)
Department of Physics



This project explores the effects of solar radiation on satellite signals transmitted between a low-orbit satellite and Earth-based receivers. The idea for this project stems from the fact that government GPS receivers lose data signals sent from the satellites at a higher rate when solar activity was higher. To explore the cause of this problem, the propagation of a signal through a model atmosphere was investigated numerically

using Mathematica. Using the relationships between wavelength, density, total electron count, and the index of refraction, the time-of-flight for the signal was calculated and compared at times of solar minima and solar maxima. The results of our work indicate that solar activity can have an effect on commercial GPS receivers due to time delays in signal propagation through a perturbed atmosphere.

## 46. DEVELOPMENT OF A PROTOCOL TO STUDY THE CONFORMATIONAL STABILITY OF PROTEIN USING THE MODEL PROTEIN CYTOCHROME ${\cal C}$

Benjamin C. Opperman (Dr. Justin Link)
Department of Physics



The function of a protein is inherently dependent upon the proper folding and the resulting tertiary structure of the molecule. The development of an unfolding procedure is desirable so that the structural stability of a protein molecule can be determined through the calculation of the change in free energy of the unfolding reaction. The protein cytochrome c has long been used in protein structural studies and monitored by circular dichroism (CD), absorption, and

fluorescence spectroscopic techniques. Single amino acid mutations of wild type cytochrome c were unfolded using the developed protocol and the unfolding was monitored by CD spectroscopy. The mutant proteins were calculated to have differing free energy calculations than the native cytochrome c. The secondary structure of the wild type and mutant proteins were also measured using far-UV CD spectroscopy and secondary structure composition was determined using CDPro analysis software.

## 47. MODELING DNA DIFFRACTION USING THE FOURIERTRANSFORMATION OF HELICES: REEVALUATING ROSALIND FRANKLIN'S PHOTO 51

Jonathan R. Thompson (Dr. Heidrun Schmitzer)

#### Department of Physics



Rosalind Franklin, a chemical physicist (1920-1958), used X-ray diffraction to determine the structure of DNA, as the molecule itself is too small to be seen with a microscope. Thus, its structure can only be deduced indirectly and photographs of the diffraction pattern rendered an important clue that DNA might be helical. A. R. Stokes (1953) was the first to calculate the expected pattern by finding the appropriate Bessel

function for each layer line. However, we propose a more direct approach for finding this diffraction pattern by decomposing the double helix mathematically into three substructures: the heavy phosphate molecules that make up the backbone of DNA; the sinusoidal arrangement of these phosphates, which represents a projection of a single helix onto two-dimensions; and the addition of a second sinusoidal structure to complete the double helix representation. Making use of the convolution theorem, we then calculate the resulting pattern as a product of the Fourier transforms of each of these three substructures. To show the validity of our mathematical model, we replicate the X-ray diffraction pattern with the use of light waves rather than X-rays, which has the advantage that the helix and its diffraction pattern can be seen with the naked eye. We diffract the light from pinholes arranged in a sinusoidal manner, where each pinhole represents a phosphate group, and compare its diffraction pattern to our mathematical model. In contrast to the layer line method, our mathematical result more accurately reflects the structural information of the diffracting object.

#### 48.

## ACCOMODATING THE WORST CASE SCENARIO: A DILEMMA OF CONFLICTING CORE COMPETENCIES

Amanda J Mock, (Professor Shelagh Larkin, MSW)

#### Department of Social Work



The intrinsic value and motivation to serve others is innate in each human being. No matter how slight, the drive to support and empower those in need is a part of us all. Values such as: promoting human and community well being, self-determination, social justice, the dignity and worth of the person, and most importantly the importance of human relationships were all embodied by individuals in the social welfare movement. With the development and

expansion of the social work profession, rules and regulations were enacted to ensure efficiency, effectiveness, accountability, and consistency. Thus, the social work profession founded its mission statement, goals, ethical standards and core competencies to assist each practitioner in ethical decision-making. Yet there are instances where certain values may conflict with one another, as well as rules and regulations being enacted which may inhibit good practice, leaving the social worker confused of the right decision. Do some of these guidelines impair Social Work's original goal of caring for the holistic well being of an individual, family, or community?

### 49. PERSONAL AND CONTEXTUAL CHARACTERISTICS OF CREATIVITY AND THE CREATIVE PROCESS

Kari E. Peglar (Dr. Rashmi Assudani and Dr. Chris Manolis) Department of Marketing and Management/Entrepreneurship



As globalized world trade becomes more sophisticated, the role of creativity and innovation in business strategy has immerged as a critical component to success in the turbulent business environment. Some scholars are espousing that the basis of value creation is shifting from disciplines of logical, linear thinking to non-linear processes of creativity (Colvin, 2006; Amabile, 1996). Unfortunately, many gaps remain in previous creativity literature (Shalley et

al, 2004). This research explores some of these gaps by empirically examining personal and contextual variables that have been identified previously as antecedents of creativity. More specifically, this research aims to investigate: 1.whether intrinsic motivation is a mediator for creative outcome; 2. contrast and compare the mediating effects of intrinsic motivation and positive mood states on the creative outcome; 3. explore whether creative self efficacy contributes to creativity above and beyond the personality and cognition measures; 4. examine the interaction effects between personality and cognitive style; and 5. pursue these questions in international contexts to identify the personal and contextual conditions that are most relevant in different cultures. For this study, the researchers developed a survey instrument comprised

of a series of validated scales intended to measure: intrinsic motivation, positive mood states, creative self efficacy, personality, cognitive style, and creativity. Undergraduate students, particularly, but not limited to, business-related majors participated. Using path analysis, the researchers used a causal model to test the moderating and mediating variables that affect creativity. The findings from the research are expected to advance the creativity literature by providing a better understanding of the antecedents of creativity and ways in which creativity can be managed.

## 50. THE PUBLISHING INDUSTRY, THE RECORDING INDUSTRY AND THE FIVE STAGES OF GRIEF

Alison M. McEmber (Dr. Mack Mariani)
Department of Political Science



Increased internet connectivity and digital technology are drastically changing the publishing industry. With the advent of this new technology, the publishing industry has found itself faced with new problems, particularly in the realm of copyright law. The changes that are currently occurring in the publishing industry are very similar to the changes that occurred in the recording industry in the late 1990s and early 2000s. This study applies the Kübler-Ross

model, also known as the five stages of grief, as a template to explain the changes that the recording and publishing industries are going through and to analyze how copyright laws and technology contribute to this pattern of politics in each of the stages. Since the recording industry has already gone through many of the steps, the recording industry will be used to illustrate how the Kübler-Ross model can be used to explain how modern industries are struggling to come to terms with the rapidly changing technological landscape. This template will then be used to analyze the publishing industry to see how the how the five steps measure up against the industry. This study raises questions about the effectiveness of existing copyright law and the need for adjustments that respond to the rapidly changing technological environment in order to ensure the proper balance between the free exchange of ideas and intellectual property rights.

#### 51. GENDER EMPOWERMENT AND DOMESTIC VIOLENCE: A STATE BY STATE ANALYSIS

Elyse M. Krause, Emily K. Dougherty (Dr. Amit Sen)
Department of Economics





One in four women has been victim to domestic violence at some point in their life (The Centers for Disease Control, 2003). We define domestic violence as a physical assault by a male on a female. Past research on domestic violence identifies economic independence and employment affecting domestic violence. Past research argues that women who have economic independence from their partner are less likely to be

abused (Basu, & Famoye, 2004; Flagherty, 2010). This paper has two specific objectives. First, to construct a new measure of economic independence which will provide an operational definition of economic independence for women based on the Gender Empowerment Index and the Gender-related development index reported by the United Nations Development Programme to include women in the government and wage ratios. Second, we empirically assess the relationships between our new measure of economic independence for women, state unemployment rates, real per capita GDP and domestic violence based on data from 2005 for 30 states in America. Our results show that the unemployment rate has a significant negative effect on domestic violence instances. Therefore, our results indicate the need of policy that allows women to become more economically independent so that there will be fewer instances of domestic violence against women.

