The Washburn University

April 17, 2009

2009 Schedule of Events

11:00 a.m.-11:30 a.m.	Registration, Mabee Library
11:30 a.m.-1:00 p.m.	Visual and Performing Arts Mulvane Art Gallery
1:30 p.m.-3:00 p.m.	Oral Presentation Session Henderson Learning Resources Center
3:30 p.m.-4:00 p.m.	Last Lecture — “Lessons from Darwin” Dr. Ron Ash, Professor Emeritus of Biology Mabee Library
4:00 p.m.-5:45 p.m.	Poster Session and Reception Mabee Library

WTE Denotes Washburn Transformational Experience

Visual and Performing Arts
11:30 a.m. — 12:20 p.m.

11:30 p.m. **Mulvane Art Museum**

Dmitri Shostakovich, 8th String Quartet: Images of War and Oppression
Manuel E. Tabora
Carlos E. Cabezas
Samuel Cho
William Oh Darst
Mentor: Larisa Elisha, Music

World War II was an event that forever transformed humanity. It left deep scars in the form of millions upon millions of lost lives. Unspeakable tragedies occurred during these tumultuous years, and yet not all of the problems were solved when the war was over. The totalitarian regime of Stalin in Russia continued to oppress people of all walks of life, but especially oppressed were the free thinkers, the artists. Dmitri Shostakovich suffered much psychological oppression during this period. The Quartet in C minor is a product of this oppression. In this study we analyze the social and psychological motivations behind the composition of this historically significant piece. We also hope to convey those motivations through a complete performance of the piece.

12:20 p.m. **Mulvane Art Museum**

Port
Maxwell A. Frederickson
Mentor: Penelope Weiner, Theatre

Have you ever wondered what it was like to live in a world comprised entirely of electrons owned by a large entertainment corporation?

Oral Presentations
1:30 p.m. — 2:30 p.m.
Henderson Learning Resources Center

Henderson, Room 103

1:30 p.m. **Henderson, Room 103**

Einstein's Pursuit of a Rational Faith: The Twentieth Century Revival of the Study of Science and Religion
Amy D. Billinger
Mentor: Alan Bearman, History

The religious ideas of twentieth century physicist Albert Einstein (1879-1955) fostered one of the most explosive debates in the history of science and religion. Religious thinkers interpreted Einstein's religious remarks as a claim to atheism and chastised him for what they considered anti-American ideals. As a result, a historical debate erupted over the roles science and religion played in the other's domain. Thus, the discourse over Einstein's ideas instigated in the twentieth century shaped the modern understanding of science and religion.

1:50 p.m. **Henderson, Room 103**

Bringing Heaven and Earth Together: The Methodist Contribution to American Civil Religion and its Evidence in the Anti-Slavery Crusade

Jennifer L. Mills

Mentor: Alan Bearman, History

While complex and often provocative, American civil religion is one key to understanding the easily misunderstood relationship between religion and politics in America. My research focuses on American civil religion in the early republic, specifically the contributions of Methodist theology, which added popular and evangelically prophetic elements to American civil religion. Further, I argue that the implications of Methodist ideology in the 1830s helped produce the distinct aspect of American political thought that unites Christianity and democracy.

2:10 p.m. **Henderson, Room 103**

Madison, the Minister and the First Amendment: The Influence of John Witherspoon on James Madison in the Construction of the First Amendment

ReAnne R. Utemark

Mentor: Alan Bearman, History

James Madison is hailed as a vehement defender of the Constitution and the architect of the Bill of Rights. Madison initially opposed to such amendments not because he opposed the freedoms guaranteed therein, but because he feared that those in power would break through the "parchment barriers" and violate the freedoms a bill of rights attempted to protect. Madison's list contained a specific amendment that enumerated five freedoms that continue to spark debate among historians and Constitutional scholars. However, the question of what influenced Madison to construct the First Amendment in its present form remains to be answered. As historians study Madison, they cannot disregard the influence of Madison's years at Princeton University under the tutelage of Presbyterian minister and Princeton president, John Witherspoon.

