

# The Washburn University



A Forum for Student Research, Scholarship, and Creativity

April 20, 2007



The Washburn University



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## 2007 Schedule of Events

- |                      |  |
|----------------------|--|
| 11:00 a.m.-12:00     | Registration, Washburn Room Lobby  |
| 11:30 a.m.-1:05 p.m. | Poster Sessions, Washburn Room A   |
| 1:10 p.m.-1:25 p.m.  | Keynote Address, Washburn Room B<br>Dr. Wasserstein, the Vice President for Academic Affairs |
| 1:30 p.m.-3:25 p.m.  | Oral Presentation Session<br>Henderson Learning Resources Center                             |
| 3:30 p.m.-5:00 p.m.  | Visual and Performing Arts<br>Mulvane Art Museum   |
| 4:00 p.m.            | Opening, Student Art Show<br>Mulvane Art Museum  |
| 5:00 p.m.-6:00 p.m.  | Honors Reception for Apeiron Participants<br>Dr. Jerry Farley, President<br>Washburn Room    |

## Poster Sessions, Washburn Room A

### 11:30 a.m.-1:05 p.m.

#### # 1 **Walking Ant Animation Programmed with OpenGL**

**Scott Lollman**

Mentor: Bruce Mechtly, Computer Information Sciences

This project will realistically animate an ant walking over a random terrain using OpenGL. Where most real-time walk cycles use pre-generated frames, the ant's legs will be built and placed based on the actual height of the terrain. The final project will display a number of ants walking with simple behaviors and allow for the spontaneous addition and removal of ants from the world space.

#### # 2 **Simplified Griess Procedure (Testing for Gunshot Residue)**

**Jaime L. Dennis**

Mentor: Sue Salem, Chemistry

Testing procedures employed by the state of Kansas according to gunshot residue are quite limited in their scope. As of this date though, state agencies are still testing for distance determination with a two-part procedure known as the Simplified Griess Procedure. This presumptive procedure utilizes the unique nitrates and lead found together only in gunpowder. Perhaps this test can indicate not only the distance at which the gun was fired, but also the identity of the gun and bullet if two different firearms were present (one with lead based bullets and one with lead free bullets). It was my intent to analyze and observe the Griess Procedure first-hand. However, the entire procedure raised a few questions as to what it is capable of indirectly.

#### # 3 **Predator Vs. Prey Using the A\* Algorithm**

**Tina Reed**

Mentor: Cecil Schmidt, Computer Information Sciences

This project examines the predator vs. prey aspect of a virtual world. It will examine the behaviors of machine-based intelligent agents with unique properties and their abilities to capture and avoid one another using the A\* search algorithm. These agents will be located in a terrain-based virtual world, left fending for themselves. The intended result of this project is to demonstrate the effectiveness of the A\* search algorithm in a virtual world simulation.

**# 4 The Effect of Chocolate on a Motor Performance Task****Lindsay M. Holtz, Elise Renee Short**

Mentor: Joanne Altman, Psychology

This study determined the effect of caffeine in chocolate on a motor performance task. After consuming white versus dark chocolate, the participants performed a pegboard motor task. No differences were found. These results suggest that there is not enough caffeine in chocolate to improve performance on a motor task.

**# 5 Further Studies of Oxidation of Pyrrole  $\alpha$ -Methyl to Acetoxymethyl and Other Groups****Elizabeth N. Farnham**

Mentor: Sam H. Leung, Chemistry

Pyrroles are compounds that are useful in the synthesis of porphyrins. Porphyrins are compounds that are found to be the core structures in biological molecules such as heme and chlorophyll. In addition, it has been discovered that porphyrins are useful in photodynamic therapy for cancer patients. Pyrroles are also a critical component in biochemical and medicinal research. Research in pyrrole chemistry is very important because the substituents on pyrroles often need to be modified to be useful in porphyrin synthesis. In this project, alternatives to the existing methods for oxidizing the  $\alpha$ -methyl group of a pyrrole to an acetoxymethyl group, or various other groups, were sought.

**# 6 What's in a Piano?: Looking Beyond the Keyboard****Rebecca Joan Bumgarner**

Mentor: Jessie Fillerup, Music

Last summer I researched "prepared piano." I placed items on piano strings to create different timbres, but I struggled to find adequate resources. Using my limited resources, and through experimentation, I was able to identify certain qualities to look for when purchasing materials to place inside the piano, and appropriate methodology for doing so. I wrote down my findings to make prepared piano pieces more accessible to individuals who do not wish to experiment, but want to produce results. Many material choices were simply a matter of personal taste. To demonstrate this, I recorded John Cage's Sonata V from Sonatas and Interludes several times, using different materials each time, producing unique results. I also compiled an index of pieces using this technique.

**# 7 Solving the Mystery Behind Lie Detection?***wTe* **Melissa A. Gallaway**

Mentor: Joanne Altman, Psychology

There are inconsistencies in the literature on lie detection. Some studies suggest that people are accurate at detecting deceit while other studies suggest people are not accurate. This may have been due to the different methods used to create the lying conditions. This study investigated the methodological differences in the literature to determine if people are accurate at detecting lying when it occurs. The results suggest that there was a significant difference between the different methods. However, the data went in the opposite direction of the hypothesis. This may have been due to constraints of the study.

**# 8 A Case Study of the Recruitment Processes Used by the 190th Air Refueling Wing****Alike Ann Courtney, Monica L. Huntzinger**

Mentor: David Depue, Office, Legal, &amp; Technology

The purpose of this case study is to examine the alignment of the recruiting needs and requirements of the 190th Air Refueling Wing. With a focus on the processes the recruiters use to enlist potential personnel. Using a SWOT analysis allows for a clear view of alignment issues and opportunities. The key goal of this study is to expose the strategies used and their effectiveness. Also comparing and contrasting other military branches processes and their success rate.

**# 9 Case Study of Thompson Dehydrating Co., Inc.****Sara M. Anschutz**

Mentor: Janice Schrum, School of Business

The purpose of this case study is to research the reasons for the success of Thompson Dehydrating Co., Inc. (TDC). In particular, this case study focuses on the organizational cultural elements including organizational artifacts, assumptions, and rites and rituals that have contributed to their exemplar performance. The TDC is a small company poised for growth. The main goal of this study is to assess the organization's current level of functioning as well as discusses projected future directions.

**# 10 A Java Application for 3-D Visualization of Sound****Jennifer Bliss, Brad Steele**

Mentor: Bruce Mechtly, Computer Information Sciences

We developed a Java application that provides three different views of sound data. A user can select viewing of a waveform, frequency spectrum using fast fourier transform(FFT), or surface graph of frequency verses time. The sound data can come from a .wav file or microphone.

**# 11 Sexual Violence Surveillance: A Three Year Study of Incidence of Sexual Violence in The State of Kansas****Elizabeth Lusk, Gretchen McFalls, Pete Muenks, Sri Venkata Uppalapati**

Mentor: Dave Provorse, Psychology

This research has been grant sponsored by the Kansas Department of Health and Environment (KDHE). The first phase of research involved the research team familiarizing themselves with the various agencies in the state of Kansas that come into contact with victims and report incidence of sexual violence. Phase 2 involved contacting these agencies, collecting sexual violence incidence data and reporting prevalence rates to the KDHE. Phase 3 of the research involved identifying the Center for Disease Control and Prevention's (CDC)key minimum data elements for nationwide identification, recording and monitoring of sexual violence. Currently the research team is in phase 4, which includes developing a website for standardized reporting of sexual violence data consistent with the CDC's minimum data elements.

**# 12 A Look Into Public Administration: City of Olathe Salary Study****Nick Woolery**

Mentor: Steve Cann, Political Science - Geography

Public Administration is a field of study that is often overlooked. However, almost every single thing a person does during a day is affected by a public administrator. This is why exploring public administration and the types of research involved is a very important area of study. This study explores the background of internal local government issues and how public administrators can work past these issues. The study includes different statistical tests such as regression analysis, cross tabs, and frequency distributions. These tests are done on salary data received from the City of Olathe, KS. The data collection and tests have been done to examine whether there are internal problems in the City of Olathe regarding salary. The salaries are compared to variables such as gender, department, years worked, etc. and then compared to each person's market salary for the position. We can then make observations of these results and figure ways to improve problems if they exist.