## 52. A RUDE AWAKENING: THE EFFECTS OF INCIVILITY AND THANK YOU ON PERCEIVED SUPERVISOR SUPPORT

Emily A. Crowe, Carolyn L. Mack (Dr. Cindy Dulaney)

Department of Psychology





The present study examined whether acts of incivility and the presence of thank you affected perceived organizational support and perceived supervisor support. College students (N=132) participated in a focus group regarding possible new restaurants on Xavier University's campus. The focus group was led by the researchers, who presented themselves as the focus group supervisors representing the organization,

Xavier University. The researchers interspersed thank you throughout the session or did not. The

researcher also interspersed rude behavior (e.g., texting on a cell phone in the midst of discussion, speaking in condescending tones, and interrupting the participants) throughout the session or did not. Participants then completed measures of perceived organizational support (POS) and perceived supervisor support (PSS). A 2 (verbal thank you) X 2 (rude behaviours) ANOVA was conducted on POS and PSS. There was a significant main effect for incivility on PSS, F(1, 128) = 4.99, p < .05 with those participants experiencing rude behaviors (M = 36.42, SD = 10.25) reporting significantly less perceived supervisor support than those not experiencing rude behaviors (M = 39.79, SD = 6.98). There was also a significant main effect for the presence of thank you, F(1, 128) = 5.58, p < .05, with those receiving a verbal thank you (M = 39.89, SD = 9.22) reporting significantly more perceived supervisor support than those not receiving a verbal thank you (M = 36.32, SD = 8.33). There were no significant effects associated with POS. The results suggest that even the slightest incivility affects PSS. In fact, most participants in the Rude condition reported that they did not notice the rude behaviors, yet they still reported less support for the supervisor. These findings indicate that it is useful for organizations to be sensitive to how supervisors interact with employees.

#### EFFECT OF GENDER AND TYPE OF RAPE ON PERCEPTIONS OF VICTIM RESPONSIBILITY

Elizabeth S. Jones (Dr. Cynthia Dulaney)
Department of Psychology



53.

The present study investigated the effect of gender and type of rape (stranger vs. acquaintance) on individual's perceptions of victim's responsibility. It was hypothesized that male participants would place more responsibility on the victim in both scenarios than female participants, and-both male and female participants would place more responsibility on the acquaintance rape victim than on the stranger rape victim. Participants were randomly

assigned into two groups, one receiving a stranger rape vignette and the other receiving an acquaintance rape vignette. The dependent variable was measured using a series of questions pertaining to the victim's responsibility, measured on a 7-point Likert scale. A Rape Scenario (stranger vs. acquaintance) x Gender of Participant ANOVA was conducted on the victim responsibility scores. The results indicated that there was no significant main effect for gender, F(1, 71) = .54, p = .46, or rape scenario, F(1, 71) = 1.9, p = .18, and there was no significant interaction, F(1, 71) = .67, p = .41. Contrary to prior research, these results indicate that gender and type of rape do not have a significant effect on individual's perceptions of victim responsibility.

## 54. WHAT WOULD PEOPLE THINK?: SHOULD STUDENTS WITH LEARNING DISABILITIES USE ACADEMIC ACCOMMODATIONS?

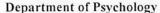
Jeffrey T. Lyman (Dr. Cynthia Dulaney) Department of Psychology



Students with learning disabilities may be perceived negatively for using academic accommodations. This study explored the relationship between participants' perceptions of a student's use of multiple accommodations and subsequent test performance. Participants read a scenario about a hypothetical student with dyslexia who either received or declined the offer to use accommodations and who performed better or worse than the participant. Then participants

rated the student's intelligence, likability, respectability, and the fairness of the grade received on the test. A Performance (better/worse) x Accommodations (accept/decline) ANOVA was conducted on the following variables: intelligence, likeability, respect, and fairness. The statistically significant findings are as follows. There was a main effect of performance on intelligence, F(1, 88) = 4.78, p < .05, due to higher ratings of intelligence for students who performed better. There was a Performance x Accommodation interaction for fairness, F(1, 88) = 6.15, p < .05. Interestingly, the grade was judged to be more fair when the student accepted the accommodation and performed better than when the student performed worse or did not accept accommodations. However, the overall results suggest students with learning disabilities who receive accommodations are not perceived negatively.

#### Caitlin M. Pinciotti (Dr. Cynthia Dulaney)





The current study examined how sexist beliefs affect the ability to detect and engage in sexist language. Half of the participants received an educational handout on sexist language and its societal implications. The control group received a neutral handout. Participants then took the Inventory of Attitudes Towards Sexist Language Scale which measured their ability to detect sexist language, tendency to use it, and willingness to use gender-neutral language. A Modern Sexism (low vs. high) x Education (education vs. control) ANOVA was conducted on scores obtained from the attitudes toward sexist language. There was a no main effect of education,

F(1, 50) = .34, p = .56. There was a main effect of modern sexism, F(1, 50) = .10.12, p < .01, due to participants who scored high in modern sexism having more negative attitudes about the use of gender neutral language than participants who scored low in modern sexism. There was no significant interaction, F(1, 50) = 1.33, p = .26. The results suggest that people who are sexist have a greater tendency to engage in sexist language than those who are not sexist. Furthermore, education about sexist language does not alter the use of sexist language.

# 56. THE EFFECT OF PARTICIPANT MOOD AND ENVIRONMENT ON TASK SATISFACTION, MOTIVATION, AND PERFORMANCE

Lauren E. Hurley, Elyse M. Krause (Dr. Morrie Mullins)

Department of Psychology





This study contributes to previous social learning theory research. It explores whether social environment and participants' mood affects participants' task motivation, satisfaction, and performance levels. Two hundred and five college students were randomly assigned to either a Positive, Negative, or Absent Confederate condition. The second independent participant variable, mood, was

assessed using the PANAS (Watson & Clark, 1988) scale. Participants watched a training video, which described how to fold a letter. After viewing the video, a confederate made a positive or negative comment about the task in the video. If a confederate was not present, no comments were made. Next, participants were instructed to fold and place one letter in an envelope. The dependent variables were assessed using a motivation scale (Sundre, 2000), the Job Satisfaction Discrepancy Questionnaire (Nagy, 2002), and by measuring the distance between the actual fold location and the optimal fold location of the letters. Oneway between subjects ANOVAs will be used to test the conditions' effect on participants' motivation and satisfaction. Results are predicted to reveal differences between the 3 (Confederate: Positive, Negative or Absent) x 2 (Participants' Mood Level: High or Low) conditions. The positive confederate and high mood is expected to increase motivation, satisfaction, and performance.

## 57. EFFECTS OF WORK-RELATED STRESS ON REVIEWERS' HIRING DECISION AND JUDGEMENT OF APPLICANT

Kristen C. Alpaugh (Dr. Christian End)
Department of Psychology



Past research has indicated that stressed individuals are more likely employ stereotyping when in ambiguous situations. Stressed individuals are also more likely to gender-type a job position (secretary; feminine and lawyer; masculine). The aims of this study were to examine the effects of workplace stress on a reviewer's ability to assess an applicant for a male-typed job position. It is hypothesized that participants in the stress group, those relying on the

stereotypes, would rate the female applicant as less hirable than the male applicant, compared to participants in the no stress group. It is also hypothesized that participants in the stress group would allot higher salaries to the male applicant than the female applicant. Participants (N = 134) were randomly assigned to one of two groups; the stress group and the no stress group. Participants in the stress group completed the study under strict time constraints and were told by the researcher that failure to complete the surveys accurately would result in having to repeat the study. Each participant was asked to read an identical resume for a male-typed job position (financial analyst), which differed only in the name of the applicant (male or female). Participants in the no stress group were not subjected to time constraints. To confirm that the stress manipulation was effective, the situational stress scale was summed ( $\alpha$  = .90) and then analyzed using a two-way ANOVA. Despite the fact that the stress group reported significantly higher

levels than the no stress group, those in the stress condition did not discriminate against the female job applicant. These findings are encouraging as they suggest that even when stressed, hiring judgments are unaffected and based on qualifications.

### 58. THE EFFECT OF CHILDREN'S HOSPITAL STAY LENGTH ON PEDIATRIC HOSPITAL DONATIONS

Jennifer C. Earls (Dr. Christian End)

Department of Psychology



Past research indicates that charitable values and empathy impact intended and actual donation behaviors. The present study examines if hospital stay length affects willingness to donate. The study examined the relationship between hospital stay length and two charitable outcomes; (1) charity type preference and (2) intended donation amounts. Participants (N=97) read one of three randomly assigned scenarios describing a child's hospitalization lasting

either one year, one month, or duration excluded. They indicated amount willing to donate to the scenario charity and reasons for this amount and then ranked willingness to donate to eight general charity types, both in this country and in other countries. There was no significant relationship between stay length and donation amount (p= .27). Results indicated a marginal significance positive relationship between stay length and preference for child-related charities (p< .10). The findings indicate hospital stay length is only minimally a factor in likelihood to donate to pediatric hospitals. Future research may examine if income level has an effect on likelihood to donate, as many participants (10.3%) indicated lack of income as a reason for not indicating intent to donate larger sums of money. Additionally, future research may also utilize a more noticeable manipulation to ensure it is noticed by the participants.