2:30 p.m. **Henderson, Room 103**

An Antebellum Theologian Goes Missing: The Absence of James Henley Thornwell from the Historiography of Secession

Brandon K. Wentz

Mentor: Alan Bearman, History

The story of the Southern Presbyterian James Henley Thornwell (1812-1862) is seldom examined in modern history because of his spirited defense of race-based slavery. Discussion of Thornwell, who was a known racist and strong supporter of slavery, is difficult for scholars to undertake. In particular, modern historians do not want to appear as defenders of racists and, by extension, the institution of slavery. This often, means that important discussions are absent from historiography. Thornwell was a superb American theologian. Ignoring Thornwell, despite his racism, means that the list of recognizable American theologians only gets smaller. Understanding Thornwell is critical to fully understanding the religious factors of the Civil War.

2:50 p.m. **Henderson, Room 103**

Simón Bolívar and Pragmatic Liberty

David B. Stone

Mentor: Kim Morse, History

Bolívar was an important individual who helped end the colonial rule of Spain in the Americas and then significantly shaped the future of South America with unique political ideas. During this seminal time of former colonial states, Bolívar realized the former Spanish possessions could not simply adopt a constitution or ideology from another country because colonial Latin America was radically diverse in geography, ethnicity, and culture from other governments and nations. Bolívar advocated a republican confederacy shaped specifically to and for Latin America. Bolívar did not, however, pull his ideas out of his hat; he examined and evaluated the philosophies and governments of his day and those of the past. Because of these factors, unique history, and political and social

environment of Spanish Latin America, Simón Bolívar tailored a system of government suited to the former colonies of Latin America; he homogenized philosophical and political ideals, and government models—North American, English, and French—for Latin America liberty. Bolívar was a realist and said, "Do not adopt the best system of government, but the one that is most likely to succeed."

Henderson, Room 107

1:30 p.m. **Henderson, Room 107**

Fueling the Fire in Chile: United States Intervention

Heather Jeann Stone

Mentor: Kim Morse, History

The violation of human rights is a problem on the forefront in our global community. Unfortunately, even though the United States is a key leader in the global community, it has also aided and abetted human right violations. The United States was a catalyst in the violation of human rights during the Pinochet regime in Chile between 1973-1990. The U.S.'s previous involvement throughout Latin America is well known; however, evidence continues to be released allowing historians to uncover the full picture of U.S. activities in Chile before and after 1973. The U.S. concealed their involvement and any evidence confirming participation in war crimes. Although the U.S. and Pinochet did not personally commit these atrocities, each should be held accountable for their actions.

1:50 p.m. **Henderson, Room 107**

The Oscillation of Power: The Power Exchange Between the State, Labor, Unions, and Mexicans, 1917-1922

Whitney L. Philippi

Mentor: Kim Morse, History

An influx of immigrants into the American work force perpetuated the struggle between labor and capital during the final years of the nineteenth century and the beginning of the twentieth. Even when the United States government passed limitations on immigration, employers sought migrants from within the country and also recruited labor from Japan, China, and Mexico. At the same time, unions fought for the rights of their members, usually white skilled laborers. The power of these unions depended on the actions of the state. The lives of Mexican immigrants were inextricably linked to the fluctuation of state priorities and the fate of the railroad and its workers. Mexican laborers' jobs were at the mercy of the state, unions, and employers, who engaged in a cyclical exchange of power from the end of World War I to 1922.

2:10 p.m. **Henderson, Room 107**

William Barret Travis: Putting His Name in Westward Expansion

Tanner L. Carlson

Mentor: Kim Morse, History

Conventional wisdom accepts that William Barret Travis left Alabama to make his mark in Texas only to die as a martyr a short five years later. Travis' story is not quite as glorious or as simple as that. Travis' movement west is better understood within the context of family migration patterns, successes and failures that began more than a decade before 1831. Understanding that context, William Barret Travis left Alabama driven by ambition and an understanding that if he stayed he would always live in the shadow of others. As others moved before him in search of successes, so did he.