**# 13 Effects of Standing vs. Sitting During Exercise in an Elderly Population****Jenna Marie Hatlestad**

Mentor: Park Lockwood, Health, Physical Education, Exercise Science

Twelve residents from an assisted living were recruited to participate an exercise program. They were divided into three groups; two exercise and one control. The two exercise groups will then be divided into a standing and seated group. The two groups will perform the same resistance training program, three days a week, in their respective positions. Four tests to evaluate balance, strength, and endurance will be utilized pre and post the six week program. The data will be compared to see if any improvement was made. It is hypothesized that the exercise groups will improve the test scores and the control group will stay the same. Furthermore, the standing exercise group will show greater improvement over the seated exercise group.

**# 14 Influence of Time and Experience on Perception of Empathy***wTE* **Jennifer Diane Cavin**

Mentor: Mike Russell, Psychology

Empathy plays an important role in the therapeutic process and is known to have an impact on the retention and outcome of therapy. Previous studies have focused on clients views of therapist empathy in an authentic psychotherapy session. In the present study individuals viewed pseudo therapy sessions in which participants' rated empathic responses of "therapist in training" on a Likert scale of 1 to 7. Participants were undergraduate and graduate students from Washburn University. Individuals viewed video segments taken at three different times during therapy. In order to determine consistency in empathic responses, participants viewed random clips at the beginning, middle, and end of the therapy session. The findings are discussed in relation to the importance of patient perception of therapist empathy.

**# 15 Attitudes Toward Personal Cleanliness in College Students***wTE* **Christin Hamilton**

Mentor: Michael Russell, Psychology

Previous research on cleanliness has been restricted to housecleaning methods, rather than a person's own personal hygiene. This study investigated the attitudes of college students on personal cleanliness with respect to personal hygiene as well as housecleaning preferences. College students were given a demographic survey, asking them to provide demographic information and then asked to complete a personal cleanliness questionnaire. The cleanliness questionnaire consisted of 22 items, which asked them to rate their cleanliness in regard to different items on a Likert scale. The findings will be discussed in terms of gender and relationship status, as well as the potential sources of differences in those two areas.

**# 16 The Effects of Eliciting Positive Emotion in Individuals with High and Low Social Anxiety***wTe* **Shelly Hulinsky**

Mentor: Cindy Turk, Psychology

Socially anxious individuals reported being less expressive of positive emotions than individuals with low levels of social anxiety (Turk et al., 2005). Sixty individuals (30 socially anxious, 30 not socially anxious) were divided into groups. They were asked to fill out a packet of questionnaires and then given either a flower or verbal “thank you.” Whether they responded with a Duchenne (true), polite, or no smile was recorded. They were then asked to fill out a second set of questionnaires. It is hypothesized that individuals who are socially anxious are less likely to produce a Duchenne smile than the non-socially anxious individuals. It is also expected that all individuals who have participated will report greater self-happiness when they are presented with a flower.

**# 17 Effects of Marathon Training on Psychological Well-Being, Depression, Self-Esteem and Life Satisfaction****Lindsay A. Johnson**

Mentor: Dave Provorse, Psychology

Students participating in the Washburn University Marathon Training course were assessed at three points in time during the spring semester 2007. Pre-term, midterm and end-of-term responses were compared both within this sample of 31 student-runners and to a control sample of students enrolled in PY100 who were not engaged in a vigorous physical training program. Differences across time and between samples were identified using psychometrically sound assessment instruments to measure the four constructs of: Psychological Well-Being, Depression, Self-Esteem and Life Satisfaction.

**# 18 Intelligent Navigation Using LRTA\* in a Safely Explorable Corn Maze****Angela L. Cowan**

Mentor: Cecil Schmidt, Computer Information Sciences

Getting lost in a corn maze is not an exciting dilemma albeit in life or in a game. Using an intelligent program I attempt to solve this problem. In particular this problem can be framed as an online search where knowledge of the search environment is acquired through the interleaving of computation and actions. I assume that the search agent can always recover from its search mistakes, that is the environment is safely explorable. Using a search algorithm called LRTA\*, I will demonstrate how a computer program can simulate the navigation of a corn maze. The agent within the program will not have knowledge of the layout of the maze upon entry into the environment. Using self discovery the agent will work through the maze finding its way out, thus ending the dilemma.

**# 19 Solving Rubik's Cube Using Intelligent Search****Johnathan A King**

Mentor: Cecil Schmidt, Computer Information Sciences

Project will focus on using Iterative Deepening A\* (IDA\*) search to find the optimal solution to a randomly selected scrambled Rubik's Cube. Topics explored will be developing and explaining admissible heuristics for the search, tree pruning for the IDA\* search, and test parameters for the actual implementation of a program that finds the optimal solution.

**# 20 Bayesian Machine Learning****Justin C. Higgins**

Mentor: Cecil Schmidt, Computer Information Sciences

This project will use datasets from the University of California at Irvine machine learning repository. Bayesian machine learning will be used to predict values of unknown attributes given several other known attributes. The Java machine learning application "Weka" will be used as a starting point and enhancements to the machine learning algorithms will be added. User interaction will be added, with the user answering multiple questions. A prediction about the user will then be made.

**# 21 A Discovery Laboratory Experiment for First-Year Chemistry Students****Amy Olivia Puderbaugh**

Mentor: Stephen Angel, Chemistry

A freshman chemistry discovery laboratory experiment is presented that allows students to determine the presence and concentration of polyphenolics in the foods/drinks of their choice. Polyphenolics are a type of antioxidant prevalent in many food sources, and the intent of this laboratory experiment is that the student will be able to bring in and analyze any food source they choose so that there is a true element of discovery. Simple techniques and equipment, highlighting extraction, filtration, standard preparation, use of Spec 20s, and application of the Beer-Lambert Law render results comparable to more sophisticated published results on polyphenolic concentrations in apples. The same technique used on apples is extended to other foods.

**# 22 Childhood Obesity Intervention Program**  
**Jessica Jene Couch**  
 Mentor: Debbie Isaacson, School of Nursing

I helped to develop, organize, and identify resources for a summer program targeting childhood obesity within the Seaman Unified School District #345. Children attending the elementary school will have their BMI checked yearly. If the BMI falls within the overweight or obese category they will receive a recommendation to attend this summer program as well as a referral to a physician. The program will be four hours long and four days per week for four weeks. The program is developed to teach proper nutrition and exercise principles to the children and encourage the daily application of these principles in their lives. The program also includes daily physical activity and the application of BMI and fitness testing throughout the program to monitor the childrens' progress.

**# 23 Washburn University GIS**  
**Joe Gibson**  
 Mentor: David Depue, Office, Legal, & Technology

This presentation represents a conceptual kernel for a Washburn University geographic information system and the database management system used to drive it.

**# 24 The Effect of Training Versus Intuition on Profiling**  
*wTe* **Daysha Renee Jennings**  
 Mentor: Joanne Altman, Psychology

Offender profiling is the art of trying to describe the perpetrator that has committed a crime. Some argue that profiling is more intuitive than scientifically systematic; while others, like the FBI, assert successful profiling is learned. This study pitted intuition against learning to determine if one methodology outperforms the other.

**# 25 The Effects of Sport Participation and Parental Divorce on Adolescent Self-Esteem****Erin M. Soukup**

Mentor: Pamelyn M. MacDonald, Psychology

Children of divorce are likely to experience low levels of self-efficiency, have problems socially, and have trouble coping with difficult situations. The purpose of the proposed study is to determine whether participation in sports can help mediate the self-esteem lowering effects of divorce in a late adolescent population (18-24 year olds). It is predicted that adolescents from divorced families who also participate in sports will score higher on the Rosenberg Self-Esteem scale than adolescents from divorced homes that do not participate in sports. A comparison group of adolescents with parents who did not divorce will also be included.

**# 26 Aerobic Oxidation of  $\alpha$ -Methylpyrroles to  $\alpha$ -Formlypyrroles Catalyzed by N-***wTE* **Hydroxyphthalimide/CuCl****Ami A. Rughani**

Mentor: Sam Leung, Chemistry

Pyrroles are compounds used in the synthesis of porphyrins, which are the core structures in biological molecules such as heme and chlorophyll. Studies in pyrrole chemistry are important since the substituents on pyrroles often need to be modified for use in porphyrin synthesis. In this research project, alternatives to the existing methods for oxidizing the  $\alpha$ -methyl group of a pyrrole to an aldehyde group were sought. Currently the research is focused on the aerobic oxidation using N-hydroxyphthalimide/CuCl as catalyst under normal pressure. Moderate yields of  $\alpha$ -formlypyrroles have been achieved.