#### THE EFFECT A TRANSGRESSOR'S SOCIAL ROLE HAS ON A WITNESSES' DECISION TO INTERVENE

Tessa Claire Hackett (Dr. Christian End)
Psychology Department



59.

The present study examines the factors, specifically who the perpetrator is, that influence witnesses' decision to intervene when observing an adult verbally abusing a child in public. Participants (N=102) viewed one of three standardized video clips of an adult male portraying the role of either a parent, athletic coach, or teacher, verbally abusing two children. Participants then completed a questionnaire assessing whether or not they would intervene, the

manner in which they would intervene, their comfort level in their decision to intervene or not, and whether or not they would label the event as an act of child abuse. Results indicated that participants would intervene when the abusive adult is someone other than the parent, such as the teacher or athletic coach, by approaching the adult. Results also indicated that participants were significantly more comfortable in their decision to intervene when witnessing the abusive teacher.

# 60. INFLUENCE OF TATTOOS AND PIERCINGS ON FIRST IMPRESSIONS Crista V. Lonergan (Dr. Christian End) Department of Psychology



At extremes, body modifications can be perceived as an artist's mobile work or a grotesque form of mutilation (Sullivan, 2009). The current study hypothesized that piercings and tattoos, as well as the number of these body modifications, influence others' perceptions of the body modified individual. College students (N = 162) were randomly assigned to one of the images of the male and one of the images of the female that were edited to include one of six

characteristics: one piercing, one tattoo, multiple piercings, multiple tattoos, no piercings nor tattoos, or a combination of piercings and tattoos. Participants completed a survey created to measure the participant's perception of the individuals' Big Five personality characteristics. The items of neuroticism, extraversion, openness to experience, agreeableness, and conscientious subscales were summed to create total characteristic scores (Cronbach's alphas ranged from 0.82 to 0.68). A series of two-way ANOVAs indicated participant's perception of the individuals' extraversion, openness to experience, agreeableness, and conscientiousness (p < 0.05) was influenced by the possession of body modifications. Participants' ratings of neuroticism were unaffected. These findings suggest that the possession of body modifications, as well as the number of these, can influence others' perceptions of an individual.

#### 61. FACEBOOK ME: ONLINE IMPRESSION FORMATION THROUGH ENVIRONMENTAL CUES ON FACEBOOK

Emily A. Crowe, Elyse Krause, Alana Montenegro (Dr. Christian End)
Department of Psychology







The present study examines how various social cues on a Facebook profile, namely the gender of the profile owner, number of friends, and sports team affiliation, affect a viewer's impression of the profile owner. College students from Xavier University viewed one of eighteen Facebook profiles. The Facebook profile was either a man's or a woman's, included an

affiliation to a National Basketball Association (NBA) or Women's National Basketball Association (WNBA) team, and indicated "friendships" with either a low (112), medium (344), or high (992) number of "friends". Participants completed marker questions to ensure adequate attention was paid to the task. They then completed an impressions measure in regards to the Facebook owner, a personal sports interest measure, and lastly a demographics form that includes questions regarding Facebook usage. 2 x 2 x 3 ANOVAs were used to reveal differences in participants' impressions of the profile owners based on the profile owner's gender, the gender of the sports team with which the profile owner affiliated, and the profile owner's friend count.

# 62. PLAYER VERSUS MANAGEMENT INITIATED DEPARTURE: HOW MODE OF AN ATHLETE'S DEPARTURE IMPACTS FAN'S MOOD, AND WILLINGNESS TO FORGIVE A PLAYER

Elyse Krause, Carolyn Mack, Emily Crowe, Alana Montenegro (Dr. Christian End)
Department of Psychology









The purpose of this study is to investigate how the manner in which the player departs a team (team-initiated or player-initiated) affects a fan's allegiance to that player and the team. From previous literature, it is estimated that sports fans that identify highly with a team will react differently than fans who

report low levels of identification. College students (N=205) read an article describing the mode of the athlete's departure (trade, free agency, voided contract – retirement or releasing the player) and if the athlete or management initiated this departure. To establish a baseline, a control condition was included where the player remains a member of the team. To gauge responses to the departure, participants completed measures of the athlete's marketability, sport interest, feelings associated with the athlete, and intent to forgive the athlete. A manipulation check was also included to ensure participants recognized which party (player or team) was responsible for the athlete's departure. A series of ANOVAs and subsequent post hoc tests were used to identify differences in responses to the departed athlete.

#### TASK PERFORMANCE WHILE LISTENING TO MUSIC

David Mandapat (Dr. Christian End)
Department of Psychology



63.

This study was an examination of the effect of music in the background on task performance. Undergraduate college students listened to two types of musical samples while completing a series of both simple and complex problems inspired by the Baddeley grammatical reasoning test. The contrasting musical samples, "Blue in Green" by Miles Davis and "Giant Steps" by John Coltrane, were selected to represent sedative and stimulative music respectively.

Participants listened to the sedative sample while completing the first section, followed by the stimulative sample while completing the second section. Half of the participants completed the simple tasks before the complex; the other half completed the complex tasks first. For the simple problem solving section of the study, the participants were asked to answer as many of the 64 true or false questions possible, regarding the ordinal relation of two single-digit numbers during a three-minute musical sample. For the complex problem solving section, the participants were given the same instructions and time constraints, but the true or false questions were phrased passively. Additionally, half of the items were phrased negatively. According to Baddeley, these conditions increase the complexity of the tasks. Following cognitive load and cognitive dissonance theory, it was hypothesized that the stimulative music would facilitate the execution of the simple tasks but hinder the execution of the complex tasks. Results suggest that

stimulative music facilitate performance in both task types. However, results indicated no interaction between task type and music type F(3, 116) = .25, p = 0.62.

#### 64. THE ABILITY OF FANS TO "GET OVER" A NEGATIVE SPORT MEMORY WITH THE PASSAGE OF TIME

Gerald P. McDonnell, Elyse Krause, Carolyn Mack (Dr. Christian M. End)
Department of Psychology







The purpose of the study was to determine if a sport team's defeat accrued in the past can still negatively affect a fan. It was hypothesized that in comparison to participants in the control condition, participants in the negative memory condition will report less positive and more negative affect, have less favorable self-esteem, report lower perceived

competencies, and perform worse on various tasks. Further, the effects of the negative memory will decrease with the passage of time. 93 undergraduate students participated in what they perceived to be two unrelated studies. In "Phase 1", participants completed a team identification scale and then read a summary of and watched the final minutes of a Xavier loss. When finished, all participants completed a mood and self-esteem scale. In "Phase 2", participants first estimated their performance on three tasks. They then completed a motor skills (shooting miniature basketballs into a hoop), mental skills (completing anagrams), and chance task (rolling dice). One month after the completion of Time 1 (roughly two months after the Xavier loss), participants returned and repeated the same procedures (Phases 1 and 2) as described in Time 1. To assess whether the recollection of a standardized defeat affected the mood, competencies, and performance variables over time, a 2 (time: time 1 or time 2) x 2 (memory type: loss or control) x 2 (identification: high or low) mixed design MANOVA was conducted on the dependent variables. Participants who viewed the game reported higher levels of negative affect and lower levels of positive affect, than those in the control condition. Further, participants reported a significant decrease in negative affect and an increase in positive affect in Time 2 compared to Time 1, signifying that fans recover from defeat overtime.