2:30 p.m. **Henderson, Room 107**

A Blood Diamond is Forever

Derek P. Fleming

Mentor: Thomas Prasch, History

"A Blood Diamond is Forever" explores the role of conflict diamonds with both secondary and primary sources. The paper focuses on the culpability of rebels who engage in arms for diamonds deals as well as De Beers, whom has profiteered from illicit diamond buying. In addition, "A Blood Diamond is Forever" examines the impact of legislation aimed to combat the flow of conflict diamonds. Furthermore, with the support of oral histories, the voices of former child combatants and civilians victimized by blood diamond conflicts is examined.

2:50 p.m. **Henderson, Room 107**

Dissolving Hatred Under the Sheets
Alicia M. Billinger
Mentor: Kerry Wynn, History

The Ku Klux Klan rose to national prominence in the early 1920s adding millions of members to its rosters. In Kansas civic leaders used civic means to effectively extirpate the Klan from the state. This paper examines the demise of the Ku Klux Klan in Kansas during the 1920's. Kansans, William Allen White and Henry J. Allen in particular, played a significant role in ridding Kansas of the infamous organization that terrorized Kansas citizens throughout the 1920's. Henry J. Allen proposed an ouster petition that set the tone for the Klan's decline. The ouster petition became the first effort using a court system to rid the state of an organization. William Allen White used editorials and speeches to make Kansans aware of the Klan. Together the two men succeeded in ridding Kansas of the Klan. This paper will examine why and how William Allen White and Henry J. Allen ousted the Klan from Kansas.

Henderson, Room 118

1:30 p.m. **Henderson, Room 118**

Learning through Interactive quizzes Digital games versus Text Material: An empirical Study
WE **Kristine Faith Appleton**
Mentor: Michael McGuire, Psychology

Digital games, for the purpose of this empirical study, can be defined as computer games, video games, and online games. Given the prevalence and potential uses of gaming, this study examined whether students comprehend and retain syllabus information more effectively when studying the material in the form of a game versus text-only. College students were randomly assigned to one of three groups. Two groups played variations of a video game based off an entry-level psychology course syllabus, and one group used only the syllabus for study. All groups were tested immediately and a week later to determine and assess immediate and delayed retention of studied material. Results and implications of the findings will be discussed at the presentation.

1:50 p.m. **Henderson, Room 118**

The Effect of Clay or a Rubik's Cube on Anxiety
WE **Melissa Linquist**
Mentor: Cynthia Turk, Psychology

This research focuses on the effect of whether or not clay or a Rubik's cube reduces anxiety. Forty-eight college student participants from an introductory psychology class underwent a brief anxiety induction in small groups and were put into either a Rubik's cube or Clay condition for fifteen minutes. Three short- form MASQ anxiety questionnaires (Watson & Clark, 1991) were given at regular time intervals throughout the experiment to assess baseline anxiety, induced anxiety and the aftereffects of the condition. The study found that the clay and the Rubik's cube puzzle both decreased anxiety, but the clay condition reduced anxiety more. Possible explanations and suggestions for future research are discussed.

2:10 p.m. **Henderson, Room 118**

Autism Spectrum Disorder and the use of Behavioral Therapies

Arianna Marie Christian

Mentor: Meredith Mckee, Psychology

Examination of the research literature revealed the use of various behavioral therapies for treating children with Autism Spectrum Disorder (ASD) is on the rise. Implementing well-established principles of Applied Behavior Analysis (ABA) (e.g., positive reinforcement and shaping techniques), numerous studies have demonstrated significant and long-lasting gains in a variety of domains including receptive and expressive language, and social and self-help skills. Other behavioral therapy studies involving the imitation of role models (e.g., a peer, parent, or sibling) were also effective at increasing social and self-help skills. This presentation will provide an overview of the research findings, and will share personal experiences of using behavioral therapy techniques with a child with ASD.