**# 27 Evolution and Attraction: The Influence of Wealth and Age on the Attractiveness of Men****Trent A. Wilkerson**

Mentor: Joanne Altman, Psychology

Evolutionary psychology explains attraction by a genetic drive to reproduce successfully and that men and women select for different characteristics due to this impulse. This study was to determine whether or not men would be rated as more attractive if they contained signs of wealth and older age. The participants rated four pictures of a man displaying a chest that was either hairy or shaved, and was wearing either a gold or plastic watch. There were no significant differences found due to the indices of age or wealth. However, an effect for having a shaved chest was marginally significant. A cultural influence is a possible reason for the results tending in an opposite direction.

**# 28 The Effect of Personality Type, Grade Level, Gender, and Sociality on Student Adjustment to College**

wTE

**Candace Lea Wilcox**

Mentor: Joanne Altman, Psychology

Sociality and personality play significant roles in college adjustment. However, the interaction between them has not been investigated. Additionally, adjustment has not been studied developmentally across classes, nor has possible differences between gender been looked at. Therefore this study examined the effect that personality type (introversion/extroversion), class, gender, and amount of social involvement, had on students' adjustment to college.

**# 29 The Application of Capital Structure Theory**

**Daniel P. McNulty**

Mentor: Rob Hull, School of Business

Optimization of capital structure to maximize the value of a firm is a widely accepted idea that has historically been hard to put into practice. With the derivation of a new capital structure model in 2005, we can now estimate the optimal mix of debt and equity to maximize firm value. This paper uses Westar Energy Inc. to provide a basis for applying the model in practice. The summary results show how the firm compares to the model, and how they could improve their capital structure mix to maximize the value of a firm in an unregulated environment.

**# 30 The Effects Animal Interactions Have on the Amount of Time Spent Viewing Gorillas and Black Bears at the Topeka Zoo**

**Monica Sanders**

Mentor: Lee Boyd, Biology

Zoos are found all over the world and about half of the general public has visited a zoo in the last two years (Lukas 2005). Why do some people seem to stay at an exhibit longer than the others? What are they looking for? If animals are interacting with their human observers at the Topeka Zoo, then I hypothesize that the observers will tend to stay longer periods of time to watch them. Two different groups of animals were observed for 10 hours each in April 2006: Lowland gorillas Tiffany and M'Bili, and Black Bears Juneau, Sneak, and Peek. It was found that animal interaction between themselves and the guests of the zoo plays a minimal role in how much time is spent at each exhibit.

**# 31 Environmental Isolation of Naegleria Fowleri in Northeast Kansas***wTE* **Sam W. Smith**

Mentor: John C. Mullican, Biology

*N. fowleri* is a ubiquitous free-living thermotolerant amoeboflagellate known to be the causative agent of primary amoebic meningoencephalitis (PAM), a rare but almost always fatal disease of the central nervous system. Diagnosed incidences of PAM have been recorded in states bordering Kansas including Missouri and Oklahoma. A survey of various water bodies in northeast Kansas was undertaken to determine the presence of *N. fowleri*. Water samples were collected from five Kansas lakes using two different collection methods. A total of 46 water samples were collected yielding 152 separate amoeba isolates. Of these isolates, 111 were found to be thermotolerant, of which 20 (to date) were tested using a nested PCR assay. Five (25%) of the tested isolates, all obtained from a single lake in Lawrence, KS, tested positive for *N. fowleri*. The project described was supported by the NIH Grant Number P20RR016475 from the K-INBRE Program of the National Center for Research Resources.

**# 32 Using a Prisoner's Dilemma Game to Look at Social Stereotypes Towards People with Disabilities***wTE* **Erin R. Menhusen**

Mentor: Joanne Altman, Psychology

This study looked at whether having a family member with a disability would result in treating another with a disability less cooperatively in a prisoner's dilemma game. Lower cooperation may indicate treatment of people with disabilities against stereotypes. The results suggest that people are less cooperative in general.

**# 33 The Effect of Carbonation on Blood Lactate Levels and Exercise Performance in College Aged Males****Nikki Roberts, Molly C. Shea**

Mentor: Paul Wagner, Biology

Scientists and athletes alike have attributed lactic acid buildup in the muscles to muscle fatigue. The reasoning behind this theory is that additional carbon dioxide from the beverage will create an acid-base imbalance that prevents the lactic acid being produced in the working muscle from being shuttled into the blood stream as quickly. To test this hypothesis, we increased levels of carbon dioxide by increasing the respiratory dead space (i.e re-breathing carbon dioxide). Ten healthy college aged males performed four incremental cycle ergometer tests that varied in the amount of dead space. Our results show that blood lactate levels were inversely proportional to changes in dead space despite the fact that heart rates and resistances achieved were not significantly different. These studies confirm our previous findings and suggest that muscles have the ability to shuttle lactate within exercising muscles without reducing performance.

**# 34 The Optimal Duration and Intensity of Exercise to Enhance or Facilitate Mental Performance**

*wTE*

**Megan D. Casey**

Mentor: Joanne Altman, Psychology

Participation in exercise results in physiological changes which are thought to be manifested in psychological responses. This study seeks to understand the optimal duration of exercise to facilitate or enhance concentration. Sudoku puzzles, completed by participants prior to and following bouts of exercise of varied time increments, measure concentration.

**# 35 Effects of Long Term Hypoxia on *N. Gruberi* and Recovery After Exposure**

**Becky J. Seadeek, Kyle R. Stueven**

Mentor: Tracy Wagner, Biology

*Naegleria gruberi* is a free-living amoeba that inhabits various aquatic and terrestrial environments. It has a life cycle that allows it to change between three different forms: amoeba, cyst, and flagellate. Previous research in this lab has demonstrated that long term (72-96 hour exposure) hypoxia triggered encystment of the amoeba. Higher percentages of encystment were seen with 12% hypoxia compared to 15% hypoxia. Currently we are continuing these experiments with the additional step of harvesting the cysts after exposure to hypoxia and seeing if they will return to amoeboid form in a normoxic environment. In the encysted form, oxygen requirements are reduced, allowing survival for a longer period of time. If the *N. gruberi* excyst upon returning to normoxic conditions, then it would support the hypothesis that they are using the encysted form as a way to survive adverse conditions (hypoxia).

**# 36 Characteristics of Sulfonamide-Resistant Bacteria Isolated from U.S. Rivers**

*wTE*

**Tracey Lee Brown, Joseph Donald, Heidi Nicole Zogelman**

Mentor: Ronald Ash, Biology

Bacteria resistant to sulfa drugs (sulfonamides) have been isolated from rivers around the United States. The present project investigated the properties of these organisms and the persistence of the resistance trait in bacteria allowed to reproduce in the absence of sulfa drugs. The results of this research can be summarized as follows: 1. the sulfonamide resistance trait persisted in bacteria grown in the absence of the drug for over 6,000 generations, 2. the percent of the population which remained resistant to sulfonamides was constant in 3 separate isolates over a one year period, 3. A colonial variant appeared after approximately 5,000 generations. This variant was less sensitive to tetracyclines than the parent strain but did not display any growth characteristics different from the parent. The results suggest that sulfonamide resistance is a trait which bacteria maintain, even in the absence of a selective pressure.

**# 37 Prevalence of Sulfonamide Resistance Genes in Bacteria from Fresh-Water***wTe* **Adam M. Bayless, Christopher Jenks**

Mentor: Ronald Ash, Biology

The three separate genes responsible for sulfa drug resistance in bacteria are designated as sul1, sul2, and sul3. Each gene has a unique DNA sequence and resistant bacteria usually have only one of these genes. The sul3 gene was detected in Europe in 2003 in a hospital patient and, until now, has not been found in other countries. We used the polymerase chain reaction (PCR) to identify the sul genes in bacteria isolated from U.S. rivers. The pertinent findings are as follows: 1. all 3 sul genes were identified in the isolated bacteria with sul1 being the most prevalent followed by sul2 and sul3, respectively; 2. the sul1 gene was harbored on a plasmid (a piece of DNA separate from the chromosome). The location of sul2 and sul3 genes is under investigation. Our results demonstrate that the sul3 gene has been identified in this country for the first time. The origin of this unique gene remains to be determined.