#### 65. WAR, SPORTS AND THE MEDIA: COLLEGE STUDENTS' PERCETIONS OF THE WAR AND SPORT ANOLOGY

Gerald P. McDonnell, Eric Wilmot, Kelsey Erlenbaugh, Eric Geil (Dr. Christian M. End)
Department of Psychology









The purpose of the current exploratory study was to examine college students' perceptions of the similarities and differences between war and sport. Further, the current study sought to determine if the media plays a significant role in promoting the war and sport analogy. The study utilized a 2 (fandom: high vs. low) x 3 (media promoting war-sport

analogy vs. media non-war vs. no media: control) design to attempt to address the aforementioned purpose. A total of 214 participants were exposed to one of two media promotions encouraging the war and sport analogy (the control condition did not view the media promotion). Participants then wrote a paragraph describing if they believe similarities or differences exist between war and sport; completed a scale where participants rated the degree of similarity or difference between war and sport, and whether or not they agree with various statements regarding the relationship between war and sport; followed by an adjective checklist (Haynes, 1991) comparing the two entities. Participants then completed a measure of aggression (Wann, Haynes, & McLean, 2003) and finally a measure of sport fandom (Wann, 2002). Results from the one-way ANOVA indicated that the media plays a statistically insignificant role in promoting the war and sport analogy. Nonetheless, participants did perceive similarities between war and sport (i.e. 45% of participants perceived war and sport as sharing similar goals), signifying that individuals believe some degree of association still exist between the two entities today.

#### THE EFFECTS OF SPANGLISH ON GROUP EXCLUSION Alana C. Montenegro

#### **Psychology Department**

66.

The study examined how the use of Spanglish and accented speech affect group exclusion. Literature indicates that cues different from group norms can result in discrimination and

exclusion. 124 participants listened to a conversation between a male and a female. After listening to one of the four conversations (English, Spanglish, Spanglish with accent, Spanish), participants completed established measures of likeability, first impression, and preferred social distance in regards to each speaker and the dyad. The researcher hypothesized that Spanglish speakers would be perceived as an outgroup and that speakers with a thick accent would be excluded. Inconsistent with the hypotheses, a one-way ANOVA indicated that the language and presence/absence of accent did not affect the dependent variables. However, the impression scale indicated the male speaker in the Spanglish with an accent (M = 70.44, SD = 11.03, p = .038) was perceived significantly more favorable than the English speaker (M = 61.87, SD = 12.18)

## 67. A CORRELATIONAL STUDY OF PARENTAL MONITORING AND UNDERGRADUATE STUDENTS' DELINQUENCY

Andrea R. Perry (Dr. Christian End)
Department of Psychology



The present study examines the correlation between parental monitoring and engagement in delinquent behaviors of adolescents and college students, which has not been previously examined. It is hypothesized that there will be a negative correlation between lower parental monitoring during adolescence and delinquent behaviors choices during both adolescent and college years. Conversely, there will be a negative correlation between higher parental

monitoring and delinquent behaviors choices during adolescent and college years. Participants(N=61) completed the Parental Monitoring Scale (Caldwell et al., 2006) and a Student Behavior questionnaire, disguised as two separate studies to reduce reactivity. Bivariate correlation analyses determined if a correlation existed between the level of parental monitoring and involvement in specific behaviors. A negative correlation was found between several adolescent deviant behavior choices and parental monitoring. There was no correlation between college behavior and parental monitoring during adolescence. Limitations of this study included that college students could only reach a certain level of delinquency during adolescence and still be able to attend college. Future studies could examine relationships between different family dynamic elements and behaviors.

# 68. SPORT MOTIVATION: DO COMPETITIVE LEVELS INFLUENCE MOTIVATION AND COMPETITION IN ATHLETES? Angeline M. Rich (Dr. Christian End)

geline M. Rich (Dr. Christian End)

Department of Psychology



Past research indicates that collegiate athletes, on scholarship, are competitive and extrinsically motivated. The current study examined whether athletes at different competitive levels (collegiate/club) report different levels of motivation or personal competitiveness. Members of a Midwestern university's Division I (DI) collegiate and club women's volleyball and soccer teams completed the Sport Motivation Scale and the Sport Orientation

Questionnaire. A series of independent-samples *t*-tests compared DI collegiate athletes to club athletes in regards to motivation (intrinsic/extrinsic) and competitiveness. The hypotheses that DI collegiate athletes would express more competitive attitudes and be more extrinsically motivated than club athletes, who would be more intrinsically motivated, were not confirmed. No statistically significant differences were found between competitive levels regarding motivation or personal competitiveness. The results suggest that club athletes may be just as competitive as DI collegiate athletes, and that DI collegiate athletes, despite scholarships, play their sport for the love of the game.

## 69. THE INTRAPERSONAL AND INTERPERSONAL CONSEQUENCES OF IDENTIFYING WITH A SPORTS TEAM

Saunders, K., Knecht, K., Krause, E., Mack, C., Wilmot, E., & Crowe, E., (Dr. Christian End)
Department of Psychology











Past research indicates fans manage their team associations in conjunction with the teams' successes (or lack of) for self-presentational purposes. The present study examined whether inter- and intrapersonal experiences

affiliating with a sports team can elicit positive and negative inter- and intrapersonal experiences.

Participants were assigned to one of two roles (fan or observer) and paired to create fan-observer dyads. Fans were required to publicize the success or failures of an affiliated team, which observers then reviewed. Dyads conversed for six minutes and both participants completed measures of intrapersonal and interpersonal states associated with the interaction (self-esteem; Rosenberg, 1965; positive and negative affect; Watson & Clark, 1988; attitudes; Greenless et al., 2005; impressions rating; Allard & Williams, 2007; Parton, et al., 2002). Results of a 3 (Fan: Unsuccessful team, Successful team, or Control) x 2 (Observer: Blind or Informed) x 2 (Identification: High or Low) MANOVA indicated that sports fans reported having better attitudes Wilks'  $\Lambda = .90$ , F(6, 182) = 3.62, p < .05 and rated themselves more favorably than those in the control condition, Wilks'  $\Lambda = .90$ , F(6, 182) = 5.17, p < .01. Fans of successful sports teams reported higher self-esteem, Wilks'  $\Lambda = .90$ , F(6, 182) = 5.67, p < .01, and believed they formed a better impression, Wilks'  $\Lambda = .90$ , F(6, 182) = 3.71, p < .05, than fans of unsuccessful sports teams or the control condition. Additionally, observers created better first impressions of sports fans, Wilks'  $\Lambda = .94$ , F(6, 223) = 5.33, p < .01 and viewed them more favorably than the control condition, Wilks'  $\Lambda = .94$ , F(6, 223) = 3.23, p < .05. These results suggest that simply being affiliated with a sports team, regardless of the team's success, may have positive interpersonal consequences.

#### AN INVESTIGATION OF THE NATURE OF CIVILITY AND INCIVILITY AS 70. INDEPENDENT OR SEPARATE CONSTRUCTS

Sarah B. Steiner, Ross S. Scruggs (Dr. Mark Nagy & Dr. Christian End) Department of Psychology

Past research has demonstrated that civility and incivility in the workplace are significantly negatively related. Unfortunately, the previous research used a measure of workplace incivility that has yet to be validated. The current study aims to investigate civility and incivility in the workplace by examining their relationship to each other, organizational citizenship behaviors (OCBs), and perceived procedural justice using a valid measure of

workplace incivility. Undergraduate students completed measures of workplace civility and incivility, OBC and perceived procedural justice. Correlation analyses were conducted to establish the relationship between the various constructs.

#### THE EFFECTS OF ADOPTION STATUS ON ACADEMIC ACHIEVEMENT AND 71. PREDICTED OCCUPATION

Sarah B. Steiner (Dr. Christian End) Department of Psychology



The current study aims to examine if the adoption status of a middle school student impacts future teachers' expectations of the student. Undergraduate and graduate students majoring in education viewed one of two student biographies; the two biographies were standardized except for the adoption status of the child. The students majoring in education read an essay written by the student and gave the essay a numerical grade between 50 and 100. Participants also indicated the most qualified occupational status the student was capable of

attaining. Inconsistent with the hypothesis, the results of a t-test indicated that there were no significant differences between the grades of the adopted student and the non-adopted student. Additionally, inconsistent with the hypothesis, a second t-test indicated that students with an adoptive status were predicted to have equally qualified jobs as non-adopted students. These results suggest that future teachers are unaffected by adoption status of students.