2:30 p.m. **Henderson, Room 118**

The Use of a Block Imitation Technique with Children with Autism

Brooke Nichole Ediger

Mentor: Meredith Mckee, Psychology

Primary characteristics of children diagnosed with Autism Spectrum Disorder (ASD) include impairments in social interaction and communication. A review of the behavioral literature supporting the use of a relatively new block imitation technique designed for children with ASD was examined. The implementation of block imitation has been associated with increases in various play behaviors involving motor movements, expressive language skills, and activity completion, respectively. This presentation will provide an overview of the research findings, and will share personal experiences of using block imitation with a child with ASD.

2:50 p.m. **Henderson, Room 118**

Factors Influencing Decision Making of Battered Women's Choices for Staying in or Leaving Violent Relationships

WE **Christina Lynn Lueth**

Mentor: Michael McGuire, Psychology

The topic of this literature review concerns the difficulties that must be overcome by women who are involved in violent relationships in order to feel secure in leaving that relationship. The purpose of this literature review is to discover the nature of the difficulties (i.e., physical, mental, societal, economic) as put forward in the reviewed literature. The conclusions of this review are that the decision making process is highly individualized and requires specific sets of knowledge for each given individual. Further, to facilitate that knowledge, a liaison must be made available to the battered woman no matter what agency she presents herself to for help.

Henderson, Room 203

1:30 p.m. **Henderson, Room 203**

The Scribbler's Wake: John Maynard Keynes and His Impact on Public Policy

Lance M. Cahill

Mentor: Jennifer Ball, School of Business

John Maynard Keynes's critique of the classical theory's view that an economy will naturally adjust to full employment without outside interference will have profound implications for economic policy for the next 70 years. More specifically, Keynes advanced the views that the market economy is not self-stabilizing. Prosperity depended upon unstable investment driven by "animal spirits," unlimited investment opportunities do not exist thereby not allowing equality between savings and investment. Close attention is paid to the administrations of Franklin Roosevelt, John F. Kennedy, and Lyndon Johnson and their adaptation of Keynes's theory.

1:50 p.m. **Henderson, Room 203**

Growth Opportunities for Senior Service Businesses in Topeka: A Case Study

Sum Tsz Wong

Mentor: Michael Stoica, School of Business

As people are aging and their kids are growing up, getting married and move away to have their own family life. For those who are grandparent level elder, or elder with no child, their need for space is decreasing but their need for some other special help is increasing. A small business (Beautiful Spaces: Senior Move Management & Home Staging) realized this opportunity and has started its business in 2007. In this study, it will be used as an example of senior service businesses, and growth opportunities will be indicated.

2:10 p.m. **Henderson, Room 203**

Marian Clinic Economic Impact Study

Sandy L. Adams
Judith Bunting
Tiffany Lyn McManis

Mentor: Cynthia Hornberger, School of Nursing

In 2008, 47 million persons in the United States were estimated to lack health insurance (Smith, 2008). Primary care safety net clinics are one of the main safety nets for the uninsured (Primary Care Safety Net Clinics, 2006). The purpose of this study is to describe the patterns of care and economic value of care provided by the Marian Clinic in conjunction with the community partners of St. Francis Health Center, Stormont-Vail Health Care, and select health providers within the Topeka community.

2:30 p.m. **Henderson, Room 203**

Personal Inflation Rates: A Look at Life Cycle Expenditures and the Impact of Inflation

Randy Helphrey

Mentor: Gary Baker, School of Business

Consumer expenditures shift throughout the life cycle according to Consumer Expenditure Reports published by the Bureau of Labor Statistics. Current retirement planning methods do not take these expenditure shifts into account. With the introduction of a consumer expenditure component into an inflationary model, the impact of inflation changes throughout the life cycle. This presentation proposes a new method of calculation for an expenditure-based inflationary model. The consumer expenditure component is disaggregated into eight major groupings. These disaggregated expenditures are then used as weights with their respective inflation rates. This model moves away from the conventional methods of retirement planning that uses a compounding inflation rate and exposes a rate of inflation with a positive linear relationship that is influenced by changes in consumption patterns over the life cycle.