**# 38 Changes in Cardiovascular Values as a Result of Marathon Training****Brinton Baker, Adam Weaver**

Mentor: Tracy Wagner, Biology

We have been collecting data from participants in a marathon training program to observe benefits of training on resting heart rate, blood pressure and VO<sub>2</sub> max. This program entails exercising with the class three days/week with an additional one to two personal workouts. Individuals involved in this training will build up to 30-50 miles/week with the goal of running a half (13.1) or full marathon (26.1) miles. This cardiovascular training should reduce resting heart rate and blood pressure while increasing VO<sub>2</sub> max (a measure of how much oxygen the body can remove from the blood.) Our hypothesis is that the greatest change in these variables will be seen in individuals with little cardiovascular exercise history. A second part of this study is to observe the effects of age on response to the marathon training program. It is hypothesized that older individuals will require more time to see improvements in these cardiovascular variables.

**# 39 An Examination of Characteristics that Predict Homophobia****Romualdo R. Chavez, Melissa Linquist, Lydia Christine Parker**

Mentor: Susan R. Burns, Psychology

In the past few years, violence towards homosexuals has been an issue that causes great concern. Homophobia, one possible explanation for this violence, is a controversial topic that warrants investigation. Fifty-six undergraduate students completed a packet of six surveys to examine how personality type, intrinsic and extrinsic religious orientation, gender characteristics, aggression and demographic variables predict homophobic attitudes. Results indicate that participants' sex, religiosity orientation, personality characteristics and hypermasculinity differentially predicted homophobia. Conclusions and implications are discussed. Findings from this project will help shed light on what personal characteristics are related to homophobic attitudes and behavior.

**# 40 Finding the “Root” of the Problem****Sean A. VanDyke**

Mentor: Kevin Charlwood, Mathematics &amp; Statistics

A demonstration of the uses of the Newton-Raphson and Secant methods in finding roots of polynomial and non-polynomial equations and where these methods fail.

**# 41 The Effects of Gum Chewing on Recall Performance***wTe* **Dustin E. Haverkamp**

Mentor: Joanne Altman, Psychology

Many people believe chewing gum aids in smoking cessation, weight loss, and relaxation. Wrigley Company claims that chewing their gum can increase memory performance. This study investigated whether chewing gum improves memory recall for chewing-related words, food words, or all words, as Wrigley’s claims.

**# 42 Investigation into Bullets Degraded by Blood***wTe* **Nicholas D. Wilson**

Mentor: Stephen Angel, Chemistry

Degradation of bullet surfaces occurs when bullets are stored in blood. Loss of class and/or individual bullet characteristics, necessary for definitive identification, is studied as a function of time in which the bullet remains in the blood and as a function of current law enforcement practices of evidential bullet packaging/storage. Initial results show that in as little as four weeks, bullets resting in blood could potentially show enough degradation to prevent a positive identification.

**# 43 Solving n-Queens using a Genetic Algorithm****Richard Eastridge**

Mentor: Cecil Schmidt, Computer Information Sciences

Applying genetic algorithm techniques to the classic n-Queens problem illustrates the effectiveness and power of using an evolutionary approach to constraint satisfaction problems. According to John R. Koza, the natural evolutionary process involves the following: an entity has the ability to reproduce itself, there is a population of self-reproducing entities, there is some variety among the entities, and some difference in survivability associated with the variety. When applied to problem-solving, genetic algorithms provide a means to emulate the natural evolutionary process in an attempt to reach an acceptable solution. This research reports on the computationally intelligent application of the natural evolutionary process towards the solving of the n-Queens problem.

**# 44 C. Wright Mills and Elite Pluralism****Tim Traynor**

Mentor: Maria Raicheva-Stover, Mass Media

C. W. Mills' ideas challenged the status quo of power and leadership in America. Looking at Mills' original work, this paper focuses on what elite pluralism is, its link to mass media, and what its limitations are.

**# 45 In Situ Generation of Borane for the Reduction of Nitriles to Primary Amines***wTE* **Janet M. Brunton**

Mentor: Shaun E. Schmidt, Chemistry

A tetrahydrofuran (THF) catalyzed borane adduct reduction methodology has been developed for the reduction of nitriles to primary amines. The reductive borane is generated in situ using  $\text{LiBH}_4$  and  $\text{CH}_3\text{I}$ , and is facilitated by less than stoichiometric amounts of anhydrous THF in a non-polar solvent. The reaction is conducted under an inert atmosphere at  $65^\circ\text{C}$  and is followed by a standard acid/base workup. Primary amine products are pure as exhibited by  $^1\text{H}$  NMR.

**# 46 The Effects of Relationship Status on College Students' Life Satisfaction***wTE* **Ashley L. Nabb**

Mentor: Pamelyn M. MacDonald, Psychology

This study investigates the relationship between college students' relationship status (married, seriously dating or single) and their self-reported life satisfaction as measured by the Satisfaction with Life Scale (SWLS). Students also self-report their involvement in college activities and academic success as measured by GPA. It is expected that married students or students in a serious dating relationship will have higher life satisfaction but lower participation in college activities and less academic success.

## Oral Presentation Session, 1:30 p.m.-3:25 p.m. Henderson Learning Resources Center

### *Room 103*

1:30-1:45

Henderson 103

*Lies My Uncle Told Me: Walter Cronkite Did Not Live His Broadcasting Philosophy*

**ReAnne R. Utemark**

Mentor: Alan Bearman, History

Walter Cronkite was a trusted newsman for CBS news. He began his career as a war correspondent in World War II. After stepping into the lead anchorman spot, he reported on several impactful events in America. In particular, he reported on the military action in Vietnam. However, in this instance, Cronkite stepped away from his objective journalism standards. Cronkite continues to discuss his ideals in regard to reporting, which are sometimes contrary to what he actually practiced while he was an active reporter.

1:50-2:05

Henderson 103

*An Endeavor to Further the Naturalization of Whitehead's Metaphysics*

**Jeremy C. DeLong**

Mentor: Jorge Nobo, Philosophy - Religion

This project is an examination of previous philosophical attempts to naturalize (i.e.--remove God) from Alfred N. Whitehead's metaphysics, along with suggestions for how a successful naturalization may finally be achieved. My position is that previous attempts at naturalization have either: 1.) focused upon superfluous religious aspects of Whitehead's God, which in no way eliminate the secular function of God as a metaphysical construct (whether worthy of the name "God" or not) necessary for Whitehead's system, and/or 2.) are too far removed from Whitehead's own position as to really qualify as a naturalization of Whitehead's own metaphysics. I believe Whitehead's metaphysical system may be successfully naturalized by positing an evolutionary force inherent in the cosmos that drives process and becoming at its most basic level.

**2:10-2:25****Henderson 103*****Mapping Kansas Literature*****Miranda A. Ericsson**

Mentor: Thomas Averill, English

This project began in the class Mapping Kansas Literature. The course required students to research Kansas authors and poets of their choice and create web pages that tell about their lives, work, and connections with Kansas. Each page is part of a larger site, "Map of Kansas Literature," which is connected to the Center for Kansas Studies web site. I was required to do two pages for the class, and created five during the semester. I will demonstrate the way this network of pages will help those doing research, as well as all of the curious, to quickly learn information about a given author or poet, and share the contents of the pages that I created.

**2:30-2:45****Henderson 103*****Generative and Interactive Art***

wTe

**Branton K. Davis**

Mentor: Azyz Sharafy, Art

Over the past year, I have been exploring the combination of art with mathematics and computer programming. I would like to display a collection of my generative works on a computer display, where visitors can interact with them via a control panel attached to a computer.

**3:10-3:3:25****Henderson 103*****When Necessity Becomes the Mother of Protest: The Dirty War and the Mothers of Plaza De Mayo in Argentina*****Julia Bond**

Mentor: Alan Bearman, History

Between 1976 and 1983, the people of Argentina witnessed the effects of a government ruled by a military junta often likened to that of Nazi Germany. During this seven year period, the military "disappeared" over 30000 individuals. Not only were these individuals the victims of torture and murder but their lives and the evidence of their existence were systematically destroyed. In 1977, The Mothers of the Plaza de Mayo overcame their fear of the military and omnipresent secret police force to protest in public peaceably the disappearance of their children. The Mothers protested even as no one else said a word about flagrant human rights abuses taking place right before their eyes. This historiographical essay analyzes the publications on the Mothers of the Plaza de Mayo. My analysis of secondary literature on the topic focuses upon the political achievements of the Mothers, their nonviolent protests, and the historical implications of their organization in Argentina.