#### 72. GIRL: A NEW FOUR-LETTER-WORD? EFFECTS AND IMPLICATIONS OF SEXIST LANGUAGE ON WOMEN

Lauren B. Yadlosky (Dr. Christian End) Department of Psychology



The current research investigated interactions between being directly addressed with sexist or non-sexist language and hearing a female target described in these terms. Specifically, by manipulating the scripts of study sessions - framed as a collegiate Admissions Department presentation and evaluation, the researcher examined these interactions on attitudes toward and perceptions of females. Participants (N=124) first watched one of four condition-specific videos of a confederate "admissions representative," then indicated their first impressions of a

potential female student and completed the Modern Sexism Scale. Contrary to hypotheses, statistical

analyses indicated no main effect of language on directly addressing participants and no interaction effects. Similarly, non-sexist descriptions of the female target generated significantly more negative impressions of her, p<.05. These results can be explained by the stereotype violation associated with describing a collegiate female in non-sexist terms. These results exemplify the need for additional research exploring the implicit messages of sexist language.

## 73. DEPRESSION AND REJECTION: INVESTIGATING WHETHER DEPRESSED INDIVIDUALS ARE REJECTED IN VOLUNTEER SELECTION SITUATIONS

Lauren B. Yadlosky, Lauren James (Dr. Christian End)

Department of Psychology

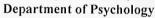


The public often stigmatizes individuals with depression, which can lead to social rejection and the worsening of an individual's condition. Because volunteering can be a useful intervention for depression, the current research utilizes a volunteer application scenario to investigate the prejudice and discrimination against individuals with depression. Applicant gender as well as the presence or absence of depression symptoms (i.e. averted eyes, slow speech vs. direct eye contact, normal pacing) were manipulated to generate four condition-specific video

"interviews." Student participants (N=120), instructed to evaluate the volunteer applicant as part of a community engagement course, first reviewed the applicant's resume then watched his or her "interview." Then, participants indicated their perceptions of the applicant regarding hirability, task appropriateness, self-esteem, and willingness to interact. A "Would you hire this applicant?" question was also included. Data collection is currently ongoing.

## 74. THE DUMB JOCK STEREOTYPE: EFFECTS OF GENDER AND SPORT ON PERCEPTIONS OF STUDENT-ATHLETES

Schappler, David. N, Crippen, Bridget K, Anderson, Meredith L., Asif, Naureen T., Black, Erin R., DeLisle, Hattie, K., Erlenbaugh, Kelsey, Gillespie, Maria, Kreuzmann, Jacob S., Lathan, Rochelle, Mahoney, Molly, Sonderman, Sydney, Williams, Nicholas B., Woodruff, Mitchell (Dr. Christian End)





The current research investigated perceptions of collegiate student-athletes to identify differences in perceptions based on the gender and sport of the athlete. College students (*N*=150) completed the Situational Attitude Scale (SAS) which measures attitudes and expectations of athletes in social situations (e.g., A female soccer player cuts in front of you in line) and the Perceptions of Student-Athletes (PSA) questionnaire which assesses opinions about collegiate athletes (e.g., Male basketball players should be paid to play). Participants completed these questionnaires in reference to either a male or female athlete who played either basketball or soccer. ANOVAs indicated significant main effects of gender and

sport (albeit marginally significant in regards to the SAS). In general, females were perceived more favourably than males (p<.05) and soccer players were perceived more favourably than basketball players (p<.1). No interaction effects were observed. These results indicate college students tend to stigmatize male athletes and basketball players. Academic advisors should consider this information and provide support for athletes who are perceived to be "dumb jocks".

#### ORAL PRESENTATIONS

Please consult posted signs for room assignments and times

## FUNGAL BIOMASS IN N-HEXANE BIOFILTRATION AND SUBSEQUENT DETERMINANTS OF BIOFITER EFFICIENCY

Mena M. Botros, Ashraf Aly Hassan (Dr. George A. Sorial and Dr. Dorothy Engle)
Department of Biology



Biofiltration is an effective technology in the treatment of hydrophilic volatile organic compounds (VOCs). However, industrial waste streams often contain a mixture of hydrophobic and hydrophilic VOC's. Therefore, this study was designed to examine the biofiltration of a model hydrophobic compound, in order to optimize determinants of hydrophobic VOC filtration efficiency. Four trickle-bed air biofilters (TBABs) are employed for this study; two of which were supplied with nutrients buffered at a neutral pH, while

another two at an acidic pH of 4 to induce and enhance fungal growth. Loading rate of n-hexane, a model hydrophobic compound, was kept constant in all TBABs at 13.23g/m³h. However, for both pH levels studied, the biomass of the TBABs was pre-acclimated using different mixture ratios of n-hexane and methanol. The fungal biomass responsible for the degradation of n-hexane was then examined and quantified. Dichloran Rose Bengal Chloramphenicol agar was used for fungi quantification, and optical microscopy for identification. In addition, effluent biomass was validated by measuring volatile suspended solids. Fungal counts resulting from n-hexane biodegradation were later related to nitrate and carbon consumption within the bed. During the course of the study, major shifts in fungal species dominance were observed in all TBABs. Dominant fungal species took time to become the most numerous, and were found to provide maximum EC, although TBABs pre-acclimated to higher methanol concentrations took less time to reach this steady-state. In general, fungi grew more rapidly at an acidic pH. It was concluded, therefore, that steady and monitored growth of TBAB biomass is an essential factor in maximizing fungi's ability to metabolize VOCs.

## STUDY OF THE RUNX1 AND NRAS MUTATIONS OF PATIENT CLINICAL SAMPLES AND THE DERIVED CELL LINE CG-SH

Rajeana M. Bowie, Yalan Rao, Xiaomei Yan (Dr. Gang Huang and Dr. Dorothy Engle)
Department of Experimental Hematology, Cincinnati Children's Hospital Medical Center
Department of Biology



RUNX1 and NRAS are known mutations which lead to MDS and AML. In the experiment, bone marrow samples were obtained from the MDS and AML stages of the same patient. The patient's AML bone marrow DNA was used to make a CG-SH cell line by selecting for only those cells in which the phenotype showed evidence of AML. The DNA was cut with restriction enzymes to contain only regions around the RUNX1 and NRAS genes. The DNA

of interest was cloned into a TA clone and RNA was extracted from the MDS and AML cells and the CH-SH cell line. The RNA was reverse transcribed to DNA having only coding regions. The DNA was amplified using PCR and sequenced. The MDS and AML sequences were compared to known sequences of the NRAS and RUNX1 regions. This was completed multiple times for each sample. It was discovered that RUNX1(L378Pfs) was a frame shift mutation and was found in both MDS and AML stages. RUNX1(L29S) and NRAS were point mutations that caused a change in only one amino acid each. Neither was found in MDS, but both were found in AML. It was concluded that the RUNX1 and NRAS mutations led to the pathogenesis from MDS to AML, and that the RUNX1(L379Pfs) mutation happened first in the MDS stage with the other two mutations following later.

## EFFECTS OF PRENATAL MDMA EXPOSURE ON RECEPTOR-RELATED LOCOMOTION IN RATS

Tara N. Fehrenbach, Dr. Charles Vorhees, & Dr. Michael Williams (Dr. Dorothy Engle)

Department of Biology



Consumption of 3,4-Methylenedioxymethamphetamine (MDMA), commonly known as ecstasy, has become increasingly popular in young adults. Its attractiveness lies in its

capability to produce a euphoric effect in the mind. As a result, users tend to experience increased intimacy with others and decreased anxiety to stressful situations. However, these immediate positive effects are overshadowed by profound debilitation of many normal bodily functions. Previous research has extensively examined the consequences of MDMA exposure in adolescents and adults. However, few studies have investigated prenatal MDMA exposure where development is the most vulnerable and the most critical. The aim of this study was to explore the permanent alteration of neurotransmitter systems in adults after extensive prenatal MDMA exposure through a rat model as a means to show particular body incapacities. Changes in neurotransmitter systems were assessed through varying doses of challenge drug administration and subsequent observation in locomotor activity. Significant decrease in locomotor activity was evident in MDMA-treated rats that received challenge drugs, MK-801, quipazine, and nicotine. These results suggest that prenatal MDMA exposure has permanently changed normal function of the glutamatergic, serotonergic, and cholinergic systems. These findings further the understanding of the MDMA pathway as a means to explain physiological handicaps that could severely limit cognitive and physical performance.