2:50 p.m. **Henderson, Room 203**

Risks of Sexual Behavior

Jennifer M. Oakley

Mentor: John Paul, Sociology - Anthropology

The results compiled is of a literature review that looked at various universities in the United States within about the last 10-15 years. We gathered data from previous studies and their articles published in the hope to increase knowledge of risky sexual behavior to prevent students from making unhealthy choices.

1:30 p.m. **Henderson, Room 207**

Lawrence, Kansas: The Oregan Trail for Hippies

Rene M. Scott

Mentor: Rachel Goossen, History

The Sixties were an extremely tumultuous period in American history. In the 1960's a counterculture movement spread rapidly to cities throughout America. The movement represented an open rejection of traditional values, authority, and ways of living by a large number of discontented youth. With its mind-enhancing drugs, psychedelic music, and new lifestyles, the movement emerged most prominently in the Haight-Ashbury district of San Francisco. The counterculture; however, was not restricted to the Coast. The counterculture reached the streets of Lawrence and made the city a central place for radical culture activity in the state. Through the drug traffic, the underground media, and the large number of travelers moving to or from the coasts, Lawrence became a major link in the network of counterculture activity that connected the movement to America's heartland.

1:50 p.m. **Henderson, Room 207**

Male Stereotypes in Print Advertising

Michael J. Miller

Mentor: Cheryl Childers, Sociology - Anthropology

This is a research project looking into gender stereotypes found in advertisements presented by some of the highest circulating magazines in the country. Though there have been many studies looking into female stereotypes and their effects on individual consumers, there are practically none for men. This project seeks to provide a coding scheme for male stereotypes found in the highest circulating magazines of general interest. Hopefully this coding scheme can then be edited and applied to magazines directed at particular groups for future research.

2:10 p.m. **Henderson, Room 207**

Quindaro: Spatial Analysis of Midden

Jared Doke

Mentor: Margaret Wood, Sociology - Anthropology

The spatial analysis of artifacts from historic archaeological sites can provide valuable information to historians and researchers. The purpose of this study was to map and analyze the composition and distribution of previously cataloged artifacts, including historic ceramics and bottle glass, from a midden associated with the Quindaro Hotel at the Mid-Nineteenth Century Free-State port of Quindaro, Kansas. This analysis will assist in providing information on the abandonment of the site, ultimately adding vital information to our overall understanding of Quindaro as well as the historical period in general.

2:30 p.m. **Henderson, Room 207**

Conquest Lost: The Spanish Economic and Religious Conditions that Resulted in the Pueblo Revolt of 1680

John Barry

Mentor: Kim Morse, History

The Pueblo Revolt was the only successful American Indian revolt to take place in North America. The Spaniard's tribute system forced the Pueblo to give food and supplies to missionaries and conquistadors, forcing the Pueblo people to survive on a thin resources. Tribute systems coupled with the destruction of the Pueblo's indigenous religion was more than the tribe could bear. In 1680 the Pueblo staged a bloody revolt that removed Spanish inhabitants from the Pueblo area of Southern New Mexico, allowing them to live free of cultural constraints and the tribute system for years following the Revolt.

2:50 p.m. **Henderson, Room 207**

Nazi Plan for the Destruction of the Jews

Daniel C. Minde

Mentor: Kerry Wynn, History

The Holocaust has been widely researched and analyzed by historians. My research analyzes historians' perspectives on the development of the Holocaust. A persistent question in literature on Nazi Germany is the timing of Hitler's decision to remove millions of Jewish men and women from Europe. Some historians have written there was no clear plan to murder Jewish individuals until the Final Solution materialized in 1942. Others have argued Hitler indeed had such a plan when he came to power in 1933. I argue that the roots of the Holocaust go back even before the Nazi seizure of power, to Hitler's expressed hatred for Jews as the Nazi party took shape in the early 1920s.