## ***Room 104***

**1:30-1:45**

**Henderson 104**

***Til Defect Do Us Part: Marriage, Church and Eugenics***

**L.R. Potter**

Mentor: Kim Morse, History

In 1859, Charles Darwin published *Origin of Species*. Out of his ideals came the concept of survival of the fittest. Darwin's theories became popular among scientists conducting experiments in order to dissect the complexities of heredity. By the beginning of the twentieth century, the popularity of Social Darwinism spread throughout the United States and sparked the establishment of the eugenics movement. Supported by a large and vocal majority of American churches, eugenics gained momentum and credibility as science and religion united in order to validate the idea of racial purity.

**1:50-2:05**

**Henderson 104**

***Washburn University Law School Government Documents***

**Dee Barker, Keith Rhea, Cindy Wulfkuhle**

Mentor: Nan Sun, Computer Information Sciences

The Washburn Law Library has been maintaining a database of government documents received from GPO as a depository but the librarians at the library do not have access to the database. Therefore, when a student or patron wants to know if we have a particular document, they need to go out to the shelves and look for the document. It would be more productive to be able to look in the database and know if the document is supposed to be on the shelf or not. Our project's purpose is to make the database searchable through a web interface, so the librarians and students will spend less time and effort searching for documents that are not in the Washburn's collection. This project is a practical application making an unwieldy document search to be done with ease now. Before more often than not documents were not used as no one realized they were available. The solution our team has come up with is both easy to use and maintain by the library staff.

**2:30-2:45****Henderson 104*****Capital Punishment: Kill and be Killed*****Timothy P. Leffert**

Mentor: Steve Cann, Political Science - Geography

Since the adoption of the first death penalty statute there has been controversy and a reliance on statistics. Historically many studies have been done on capital punishment with widely varying results. The study performed here is a time series analysis of the capital punishment policy in the United States and its effect on murder rates. This analysis takes a look at yearly crime rates dating from 1976 to 2004 and the number of states that had adopted the policy each year of the study. The testable hypothesis being that as more states adopt capital punishment statutes the national murder rate will decrease. After collecting data of policy adoption and yearly murder statistics reported by the Uniform Crime Report the study shows a correlation between the number of states that adopted the policy and the national murder rate.

**2:50-3:05****Henderson 104*****On Plato and John Calvin*****Stephen E. Young**

Mentor: David Freeman, Political Science - Geography

This is a political theory paper I wrote for PO275. It is a compare and contrast paper on Plato and John Calvin. In it I describe their individual strengths and weaknesses followed by a personal critique.

**3:10-3:25****Henderson 104*****Simone De Beauvoir's Existentialist Ethics*****William F. Olliso**

Mentor: Jorge Nobo, Philosophy - Religion

It is my purpose in these pages to discuss Simone de Beauvoir's account of an existentialist ethics as presented in her work *The Ethics of Ambiguity*. I will show that de Beauvoir's existentialist philosophy does not provide a satisfactory basis for an ethical system. Using phenomenological description as the groundwork for her philosophy and ethics, she ignores and fails to incorporate many important truths of science. By neglecting important findings of biology, ecology, and physics results in an ethics with a very limited scope, and fails insofar as it makes unnecessary prohibitions and fails to address areas of great importance to the world today.

## ***Room 118***

**1:30-1:45**

**Henderson 118**

*wTe Racism Towards African Americans During WWII*

**Lydia Christine Parker**

Mentor: Rachel Goossen, History

During World War II, many Americans made sacrifices and gave up their lives to ensure freedom for our country. However, many African-Americans during World War II had to fight two wars. They were willing to fight for their country, but at the same time they had to give up their dignity and endure cruelty from their fellow white soldiers. This essay examines how African Americans were treated by communities and their fellow soldiers.

**1:50-2:05**

**Henderson 118**

*Remember the Alamo but Forget the Mexicans: Adina de Zavala, the Alamo, and the Reconstruction of Mexican-American Identity*

**Laura Higbee**

Mentor: Kim Morse, History

Through the process of the creation of the Alamo myth and the salvation of the building, Adina De Zavala portrayed independence as a process of Anglo-insurgency, and not the culmination of combined efforts of Anglos and Texas-Mexicans. In doing so, she removed the Texas-Mexican influence from the official history of the war for Texas independence and changed her own identity as a Mexican-American.

**2:10-2:25**

**Henderson 118**

*The Land That Time Forgot: A Brief Historiography of Indus Civilization*

**Joseph A. Heschmeyer**

Mentor: Thomas Prasch, History

The first known civilization to use billboards was also one of the first to practice dentistry, use standardized weights in commerce, and have grid-based architecture. More surprisingly, this entire civilization was completely lost until the Nineteenth Century, and remains largely an enigma to this day. That culture was the Harappan, or Indus Valley, Civilization, one of the earliest known civilizations on Earth. Considered the “fourth river” culture (along with the early Nile-, Tigris-, and Euphrates-based cultures), the Indus Civilization stands in contrast to many of our preconceptions about what a culture should or must look like. Due to changing cultural attitudes of scholars investigating the civilization, the Indus Valley Civilization has been massively re-conceptualized in the realms of city planning, governance, religion, the peacefulness of the state, the role “Aryan invaders” played in the civilization’s twilight and the ultimate cause of the civilization’s collapse.

2:30-2:45

Henderson 118

***The Murder of Emmett Till: The Response of the National Media and the Emergence of the Modern Civil Rights Movement***

**Danielle J. Van Laeys**

Mentor: Alan Bearman, History

The media coverage of Emmett Till's funeral and trial altered white Americans' perceptions of African Americans' rights and created a turning point in the modern Civil Rights Movement. Before the murder of Till the Civil Rights Movement was a largely African American movement. With the coverage of Till's funeral and trial, white Americans joined African Americans in their quest for equality. The brutal killing of the fourteen-year-old Till on August 28, 1955 was different than other killings of the era because of the media attention garnered by the trial. While *Brown v Board of Education* paved the way for Civil Rights one year earlier, the portrayal of Till's dead body led white Americans to join African Americans in the cry for justice. The media's role in the trial was crucial. Reporters found and protected witnesses, risked their safety for a story, presented a tragedy that white Americans could also sympathize with, and urged all people, to do something to change prejudices.

2:50-3:05

Henderson 118

***The Battle for Tradition: Society of St. Pius X in St. Mary's, Kansas***

**Jess L. Rezac**

Mentor: Alan Bearman, History

Following the Second Vatican Council, Roman Catholics beginning in 1965 faced a series of seemingly radical changes to their Church's dogma. While the formation of SSPX impacted the entire Roman Catholic world it was especially pivotal in one Kansas community. In St. Mary's, Kansas, SSPX purchased the campus of St. Mary's College in 1978, and founded St. Mary's Academy and College, an educational facility capable of educating students grades K-12, while also continuing as a small liberal arts college. The arrival of SSPX changed the pre-existing Catholic community of the region. Through original research, I examine SSPX's experience within St. Mary's, tracing both the religious adaptations and the secular role that SSPX members played in the community. In addition, I examine the transformation of the Church of the Immaculate Conception in response to the arrival of the traditionalist SSPX faction within its community.

## ***Room 118 (continued)***

3:10-3:25

Henderson 118

***The War within a World War: Einstein's Struggle between Science, Morality, Politics, and Religion***

**Amy D. Billinger**

Mentor: Alan Bearman, History

Albert Einstein's meaning of life was rooted in the existence of fellow man. His actions and words demonstrated his passionate desire to establish a peaceful existence for every government and individual. Nuclear energy, he believed, sabotaged all attempts at global unification. He considered only one path possible for peace, a world government that surpassed national sovereignty. He predicted without such a government, each nation would continue to fight for power. Peace could only exist if each nation pursued the good of the whole. His humanistic philosophies portrayed his aversion to war which, he explains, only harm the progression of humanity. Einstein's ardent longing for human solidarity formed his political, religious, moral, and scientific thoughts, thus, revealing his fervent opposition to the atomic bomb.