# EPA ON CAMPUS ECOAMBASSADOR SENIOR INTERNSHIP Walter (Fritz) Schroder (Dr. Brent Blair) Department of Biology



For my senior project as an Environmental Science major I worked as an ecoAmbassador through the Environmental Protection Agency's EPA on Campus program. The program consists of 26 students throughout the United States working with the guidance of EPA employees to help their school community become good stewards of the environment. As an ecoAmbassador I had weekly phone meetings with advisors at the EPA and occasional

conference calls with the whole EPA on Campus staff and other ecoAmbassadors throughout the US. I also collaborated on "the connector", a website set up for us to post ideas and ask each other questions. All ecoAmbassadors chose one project to work on throughout the year and three smaller educational programs. The choices for the large program were Wastewise, Green Energy, Energy Star, and Pesticide Management. After meeting with several people on campus to determine which program would be most beneficial on our campus, I chose Wastewise with a focus on starting a composting program/partnership for Xavier. The target goal at this point is to partner with Marvin's Organic Gardens in Lebanon beginning in the Fall 2011 to divert the 200 gallons of waste per day from the landfill into his operating compost facility. The three educational programs I worked on included spreading the word on the detrimental effects of radon gas, promoting the importance of fixing leaks in households to conserve water, and promoting Earth Day.

# SAPC-DOPS AGENTS IN IMAGING ARTHRITIS Rachel C. Mason, Dr. Sherry Thornton (Dr. Dorothy Engle) Department of Biology



Rheumatoid arthritis (RA) is an autoimmune disease that involves irregular inflammation to body tissues. Without early detection and treatment, debilitating damage to cartilage and bone in the affected joints will occur. However, a consistent and reliable early detection strategy for arthritic symptoms is not currently in practice. Here we investigate a novel method of disease assessment that is non-invasive, highly

sensitive, and both qualitative and quantitative. Dr.Thornton and Dr. Qi recently developed an agent, composed of the membrane-associated lysosomal protein Saponin C incorporated into 1,2-Dioleoyl-sn-Glycero-3-Phospho-L-Serine lipid nanovesicles (SapC-DOPS). SapC-DOPS has a high affinity for phosphatidylserine (PS)-rich domains on cellular surfaces, and fuses with PS-rich membranes on target cells. SapC-DOPS is tracked by labeling with a CellVue Maroon fluorophore (CVM). Since PS is normally present only on the inner leaflet of plasma membranes but is "flipped" to the outer leaflet upon cell damage, we hypothesized that the SapC-DOPS-CVM could be used to detect local tissue damage in inflammatory arthritis. SapC-DOPS-CVM was administered to mice with collagen-induced arthritis and non-arthritic mice and was detected by in vivo optical imaging (IVIS®). Our data indicate that SapC-DOPS-CVM successfully localized to arthritic paws. In an effort to characterize the cell populations involved in an arthritic response, flow cytometry analysis was done on the cells harvested from paws. There was not a clear consensus about the cell types targeted by SapC-DOPS-CVM.

# RAPE'S UTILIZATION AS A FORM OF ENTERTAINMENT IN ANTIQUITY Emily Crowe (Dr. Shannon Byrne) Department of Classics



Ovid discussed 31 rape accounts in his works, many of which involve the gods as the perpetrators and mortals as the victims. Some scholars believe that because he often felt victimized by Augustus, Ovid sympathized with the mortal victims whom he discussed in his poetry. In the *Metamorphoses*, *Fasti*, and *Ars Amatoria*, the mortals are often seen to be powerless against the gods and the gods' immoral demands; the mortals could attempt to resist the gods' sexual advances, but they were always unsuccessful. It is possible that Ovid found it

difficult to create art, namely poetry, because he had to take into consideration the demands of Augustus, who controlled Ovid in a way similar to how Ovid believed the gods controlled the mortals. Ovid felt powerless and believed his art suffered as a result. This paper explores the extent to which Ovid might have sympathized with the victims discussed in his poetry. The thesis is that while he used rape scenes as a form of entertainment, he intended such victimization to have more meaning. He wanted his audience to empathize with the victim's position and to observe the uneven relationship between those in great power, like Augustus, and those who are not, like himself. Ovid used rape scenes to underscore his perception of dominance, and in so doing gave his victims a voice they did not have in other works of ancient literature.

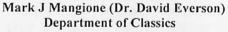
# THE PATTERNED STORIES OF REPUBLICAN AGRARIAN REFORM Maria T. Jeffrey (Dr. Shannon Byrne) Department of Classics



In this paper I examine the pattern apparent in the tales of agrarian reform as reported by Livy, Dionysus, Plutarch, and Appian. The pattern, on a basic level, is this: one man, usually a tribune, proposes an agrarian law to redistribute public land usually motivated by noble pretensions. The rich, because the land they possess is threatened by the proposed law, corrupt a colleague of the tribune to obstruct the measure. Becoming desperate, the proposer may

make a rash statement for which he is accused of aiming for monarchical power, and as a result he is killed or executed. To demonstrate this pattern, I will look at the stories of Spurius Cassius, the first Roman to propose agrarian reform, Spurius Icilius, Tiberius Gracchus and Gaius Gracchus. I contend that the existence of this literary pattern may be a way for the historians to fill in source gaps, or an unconscious lens through which they look back at agrarian reform because of the temporal separation from their subjects. Therefore, extracting historicity from a formulaic-type historiography in this context is difficult, and only the very basic elements of the stories can be taken as historical truth.

## THE EFFECT OF MISOGYNY ON THE PERSECUTION OF WOMEN AS PRACTITIONERS OF MAGIC IN MEDIEVAL EUROPE





Misogyny is one of the foremost contributing factors to the persecution of women as practitioners of magic from Greco-Roman times to medieval Europe. There is a discrepancy between classical literary sources and non-literary sources as to whether practitioners of magic are male or female. This paper demonstrates the acceptance of magic in each time period by evaluating the relationship between magic and the state, which was connected to religion in

each time period. Each time period also demonstrates comparable sentiments towards women. In Greece, men like Euripides, Menander, and Aristotle wrote about the inferiority of women, as did the Romans Horace, Seneca, and Ovid. In medieval times, eighty percent of the defendants in witch trials were women and men continued to express misogynistic views.

#### HERODOUTUS, POLITICS, AND PROPAGANDA

Bradley M. Martin (Dr. Thomas Strunk)
Department of Classics



As is widely accepted by scholars, much of our Western philosophies and ideas are based entirely on roots dating all the way back to ancient Greek culture, specifically the academics and writers. Among these stands the "Father of History," Herodotus of Halicarnassus, who used his *Histories* to explain Greek culture, as well as the history of the Persian Wars.

However, contrary to much of the scholarship of the past, it seems clear that this was not Herodotus' only use for his work. He also used the *Histories* as a medium for discussion on the political trends of his time, and specifically those of Athens. To do this, he uses historical allusions, analogies, and connections between what had happened in the past and what was happening in his own time. He discusses his views on the foundation of Greek democracy, compares and contrasts both democracy and monarch, inserts the Athenian democratic form as the exemplary form of government, and even writes against the path of the contemporary Athenian government, warning that Athens would fall victim to the very same faults which had allowed it to come to power. Within all of this, he still manages to give the modern reader a sense of what Greek *isovoµia* was in his own time. All of this fits in with the Oxford English Dictionary's definition of 'propaganda' as The Oxford English Dictionary defines 'propaganda' as "the systematic dissemination of information, especially in a biased...way, in order to promote a political cause or point of view." Thus, in his writing, Herodotus can be characterized not only as the "Father of History," but also as the "Father of Propaganda."

# ATHENIAN IMPERIALISM AND POLITICAL THOUGHT IN THUCYDIDES Patrick R. McBride (Dr. Thomas Strunk) Honors A.B. / Department of Classics



Thucydides' *History of the Peloponnesian War* chiefly depicts the story of the Athenian empire and its course through the war. His portrayal of Athenian imperialism and its role in the conflict between the Peloponnesians and the Athenian empire, to some extent, speaks to the way he understands both the relationship between individual and state and the roles of nature (*phusis*) and convention (*nomoi*) both to contribute to the formulation of state's power

and to bear upon its viability. He attributes Athen's rise to empire to a general unboundedness as regards its national character. Through Pericles' funeral oration, Thucydides makes a case for the value of *nomoi*, laws to restrain and order human behavior, on the intrastate level. Immediately following Pericles' oration, Thucydides' depiction of the chaos present in plague-beset Athens, where any concern for *nomoi* has been abandonded, asserts the necessity of civil law. The actions of the Athenian empire, in particular those during the Melian dialogue, show clearly that they are operating on the interstate level without any regard for *nomoi*. Athenian imperialism is the embodiment of unbridled nature, *phusis*. It is through removing the constraints of *nomos* that Athens is able to acquire such power. However this also results in the empire's inevitable collapse. Thucydides recognizes that the transference from the morally passionate individual to a state acting amorally and rationally to fulfill its desire for power is impossible; interstate relations must also be governed by *nomos*.