Henderson, Room 208

1:30 p.m. **Henderson, Room 208**

Ties Between Robert Schumann and E. T. A. Hoffman

Sarah E. Burns

Mentor: Jessie Fillerup, Music

The nineteenth-century composer Robert Schumann was highly influenced by the German literary figures of his day, as many of his character pieces for piano were inspired by their works. One such work was Schumann's "Kreisleriana," a cycle for solo piano inspired by Hoffmann's epistolary novel about the fictional musician Johannes Kreisler. In my research I have explored the ties between the two figures and produced my own writings in the form of "discovered" documents, written in the style of Hoffmann on Schumann's piano music. In my presentation I will continue this deception, acting the role of the scholar who has uncovered the documents, and talking about the ties between the writer E. T. A. Hoffmann and the composer Robert Schumann.

1:50 p.m. **Henderson, Room 208**

Executive Power in the Face of Medellin v. Texas: an Examination of the Domestic Powers of the President in Foreign Affairs

Andrew R. Roland

Mentor: Steven Cann, Political Science - Geography

In the spring of 2008, the Supreme Court released a solid repudiation of the power of the President to compel state adherence to international treaties. In doing so, the Supreme Court brought into question the powers of the president as the sole organ of American foreign policy. The events leading up to this decision reveal a twisting controversy involving international law and the powers of the president to enforce treaty obligations. The president's actions and the Medellin v. Texas ruling will be discussed in light of cases of precedent.

2:10 p.m. **Henderson, Room 208**

Marriage in Decline? - The Impact of Civil Unions/Domestic Partnerships on the National Marriage Rate

Jordan Huzarevich

Mentor: Steven Cann, Political Science - Geography

The increasing societal acceptance of marriage alternatives - primarily civil unions and domestic partnerships - has compelled many social commentators to predict substantial, if not fatal, harm to the "institution of marriage." The focus of this study is on whether the growing legal recognition of civil unions and domestic partnerships in the United States has a statistically significant, inverse relationship with the national marriage rate.

2:30 p.m. **Henderson, Room 208**

The Contemporary Prince: An Examination of Niccolo Machiavelli's The Prince in current American Politics

Patrick S. Muenks

Mentor: David Freeman, Political Science - Geography

Machiavelli's *The Prince* has long been hailed as a critical work in political theory. However, over the past several decades, critics have contended that with the rise of democratic forms of government, Machiavelli's work no longer holds the contextual sway that it once did. This paper will challenge those assumptions by examining the current political landscape through a Machiavellian lens proving that *The Prince* is still very relevant in contemporary politics.

2:50 p.m. **Henderson, Room 208**

The Search for Justice In Mississippi: How the murders of Three Civil Rights workers brought the attention of the Federal Government to Mississippi

Danielle JoAnne Van Laeys

Mentor: Rachel Goossen, History

On June 21st, 1964, white supremacists murdered three civil rights workers near Philadelphia, Mississippi, causing a student and federal outcry. The murders of two white civil rights workers--Michael Schwerner, 24 , and Andrew Goodman, 20-- and of African American worker James Chaney, 21, created a turning point in the modern Civil Rights movement because their deaths motivated civil rights workers and brought the attention of the federal government to Mississippi. The reactions to their deaths from the media, family, Mississippi officials, and American citizens influenced both the student workers and the federal government, and created an atmosphere that demanded protection from the government and instilled hope for progress within the movement. Student workers and, increasingly, concerned American citizens, held the government accountable and demanded that the federal government play an active role in finding and convicting the killers as a response to the activists' deaths.

Henderson, Room 217

1:30 p.m. **Henderson, Room 217**

Application of Computational Results for the Borane Reduction of Nitriles to Primary Amines

Sean G. Armstrong

Mentor: Shaun Schmidt, Chemistry

A tetrahydrofuran (THF) catalyzed borane adduct reduction methodology has been developed for the reduction of nitriles to primary amines. The goal of this project was to determine if there are other Lewis base catalysts that are better suited for the conversion of nitrile to primary amine using in situ generated borane. The reductive borane is generated in situ using LiBH4 and CH3I, and is facilitated by less than stoiciometric amounts of a Lewis base catalyst in a non-polar solvent. The reaction is conducted under an inert atmosphere at 65°C and is followed by a standard acid/base workup. Primary amine products are pure as exhibited by 1H NMR. Various Lewis bases were tested including: 1,4-dioxane, 1,2-dimethoxyethane, ethyl ether, triphenylphosphine, pyridine, dimethyl sulfide, and tetrahydrothiophene. Currently, none of the Lewis bases tested have performed as a catalyst as well as THF.