## ***Room 203***

1:30-1:45

Henderson 203

***Art Making as a Social System: Functional Outcomes of Prison Art Programs***

**Kathryn Cook**

Mentor: John Paul, Sociology - Anthropology

The paper is an examination of prison art programs and the utilitarian and symbolic functions they perform within correctional settings. Of these functional activities we find generally, that "art-making" makes many of the transitions to and from incarceration easier. More specifically, we find evidence that art-based programs reduce rule violations among prisoners and build better (safer) relationships between inmates and staff by fostering, among many things, purposive time management, cooperative group work, and empathy for work partners. Beyond this, this work also highlights various controversies associated with the funding of prison art programs and suggests, in the end, a revision of correctional logics to include art activities for prisoners.

1:50-2:05

Henderson 203

***Legend Tripping as Field Research: Investigating the Connection of “Satanic Tourism” to Juvenile Delinquency***

**Virginia M. Adame, Kofi A Boye-Doe, Juna L Green, Jill M. Schalansky, Cale Michael Urban**

Mentor: Gordon Crews, Criminal Justice - Military Science

Fine and Victor (1994) define “legend trips” as delinquent juvenile activities at sites associated with some tragic event, rumored to be supernatural or related to the occult. “Satanic tourism” is a type of legend trip characterized by involvement in pseudo-Satanic/occult behavior, such as drawing pentagrams, writing epithets, and burning candles. A juvenile may visit a geographic location such as an abandoned church, historic graveyard, or reputedly “haunted” site, and engage in mischievous, destructive, or “ritualistic” behaviors as “rites of passage.” These activities, which often are relatively harmless and conducted primarily for juvenile thrills, may be perceived by law enforcement and the larger community as threatening and dangerous. This presentation of student research was a requirement of a weekend workshop entitled “Goth and Occult Influence on Juvenile Violence,” includes photos and stories of legend trip sites and associated juvenile delinquency in Topeka, Kansas.

2:10-2:25

Henderson 203

***The Relationship Between Unemployment and Crime***

**Samantha S. Cooper**

Mentor: David Freeman, Political Science - Geography

Studies have shown that crime rates rise and fall with unemployment. Policies designed to create long-term employment for young people have been enacted to combat crime. Such policies are designed to increase jobs in inner city areas, and have yielded a direct, positive effect on crime rates. It is important that accurate studies be conducted that will result in a better understanding of crime and its causes. So are these policies working? Or should the attention be focused elsewhere?

2:30-2:45

Henderson 203

***No Monkey Business: H.L. Mencken’s Criticism of The Scopes Trial and its Fundamentalist Underpinnings***

**Jennifer L. Mills**

Mentor: Alan Bearman, History

An enlightened cynic of the 1920s, journalist Henry Louis Mencken was an ardent skeptic of religion. His most famous works were his articles that covered the Scopes Trial of 1925, published in the *Baltimore Evening Sun*. This landmark case, which embodied Protestant Fundamentalism, allowed Mencken to exemplify his self-appointed role as watchdog and reformer of social thought. His purposes in writing were two fold: To cover the Scopes Trial and to discredit Protestant Fundamentalism in the minds of his fellow Americans. Mencken crippled the Fundamentalist theology with his pen by altering the American perception of Fundamentalists and calling for decisive action to see the movement to its grave. He undeniably achieved this goal through the written word. However, despite his effective and prolific prose, his work was not without fault. Mencken wrongly characterized Fundamentalism, its followers, and its fate during the summer of 1925.

## ***Room 203 (continued)***

**2:50-3:05**

**Henderson 203**

***Parental Controls and Gun Possession by Juveniles: Stopping Youth Gun Violence Before it Begins***

**Chris J. Keary**

Mentor: Phyllis Berry, Criminal Justice - Military Science

The choice by a juvenile to possess a gun can be influenced by many factors. One of those factors should be their parents. Parents play an important role in the socialization process of their children, including the development of pro-social or delinquent attitudes. This research hypothesizes that effective parenting, through parental control and discipline, will have an impact on the decision of juveniles to regularly possess a gun. The hypothesis is tested using secondary data analysis of data originally collected from juvenile traffic offenders in Little Rock, Arkansas in 1992. Statistical analysis was performed and statistically significant correlations were found; however, the hypothesis was not fully confirmed since not all correlations were in the expected direction.

**3:10-3:25**

**Henderson 203**

***Martin Luther King and Nonviolent Resistance: The Evolution of a Legacy***

**Haley A. Pollock**

Mentor: Alan Bearman, History

Americans remember Martin Luther King, Jr. for his eloquence and leadership as an advocate for civil rights. Most recognize that King believed in peaceful resistance and condemned acts of violence. However, too often society assumes King received his inspiration from only religion. Few realize that his powerful message resulted from both deep, spiritual reflection and rigorous, academic study. This paper explores three main influences of King's philosophies: his upbringing, education, and religion. Understanding the relationship between these forces provides valuable insight on the development of King's famous campaign for nonviolent resistance.

**Room 204****1:30-1:45****Henderson 204***Why Israel: America's Stake In The Middle East***Thaddaeus Joel Gassie**

Mentor: David Freeman, Political Science - Geography

The United States' affiliation with Israel is an issue that has elicited considerable debate. America has sustained this camaraderie in spite of how unpopular Israel can be, especially in the eyes of the rest of the Arab Middle East. There are several historiographical approaches as to why America has consistently placed its bets on Israel, some attempting to explain the bond, others trying to herald an unpopular opinion, and still others rationalizing issues such as those aforementioned that naturally arise from the U.S.--Israel alliance. This is a historiography of these approaches, categorized into three groups: the effect of cultural narratives on public policy, the effect of religious belief, and the alliance as a function of Israel being a strategic political asset. My attempt in this historiography is to ascertain which approach most strongly represents the peculiar case of America's political identity with her ally Israel.

**1:50-2:05****Henderson 204***An Analysis of Augustine and Averroes***Kevin J. Mullinix**

Mentor: David Freeman, Political Science - Geography

This presentation is based upon an in-depth analysis of the works of the political thinkers Augustine and Averroes. It will highlight key components of their backgrounds, motivations, and political ideas. This examination of the writings of these two different men can help one achieve a better understanding of the philosophical concepts of reason, faith, justice, civic virtue, and civil society. This presentation will also examine strengths and weaknesses of each political thinker as well as suggestions for their relevance and significance in politics today.

**2:10-2:25****Henderson 204***Hell Yes I Can Vote: Alice Paul and the Struggle for the Nineteenth Amendment***Sadye Jane Mages**

Mentor: Alan Bearman, History

Equality is a word that has been argued about for as long as many historians can remember. To many passive Americans, this word is taken for granted. It is a word on a page in the dictionary that is overlooked like so many others. On the contrary, to the passionate Americans equality has a deeper meaning than any expert or intellectual could ever annotate. It is an opportunity and a dream. To women like Susan B. Anthony, Elizabeth Cady Stanton, Carrie Chapman Catt and Alice Paul it was a vision, and mere life itself. These women went to bed each night and woke up each morning with one aim. That aim was to earn women the "right" to vote in America. It was a one hundred and forty seven year struggle before women

were finally able to vote. That one hundred and forty seven years should never be undermined or forgotten because it paved the way for the Nineteenth Amendment, equality, and the “American Dream” itself.

**2:30-2:45**

**Henderson 204**

*Eleanor Roosevelt and Her Impact on the Presidency*

**Chelsea Elizabeth Anne Chaney**

Mentor: Alan Bearman, History

Few First Ladies were as influential as Eleanor Roosevelt. Eleanor’s social and political action contributed greatly to Franklin D. Roosevelt’s successful administrations.

**2:50-3:05**

**Henderson 204**

*Drafting of the Declaration of Independence: The Birth of A New Nation*

**Alice L. Hughes**

Mentor: Alan Bearman, History

This paper is a historical analysis of the drafting of the Declaration of Independence with an emphasis on the influence of the writings of John Locke and George Mason on Thomas Jefferson.

**3:10-3:25**

**Henderson 204**

*Studies of Advanced Industrial Society: The Case of the Screaming Skulls*

**Eugene Constantin Stone**

Mentor: Alan Bearman, History

In contemporary society, the medical-industrial community has established the ideal of “normal” behavior in individuals. This standard is a reflection of the modal behaviors exhibited by the aggregate of society. Individuals who deviate from certain social norms are characterized as anxious, maladjusted, or neurotic. If an individual can be found “neurotic”, is it possible to make a claim of social neuroses, where the whole of society exhibits behaviors that can be construed as abnormal? More importantly, what frame of reference would be used to establish that the bulk of civilization is suffering from a communal form of neuroses? The comparative background from which a diagnosis of social neuroses can be made exists, but it resides just below our senses.