# THE PASOLINIAN MEDEA: A VOICE OF DISCONTENT FOR CULTURAL SEPARATION AND STRUCTURALIZED CINEMA IN CONTEMPORARY ITALY

Jeffrey A. Medved

Department of Classics (Dr. Elena Tsalla)



Pier Paolo Pasolini was a controversial Italian filmmaker throughout the 1960's and 1970's until his assignation in 1975. His films often displayed the distraught, depraved social condition of the lower class, which was becoming rapidly assimilated to the upper-class, bourgeois model. Early in his career, Pasolini dreamed of a united Italy by means of a Marxist revolution. However, the revolution took on a new identity in the grasp of the bourgeois,

which sought to redefine Marxism through neo-capitalistic ideals and technological advancement, leaving much of the lower class in its wake. In attempts to narrow the social gap, the bourgeois utilized cinema as tool for class conformity. In this system, defined as neorealism, cinema became an educational product meant to inform the lower class about a "good nature." Pasolini not only saw this movement as destructive to the lower class, but also to the art of cinema itself. Pasolini's discontent for his progressive opponents can be observed throughout most of his films. However, his 1969 film *Medea* will provide sufficient evidence for this particular investigation. In this particular film, the title character Medea quickly becomes a part of Jason's progressive society, in which she can find nothing sacred. Throughout the film, it is apparent that Medea and Jason's worlds are completely different, signified by their disintegrating relationship. Pasolini exhibits many dichotomies throughout the film as well; namely, sacred vs. profane, technological vs. ritualistic, progressive vs. rigid, and intellectual vs. mythical. Therefore, Pasolini's discontent for social and cultural separation as well as structuralized cinema can be observed through his portrayal of Medea.

# THE DEVELOPMENT OF THE ROMAN EPICUREAN Michael R. Needler (Dr. Quinn) Department of Classics



Epicureanism was a philosophical school of thought that originated in Greece in the 3rd Century B.C. It preached that the removal of bodily pain and mental anguish was the best way to live a happy life. The early Greek adherents tended to follow the precepts of Epicurus' doctrine, one tenet of which included the idea to "live unseen" with regard to politics. As power in the Mediterranean shifted from Greece to Rome, so did many of the philosophical movements, Epicureanism included. However, Roman Epicureans were very different from their Greek counterparts. Roman elite culture was much more politically focused, and the idea

of "living unseen" in the public eye was all but lost. Part of this difference was the loss of requirements for adherents to follow, which allowed for Romans to shift between philosophical alignments in order to suit their immediate purpose. In fact, Epicureanism became so unstructured in Rome that it is difficult to identify the group as a whole. By examining some of the most well-known Roman Epicureans, we are able to see how the sect changed as Romans came to practice the philosophy. This paper will examine the shift from Greece to Rome and the impact this movement had upon the doctrine established by Epicurus.

#### THE LEGALITY VERSUS THE OCCURRENCES REGARDING THE TORTURE OF SLAVES IN ANCIENT GREECE

Sarah E. Oldham (Dr. Rebecca Muich)
Department of Classics



In my paper, I will examine the issue of the maltreatment of slaves in order to extract information to be used in a court of law. According to Athenian law, the torture ( $B\alpha\sigma\alpha\nu\sigma\varsigma$ ) of slaves was required in order to obtain information that could be considered true; contrarily, if the slave were not tortured, he would not be considered a competent witness and the information he provided could not be held as true evidence. Evidence of such laws can be seen

in several surviving rhetorical speeches written by famous orators such as Lysias, Isocrates, Lycurgus, and Demosthenes. Although this law was commonly known by the Ancient Athenians, and was not seen as wrong, I will explain that the process of torturing slaves was a challenge for most people and often times it did not occur. I will then examine the reasons behind the common failure to torture slaves. My concluding argument will be that the challenge of torturing slaves existed simply for moral reasons; although it was common to think of slaves as property, when people were faced with the decision to torture them, they recognized them as fellow humans.

#### A HISTORIANS DUTY Leslie Osborne (Dr. Thomas Strunk) Department of Classics



When studying history it is important to understand where the historian was coming from when recording the events of the past. This paper seeks to determine whether historians have a moral obligation to relate the truth to their audience, and to what extent, if any, are historians able to judge their subjects. Historical knowledge is both priceless and beneficial and people have a right to know the truth about the past. All people, including historians, have a moral

obligation to speak the truth to their audience; for historians, however, this is on a broader level because anyone is able to read what they write. In order to learn from the past, some sort of evaluation and judgement must be made about the past; thus, it is the duty of a historian to judge the events of the past where they deem it appropriate, but there is no need for them to judge the people themselves. Historians can also be viewed as philosophers, as they both seek to teach individuals and society by example. Many argue that at times Herodotus overstepped his boundaries as a historian and attempted to be too much of a philosopher. The credibility of Herodotus is similarly argued because of the reliability of the information and the way in which it was discovered. Herodotus attempted to provide his audience with as much information as he could, some argue that this makes him more credible while others believe it makes him less credible as a historian. In conclusion, historians have an obligation to relate truthful events to their audience they ought to refrain from judging an individual's morality although they may judge the situation in order to learn from the past.

#### FAMILIAL REDEMPTION IN THE ANTAGONISTS OF THE AENEID

Clayton A. Schroer (Dr. Thomas Strunk)

#### Department of Classics



Vergil's epic, the Aeneid, has been the focus of much attention over the years. Published shortly after Vergil's death in 19 BC, the Aeneid soon became a school text and was widely known. Its ancient popularity is reflected in the amount of recent scholarship that focuses on it. The antagonists of the Aeneid have been the focus of much debate. Dido and Turnus, the two greatest threats to Aeneas' fulfilment of his duty to settle his people in Italy, have long been

noted as tragic figures. The change in character that takes place in Mezentius as he fights Aeneas in Book 10 is recognized as one of the most moving passages in the epic and has received a good deal of scholarly attention. In this talk I go over an overarching, unifying theme that underlies the progression of character in these three antagonists. Namely, I argue that each of these characters undergo what I call "familial redemption." I show that these three enemies of Aeneas, who once displayed a lack of positive family relationships, show in their deaths that they have changed into characters that portray familial devotion.

#### SENIORS AND SOCIAL NETWORKING

Samuel C. Lewis (Dr. Thilini Ariyachandra)

#### Department of Information Systems



Online social networking has the potential to enrich the lives of the elderly by providing them with an easy way to stay in touch with friends and family. Seniors are the fastest growing demographic in online social networks. Marketers and advertisers are anxious to capture the attention and buying power of this demographic through this new channel. Yet very little is known about what influences seniors to use online social networks. Our study uses results from a brief pilot study as well as theory and literature to build a conceptual model to examine

what key factors influence seniors to use online social networks. The model that emerged describes ten key factors that influence use. Specifically the model indicates that perceptions of privacy, security along with Web experience and proclivity to give and get information are some of the key factors that influence elders to use online social networks. Finally using insights gained from the pilot and previous work in this area, a questionnaire to empirically validate the conceptual model is also presented. The model and the proposed questionnaire are a first step of an ongoing research project that also aims to provide others with a foundation to continue research in this area.

#### NATIONAL INPATIENT SAMPLE FROM AGENCY FOR HEALTHCARE RESEARCH AND QUALITY(AHRQ)

Tristan Nighswander (Dr. Ravi Chinta)

#### Department of Management and Entrepreneurship



The expectation that aging leads to a progressive deterioration of biological functions and consequently results in higher healthcare costs is known as the "healthcare cost creep due to age creep" phenomenon. We empirically test the validity of this phenomenon based on more than 8 million hospital inpatient records from 1056 hospitals in US in the year 2008. We identify consistent patterns of "cost creep due to age creep" across states and regions in the US. We clearly establish the lowest and highest cost states within regions and the lowest and

highest cost regions within the US. We conclude with implications for potential knowledge transfer for cost minimization, medical tourism and healthcare reform.