1:50 p.m. **Henderson, Room 217**

Determination of Unique Protein Densities in Giant Ragweed Pollen by Molecular Weight and Isoelectric Point

Scott N. Ashley

Mentor: Janice Barton, Chemistry

We are continuing research from the summer of 2007 on investigating the differences in ragweed pollen protein from the protein found in the plant leaves. Ragweed leaf and pollen samples were collected and processed during September of 2008. Isoelectric focusing was done in a ph gradient of 3-10 using NuPage IPG strips to separate the protein on the basis of their isoelectric point. The second dimension used NuPage LDS (lithium dodecylsulfate) to separate the molecules on the basis of their weight.Each of the gels generated contained molecular weight and isoelectric point standards. Using ImageMaster software we were able to determine the molecular mass and isoelectric point of the protein densities from these standards. Unique software techniques allowed us to overlay the profiles and observe the unique protein densities in ragweed pollen and leaf extract.

2:10 p.m. **Henderson, Room 217**

Airfoil Design For Electricity Generating Turbines

Kyle Volle

Mentor: Gaspar Porta, Mathematics & Statistics

Mathematically designed airfoils can be modeled in the SolidWorks CAD package in such away that will facilitate production.

2:30 p.m. **Henderson, Room 217**

Exxon Mobil-Stock Analysis

Brandy M. Mann
Thaddeus R. Taylor
Jackson C. Waechter

Mentor: Gary Baker, School of Business

A presentation over the coporation's history and analysis over the stock in the current market. Along with a forecast over the next three years based on financial and statistical data.

3:30 - 4:00 p.m.
Last Lecture — "Lessons from Darwin"
Dr. Ron Ash, Professor Emeritus, Biology
Mabee Library

Poster Session, Mabee Library
4:00 p.m. — 5:45 p.m.

1 **Breast Health Awareness Education at the Topeka Correctional Facility in the Therapeutic Community**

WTE **Natalie B. Nixon**
Mentor: Laura Sidlinger, School of Nursing

The purpose of this project is to educate the women of the Therapeutic Community at the Topeka Correctional Facility about breast cancer, specifically risk factors for the disease, the importance of self breast exams, and the importance of early detection of this disease. Breast cancer is one of the most treatable forms of female cancer, and when detected early, has high survival rates. It is important that these women have this critical information to be advocates for their own health. An educational opportunity will be offered to the women of the Therapeutic Community at TCF regarding breast health. The primary investigator will determine the effectiveness of the presentation by administering a pre and post-test. The education will be provided using a PowerPoint presentation and models for the women to practice self-breast exam techniques.

2 **A Methodological Comparison of the Effect of the Washburn Transformation Experience on Self-Actualization**

WTE **Tiffany D. Strohmeyer**
Mentor: Joanne Altman, Psychology

Previous research using a between-group study design demonstrated students who completed a Washburn Transformation Experience (WTE) had higher levels of self-actualization than students who had not completed a WTE. To determine that the observed differences in self-actualization levels were not a result of inherent differences between the two original groups studied, a within-group study was conducted. In this study participants were evaluated both before and after completing a WTE. The data showed similar increases in self-actualization levels suggesting a robust effect and offering empirical evidence to support the value of the WTE graduation requirement

3 **Peyote Ceremonies Are Culturally Competent Components of Integrated Alcohol Abuse Treatment Plans for Native Americans**

WTE **Krystle Ann Cole**
Mentor: David Provorse, Psychology

Cultural competence is a central aspect of successful Native American alcohol abuse treatment. The use of peyote within the Native American Church can be beneficial for clients when integrated into an alcohol abuse treatment plan. It is a self-contained, time-limited experience that, if pursued properly, can be used to produce a reliably healing outcome.