**Room 207****1:30-1:45****Henderson 207**

*wTe* ***Childbirth in Sequestration: Shared Meaning of the Perinatal Experience for Amish Women Living in Yoder, Kansas***

**Haley S. Smith**

Mentor: Marilyn Masterson, School of Nursing

The experience of childbirth is a deeply human event that must be understood through the rich and textured cultural identity of the transitioning family. One particular religio-cultural group, the Old Order Amish, remain largely sequestered from mainstream society maintaining a unique spiritual and cultural identity that impacts all aspects of daily life, including the seminal transition of motherhood. A descriptive qualitative study was designed and implemented in the Amish hub of Yoder, Kansas to discover the meaning of the childbearing experience for Amish women at a local birthing center. Through rich descriptive inquiry, the researcher was able to discover seven themes that illuminate the Amish childbearing experience as it pertains to spirituality, culture, and healthcare practices. Such knowledge will add to the developing body of literature providing nurses with a rich context from which to view childbirth, illuminating the multilayered texture of this deeply human experience.

**1:50-2:05****Henderson 207**

*wTe* ***Influence of Olfactory Perception on Gap Passability***

**April Lynn Tallerico**

Mentor: Mike Russell, Psychology

Previous studies have looked at the ability of humans to perceive gap passability based on vision, auditory and haptic conditions. Presently, however, there have been no studies that have looked at gap passability in regards to olfactory perception. The present study will attempt to determine the extent to which observers can accurately gauge whether a gap affords passage. Participants were Washburn University students enrolled in introductory psychology classes and assigned to one of two conditions, vision or olfactory. Common sense suggests that the accuracy of participant judgments will be more accurate in the vision condition than in the olfactory condition. The findings will be interpreted in terms of J.J. Gibson's notion of the partial equivalences of perceptual systems.

2:10-2:25

Henderson 207

***The Impact of Budget Cuts on the Role of School Nursing in a Midwestern******School District*****Shannon L. Cederlind**

Mentor: Gail Ciesielski, School of Nursing

A descriptive study was done to examine the experiences of healthcare providers in a post-budget cut environment through qualitative analyses of written surveys. The study looked at how registered nurses (RNs), licensed practicing nurses (LPNs) and health aides in a Midwestern school district describe how their roles have change after a recent change in staffing and funding. Two surveys were administered and written statements were analyzed on aspects of school nursing such as delegation, health education, support, services provided and changes in job description.

2:30-2:45

Henderson 207

***Uncontrollability and Inescapability: Causes and Preventions of Learned Helplessness*****Robert Charles Carrigan**

Mentor: Michael McGuire, Psychology

The phenomenon of learned helplessness is defined as a psychological problem, much like depression, which results from repeated failure in several situations, be it in academic or athletic situations. This review not only gives the audience a background on the history of learned helplessness but also provides possible causes and solutions that can help prevent and aid those individuals who suffer from learned helplessness. The primary focus rests on children between the ages of eight and fourteen. Finally this review ventures into possible holes in the current learned helplessness research and the direction that future studies should follow.

2:50-3:05

Henderson 207

***The Effects of Minority Student Engagement on College Satisfaction*****LaNise D. Babb**

Mentor: Joanne Altman, Psychology

Minority students are more likely to be disengaged and less satisfied with the university experience than majority students. Stress from academic obligations, minority status, limited social networks, family issues, finances, and adjustment difficulties often hinder multiethnic student involvement and college satisfaction. In the present study, the level of university student engagement is examined, as research suggests that involvement in college has a positive influence on university satisfaction. The results will explore whether an increase in minority student engagement on campus will increase their overall college satisfaction.

**3:10-3:25****Henderson 207*****Hidden Foundation of the Invisible Empire: The Role of Honor in the Second Ku Klux Klan*****Bethany R. Mowry**

Mentor: Alan Bearman, History

To understand the actions of the Ku Klux Klan of 1920s America one must understand the mindset of its members, which the Klan delivered to the public in verbal and written addresses. What makes comprehension of the Klan mindset unique and challenging is the difference between its internal and external publications. To the “alien” world the Klan emphasized patriotism, Protestantism, disdain and distrust of the Catholic and the Jew and an ethnocentric ideology which promoted the interests of the white, Anglo-Saxon Protestant male. Yet its internal documents, while maintaining the importance of these tenets, dwelled more heavily on the concept of honor than those for public consumption. Patriotism, Protestantism, and native white superiority held prime importance in the public image perpetrated by the second Ku Klux Klan, but these ideals rested firmly upon and grew from the personal importance of honor to Klansmen.

***Room 217*****1:30-1:45****Henderson 217*****Preference Estimation Using Computerized Collaborative Filtering*****Renchar R. Delacruz, Ethan R. Fincham, Melinda J. Holman, Joshua D. Knox,****Darin Stelting**

Mentor: Nan Sun, Computer Information Sciences

The Netflix Prize invites teams or individuals to attempt to improve on Netflix’s recommender system. As participants in the Netflix Prize competition, we attempt to predict the preferences of movie renters based on past behavior. Analyzing data provided by Netflix, we examine the behavior of other customers who have expressed similar preferences by rating movies. Once the data has been organized in a MySQL database, we apply machine learning principles to recognize patterns of behavior. When a pattern is identified among user ratings, we can make a prediction about how a customer will rate a movie.

**1:50-2:05****Henderson 217*****Identifying Barriers and Opportunities within Highly Competitive Office Supply Market through New Six Sigma Methodology*****Cheryl Butler**

Mentor: Dave DePue, Office, Legal, &amp; Technology

As in most markets today, competition is fierce. The U.S. office supply industry is estimated to be worth \$323 billion and continues to grow annually. The home office market is expected to grow from a \$38.7 million market in 2001 to almost \$50 million by 2005. Office supplies is the generic term that refers to all supplies regularly used in offices by businesses and other organizations, from private citizens to

governments, who work with the collection, refinement, and output of information. In 2003, OfficeMax, Inc. began the transformation from predominately manufacturing-based company to independent office products distribution. In this case study, we will apply Six Sigma methodology linking customer requirements to an organization's mission, vision, strategic objectives and metrics which translates to organizational knowledge and improved decision-making. The outcome will be the identification of barriers and opportunities for management and other stakeholders at OfficeMax, Inc.

**2:10-2:25**

**Henderson 217**

***Web-based Quest Game Project***

**Mukhtar Farid, Johnathan A. King, Timothy J. O'Neal, Jacob S. Prewett**

Mentor: Nan Sun, Computer Information Sciences

This Computer Information Systems Capstone project is an online game in which registered users can connect via the internet and play. First, the user will connect to the site and log into the home page. The user will then be redirected to the initial game web page, which has the main quest description and a variety of locations for the user to choose from. These locations include a castle, ruins, an island, an arctic area, a swamp, a cave, a mountain and a forest.

**2:30-2:45**

**Henderson 217**

***Digital Educators: A Literature Review of Digital Game-based Learning for Students***

**Kristine Faith Appleton**

Mentor: Michael McGuire, Psychology

As technology quickly advances the number of hours a student plays digital games is expected to increase as well. On average, a 21 year old has played approximately 10,000 hours of digital games (Prensky 2001). Digital games, for the purpose of this talk, can be defined as computer games, video games and online games. With the increase in the interest of gaming effects on children's behavior, there arose controversy about the impact of gaming on students. One contention has been focus on the adverse effects that gaming has on students' behavior (Brady 2006). The focus of this talk is to review literature that highlights the more positive effects that gaming has on students' academic performance. Additionally, the potential of gaming to enhance learning will be reviewed.

2:50-3:05

Henderson 217

***Funding a New Revolution: DR-CAFTA's Effect on the Nicaraguan Economy*****Lacey R. Keller**

Mentor: Dmitri Nizovtsev, School of Business

Free trade agreements, such as the Central American Free Trade Agreement (CAFTA or DR-CAFTA), often are highly politicized, hotly contested, and complicated. In theory, such a trade agreement should make the Nicaraguan and the United States' economies better off than before CAFTA's implementation. Yet, in actuality, the implications of this treaty are muddled due to the lack of empirical data and the prevalence of biased personal opinions. This paper discusses how CAFTA affects the Nicaraguan economy through the balancing of background and empirical data, opinions of free trade experts and international leaders, and personal experience.