#### DOES NATIONAL FUNDRAISING AND INSTITUTIONAL PROCESSES CONTRIBUTE TO PARTY POLARIZATION IN THE HOUSE OF REPRESENTATIVES? AN EXAMINATION OF THE 2008 AND 2010 ELECTION CYCLES

Nicholas J. Chaney, Michael J. Fulcher, (Dr. Mack Mariani)

#### Department of Political Science





In recent years, studies show that political elites and activists are becoming more polarized and influential within their own parties (Evans 2003). Scholars have looked at numerous factors which contribute to party polarization, including internal house rules, gerrymandering, the shift to party primaries, and secular realignment. Because of more advanced technology, candidates now have access to

more accurate polls, the 24-hour news cycle, social networks, and online fundraising. All of these outlets

affect the way that candidates form and implement a campaign strategy. Candidate and party efforts to nationalize fundraising have focused on taking advantage of willing donors from out-of-district who are more likely than non-donors to hold strong partisan views. This campaign development has advantaged partisan candidates, who are better positioned than more moderate candidates to raise money from enthusiastic out-of-state partisans. Further, the shift toward national fundraising provides all members with incentives to tailor their messages and legislative records to appeal to out-of-state partisan donors. This study examines whether the nationalization—as defined by the appeal to donors from out-of-district or state through technological advances—of candidate fundraising in House races has contributed to party polarization by examining whether higher levels of campaign donations from out-of-district sources is associated with higher levels of partisanship, as shown by DW-Nominate scores, among members who ran for the House of Representatives in 2008 and 2010.

#### ARISTOTLE IN THE OLD SOUTH Sean Tulley (Dr. Richard Polt) Department of Philosophy



In the *Politics*, Aristotle explores the nature of relationships: partnerships are aimed at a good, and the one between master and slave is no different. This relationship is aimed at preservation; it links a naturally a-rational person, the slave, with a rational master. The result in Aristotle's eyes is a symbiotic relationship, with the slave performing labor for the master in return for rational guidance (1252a1). Aristotle's characterization of the master-slave

relationship illuminates the most basic quality of a slave; the lack of a rational element, or, slavishness. For Aristotle and every slavery apologist after, the lack of a rational element is a natural quality, one which cannot be remedied. George Fitzhugh, in his work *Sociology for the South* adopts much of Aristotle's apology for his *ante-bellum* audience, but he is inconsistent with his characterization of Africans as natural slaves. These inconsistencies undermine his apology. Furthermore, slave memoirs, Frederick Douglass' for example, communicate the brutality with which masters maintain control over their slaves. By keeping them ignorant and employing brutal physical force in order to inspire fear of disobedience, masters hinder and destroy the rational element of their slaves. These ex-slaves demonstrate the ability of human beings to reach not only physical freedom, but mental freedom as well; they display freedom as a mental process, not just the result of physical whereabouts or social standing.

# MACHIAVELLIAN THEMES IN DESCARTES' DISCOURSE ON METHOD Michael S. Kaple (Timothy S. Quinn) Department of Philosophy



Though the works of Machiavelli and Descartes are separated by over a century of history-Machiavelli belonging to the pre-Enlightenment generation and Descartes being one of its founders—their philosophies share many common attributes. Both thinkers see themselves as establishing the foundations of an entirely new order, Machiavelli's political and Descartes' scientific. Many themes that hold a central position throughout Machiavelli's The Prince and

Discourses on Livy reappear, sometimes virtually unchanged, in Descartes' Discourse on Method. The most significant of these is the rejection of classical thought in favor of a new, "practical" philosophy. For both thinkers, this new philosophy must be guided by a call for mastery of the arbitrary forces of nature by means of a new method, and must measure progress in material gain. These shared views lead both authors to a staunch critique of Christianity for undermining this new philosophy and failing to fulfill the role religion must necessarily play in maintaining a stable political order. This essay demonstrates these relationships between Machiavelli and Descartes in order to illuminate the ways in which Cartesian philosophy and method consummate Machiavelli's call for "new modes and orders."

#### EXECUTIVE EFFECTS ON STRATEGIC ENTERPRISE MANAGEMENT (SEM) SYSTEM SELECTION

Hudson Chilton (Dr. Daewoo Park)

#### Department of Management and Entrepreneurship



The topic of Strategic Enterprise Management (SEM) has attracted tremendous interest among researchers and practitioners (Bendoly, Soni, Venkataramanan,2004; Brignall and Ballantine 2004; Fahy, 2001). SEM systems are increasingly being viewed as the central binding mechanisms behind cross-functional planning activities, both within individual enterprises and among their value-chain partners. SEM systems and their implementations help facilitate

improvement, development, and growth within and among firms. Fahy outlines the key benefits of SEM which include "strategic management as a core competency at all levels and matching the reality of strategy implementation with the rhetoric of strategy formulation" (Fahy, 2001). SEM systems are offered by many firms such as SAP, PeopleSoft, and Oracle. The SEM system produced by SAP, the market leader, consists of the following five main applications: 1) Business Planning and Simulation; 2) Business Consolidation; 3) Corporate Performance Monitoring; 4) Business Information Collection; 5) Stakeholder Relationship Management. Some of the associated tools in SEM systems are modeling, simulation, scenario, and Balanced Scorecard tools. SEM by SAP supports the strategic management processes necessary to advance a firm's objectives. This study examined the executive effects on selecting SEM systems by using the policy capturing method (one of the most popular and innovative data collection and analysis in social science and business research areas). The findings of this study provide very interesting implications for businesses.

#### Philosophy, Politics and the Public Senior Thesis Presentations April 18, 2011

April 18, 2011		
CLC 308 1pm	CLC 309 1pm	
1) David Donnelly	1) Michael Franke	
"Sexual Identity Politics: What Role does Sexual Identity Play on the Political Behaviors of LGBTQ Politicians"	"Crouching Citizen, Hidden Democracy?: Questioning the Influence of Censored Internet Usage on the Political Process in Modern China"	
2) Joey Vitale	2) Emily Naber	
"From the Sexual Revolution to Straight Edge: Turning Behavior into Action in Youth Culture"	"The role of Information Communication Technologies in shaping the South African Public Sphere: E-Democracy or E-Marginalization?"	
3) Christopher J. Hale	3) Mary Renda	
"A Match Made in Heaven?—The American Catholic Church and Pro-Life Feminism"	"Nancy Morejón and the Empowerment of African Culture in Cuban National Identity"	
CLC 308 2pm	CLC 309 2pm	
1) Esther Cleary	1) Alyssa Konermann	
"Power and Biblical Morality: Spinoza's Influence in the State of Israel"	"Creating Survival: John Dewey and the Art and Philosophy of Tim Rollins + K.O.S."	
2) Ashley Taylor	2) Daniel Francis	
"Rousseau and the Role of Reason in the Second Discourse and The Social Contract"	"Stadium in the City: The Politics and Passion behind Professional Sports Facilities"	
	"Stadium in the City: The Politics and Passion behind Professional Sports Facilities"  3) Katherine Ryder	
Discourse and The Social Contract"	behind Professional Sports Facilities"	
Discourse and The Social Contract'  3) Sarah Wieten  "Exploring the Public: An Investigation of	behind Professional Sports Facilities"  3) Katherine Ryder  "The Possibility of Sustainable Change in U.S. Car	
Discourse and The Social Contract"  3) Sarah Wieten  "Exploring the Public: An Investigation of Heidegger and Habermas"  CLC 308 3pm	behind Professional Sports Facilities"  3) Katherine Ryder  "The Possibility of Sustainable Change in U.S. Car Culture: An Examination of the 1970s"  CLC 309 3pm	
Discourse and The Social Contract"  3) Sarah Wieten  "Exploring the Public: An Investigation of Heidegger and Habermas"  CLC 308 3pm  1) Andrew Gaydos  "Machiavelli and the Founders: Machiavellian	behind Professional Sports Facilities"  3) Katherine Ryder  "The Possibility of Sustainable Change in U.S. Car Culture: An Examination of the 1970s"  CLC 309 3pm  1) Lauren Rose Givhan  "Food Cultures and Public Life: A Comparative	
Discourse and The Social Contract"  3) Sarah Wieten  "Exploring the Public: An Investigation of Heidegger and Habermas"  CLC 308 3pm  1) Andrew Gaydos  "Machiavelli and the Founders: Machiavellian Republicanism in the Early Republic"	behind Professional Sports Facilities"  3) Katherine Ryder  "The Possibility of Sustainable Change in U.S. Car Culture: An Examination of the 1970s"  CLC 309 3pm  1) Lauren Rose Givhan  "Food Cultures and Public Life: A Comparative Study of the United States and Italy"	