3:10-3:25

Henderson 217

***A Communicative Analysis of the Problem of High Turnover in Public Accounting Firms*****Paige Renee Pfannenstiel**

Mentor: Pat Kosinar, Communication

Public accounting firms are plagued with the problem of high turnover. This study explores the causes of high turnover in accounting firms and concomitantly, the effect of this turnover on assimilation and socialization in such firms. The study focuses on the vital role of communication in this situation as it affects the factors leading to the high turnover rate and the firms' responses. The analysis is grounded in communication theories which describe and explain the current situation, as well as predict what may happen in the future for these firms.

## **Room 304**

**1:30-1:45**

**Henderson 304**

***The Effect of Substrate and Contact Points on Snake Locomotion***

**JoHanna Suzanne Peterson**

Mentor: Bruce Young, Biology

Snakes have been classified as “active foragers” or “sit and wait foragers” based on their size and behavior. Sit and wait foragers are heavy-bodied snakes that capture prey using venom or constriction. Previous studies on slender species, have demonstrated that differences in the substrate and contact points available have an influence on the snake’s movement. This study looked at differences in substrate and contact points and the influences they had on a larger snake, the yellow anaconda. A filming platform was made out of plywood. Using video cameras and image analysis software, the locomotion of the snake was quantified while moving over both low and high friction substrates. Contact points were also incorporated at different spacings. This study confirmed the finding of distinct gaits in snakes, and showed that locomotor mechanics are distinct in larger heavy-bodied snakes.

**1:50-2:05**

**Henderson 304**

***Locomotor Mechanics of Varanid Lizards: An Aquatic Perspective***

**Ashley Renee Lawrence**

Mentor: Bruce A. Young, Biology

Terrestrial locomotion in varanid (monitor) lizards, and indeed all lizards, is characterized by a sinusoidal lateral displacement of the body. Experimental work has shown that the lateral displacements of the body are not produced by the axial muscles (those muscles running along the lateral and dorsal surface of the vertebral column) but rather by the hypaxial muscles in the abdominal region. Though the axial muscles do not function to bend the body laterally, they contract during locomotion in a temporal pattern coincident with the footfall pattern. Several hypotheses for the role of these axial muscles during locomotion have been advanced, most dealing with general gravitational support of the body. We explored the contractile pattern of the axial muscles of varanids during swimming, a form of locomotion in which the vertebral column no longer functions in gravitational support.

2:10-2:25

Henderson 304

*The Diversity of Aquatic Locomotor Mechanics in Snakes and Monitor Lizards.***Anna L. Fahey**

Mentor: Bruce Young, Biology

There is a general consensus that monitor lizards (*Varanus*) are the phylogenetic sister-group to snakes and that the large marine lizards, the Mosasaurs, are closely related to the monitor lizards. There is little known about the transitions between these major groups. This study was intended to explore one aspect of these transitions, that being the change in aquatic locomotor mechanics. Using standard and high-speed digital video, as well as electromyography, we document the mode of aquatic locomotion in a “primitive” snake (the yellow anaconda, *Eunectes notaeus*). We also describe two different modes of aquatic locomotion in monitor lizards, one from largely aquatic taxa (water monitors and Nile monitors) and the other from a terrestrial taxon (savannah monitor). Comparing these three modes offers insight into the potential role of limbs in the early evolution of Mosasaurs, and the likely mechanical transition from a lizard-like to a serpentine form of locomotion.

2:30-2:45

Henderson 304

*Sensory-Motor Integration during Venom “Spitting” in Cobras***Melissa A Boetig**

Mentor: Dr. Bruce Young, Biology

To examine how a cobra is able to “spit” at a moving target, we used an integrated array of multi-plane accelerometers, high-speed digital videography, and electromyography. Our analyses suggest that the spitting behavior consists of three key sequential components: 1) the cobra makes slight head movements that allow it to track the movements of the target; 2) an abrupt “head jerk” on the part of the target provokes the onset of venom expulsion, or “spitting;” and 3) the cobra makes rapid cephalic movements that allow the cobra to disperse its venom in anticipation of the target’s movements.

## Performances

### Mulvane Art Gallery

3:30-3:45

*Sacrament: A Monologue*

**Sabrina M. Goss**

Mentor: Penny Weiner, Theatre

An unnamed man is haunted by indecision as he attempts to confess his sins to a priest he cannot see or hear. The man never was Catholic, though he might have gone to Sunday school. He can't really remember now. Small details often escape him, like precisely why he brought his girlfriend's young daughter with him when he left and where he plans to go. He is trying to remember the difference between good and evil and seeking assurance that not all of his decisions have been wrong.

3:50-4:15

*Lies, Damn Lies and Statistics*

**David Bury**

Mentor: Penny Weiner, Theatre

*Lies, Damn Lies and Statistics* is a new play that I'm working on. I feel as though the playwriting process is a (neverending?) ongoing process, so I'm using Apeiron as an opportunity to improve upon my work with this play. Hearing the work through the mouths of readers is something that emerging playwrights don't often have the luxury of and can be immensely helpful in refining the play.

4:20-5:00

*wTe The "4'N Harmony" Become Five*

**Carlos Cabezas, Samuel Cho, Nathan D. Mark, Amanda Joy Mayo, Lindsay Paul,**

**Zac Snyder**

Mentor: Steven Elisha, Music

The presentation of the quintets will have duality in performance and oral. Brahms, and Dvorak quintets will be featured. Orally, information on the structure of the pieces as well as the ensembles' organization is influenced by a fifth member. Aspects of music will be woven into the structure of the piece and quintet, including on how the sound is affected.

***Quick Reference, Oral Presentations, Henderson Learning Resources Center***

Room 103	1:30	1:50	2:10	2:30	2:50	3:10
	R. Utemark	J. DeLong	M. Ericsson	B. Davis		J. Bond
Room 104	1:30	1:50	2:10	2:30	2:50	3:10
	L.R. Potter	D. Barker K. Rhea C. Wulfkuhle		T. Leffert	S. Young	O. William
Room 118	1:30	1:50	2:10	2:30	2:50	3:10
	L. Parker	L. Higbee	J. Heschemeyer	D. Van Laeys	J. Rezac	A. Billinger
Room 203	1:30	1:50	2:10	2:30	2:50	3:10
	K. Cook	V. Adame K. Boye-Doe J. Green J. Schalansky C. Urban	S. Cooper	J. Mills	C. Keary	H. Pollock
Room 204	1:30	1:50	2:10	2:30	2:50	3:10
	T. Gassie	K. Mullinix	S. Mages	C. Chaney	A. Hughes	E. Stone
Room 207	1:30	1:50	2:10	2:30	2:50	3:10
	H. Smith	A. Tallerico	S. Cedelind	R. Carrigan	L. Babb	B. Mowry
Room 217	1:30	1:50	2:10	2:30	2:50	3:10
	R. Delacruz E. Fincham M. Holman J. Knox D. Stelting	C. Butler	M. Farid J. King T. O'Neil J. Prewett	K. Appleton	L. Keller	P. Pfannenstiel
Room 304	1:30	1:50	2:10	2:30	2:50	3:10
	J. Peterson	A. Lawrence	A. Fahey	M. Boetig		

**Washburn Juried Art Student Exhibition**  
**Mulvane Art Museum**  
**4:00 p.m.-7:00 p.m.**

Reception at 4:30 p.m. Opening remarks and awards presented at 5:30 p.m. The exhibitions are on display in the Mulvane Art Museum from April 20 through June 24.

**Reception honoring Apeiron Participants**  
**Washburn Room, Memorial Union**  
**5:00-6:00 p.m.**

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The Apeiron is an ancient term offered by Anaximander of Miletus in the 6th century B.C. that embraces the spirit of this forum. As with the Apeiron, which is infinite and boundless, all inclusive, eternal, and unaging, this forum is designed to be inclusive with respect to student research, scholarship, and creativity. It is dedicated to the proposition that students are capable of work that knows no limits and transcends all boundaries.

Each student participant in the Washburn University Apeiron has worked on his or her project under the supervision of a faculty mentor. The projects, which have been reviewed by the faculty, demonstrate creativity, originality, and a level of work superior to that normally expected of students. Today's presenters exemplify the spirit of the Apeiron.