4 Comparision of RPE to blood lactate levels in cyclists based on mileage per year
Ryan Michael Broxterman
Mentor: Patti Bender, Health, Physical Education, Exercise Science

Examine the effect of number of miles cycled per year on use of the BORG-RPE scale to predict blood lactate accumulation while cycling. Thirty male cyclists were grouped according to number of miles ridden per year. Subjects completed an incremental cycling protocol. RPE & HR were recorded every minute. Blood lactate was collected every three minute and an additional sample was taken when the subject reported an RPE=13. LT1 was defined as an RPE=13 and by a one millimole (mmol) increase in blood lactate. LT2 was defined as blood lactate=4.0 mmol. There was a significant difference in the RPE reported at LT1. Groups 1 & 2 reported an RPE=13 & group 3 reported a RPE=16. However, there was no significant difference between the RPE reported at LT2 between the three groups. Conclusion: Training higher than 5000 miles per year is associated with an over estimation of LT1 using RPE. Lactate level coincides with RPE at LT1 & LT2, but in may not bet the feedback signal which determines RPE.

5 Alchemy and Theology in Hieronymus Bosch's *Garden of Earthly Delights*
Elena R. Wenger
Mentor: Reinhild Janzen, Art

My research focuses on the link between alchemy and theology in Hieronymus Bosch's triptych, *Garden of Earthly Delights* (c. 1505). This work features humankind's self-indulgent pursuits and its resultant self-destruction, within the theological framework of Genesis, and within the format of a triptych, a format which carries theological implications. Throughout the painting Bosch features motifs which reference alchemy, a science still practiced during Bosch's time. I explore the question of how and why Bosch pictures alchemical tools and symbols which alchemists used in order to achieve the transmutation of metals into gold in the context of the Creation story which Bosch ends with the New Testament's vision of an Apocalypse. In which way do Bosch's references to alchemy illuminate the meaning of his work? Why does Bosch's *Garden of Earthly Delights* continue to engage its viewer even when today's audience does not necessarily see or understand Bosch's references to alchemy?

6 The Role of Pet Ownership as a Child on Empathy and Attitudes
WE **Kimberly Anne Goodman**
Mentor: Joanne Altman, Psychology

Many people are able to remember the pets that their family owned as children and the companionship and support of those relationships. Research shows having pets as a child increases empathy and autonomy in children. In adults, pet ownership enhances attitudes towards animals. However, it has also been found that many pet owners will give their animals only basic care, which demonstrates that just because a person owns a pet does not mean he or she is necessarily empathetic. The question arises whether the childhood experience amplifies adult experiences. This study investigated the long-term effects of being raised with pets, independent of adult ownership.

7 Ethics and Fraud
WE **Brenda K. Kindle**
Mentor: Thomas Clevenger, School of Business

I will give a poster presentation about the meaning of ethics and present a business analysis of a company committing fraud.

8 Further Studies on the Benzylic Oxidation of Pyrroles by Oxone
WE **Andrea Lynn Walters**
Mentor: Sam Leung, Chemistry

Alpha-Alkoxymethyl pyrroles are intermediates in the synthesis of porphyrins and related compounds. Previous

research showed that alpha-alkoxymethyl pyrroles can be produced from alpha-methyl pyrroles by using the "green" oxidizing agent Oxone. Product yields were not satisfactory due to the formation of unwanted side products. The current project focused on improving this oxidation reaction by investigating different reaction parameters. Sequential dosing of Oxone was tested first. In preliminary trials, this method seemed to reduce the amount of side products formed, but further experimentation demonstrated that there was no advantage of sequential dosing over a one-time addition. Hydroquinone was tested as a reaction parameter and gave an unexpected result. It was concluded that a cooperative relationship exists between Oxone and hydroquinone in the reaction to cause a catalytic effect.

9 A Mechanistic Study of the Borane Reduction of a Monnitrile to a Primary Amine
Joshua Lee Freeby
Mentor: Shaun Schmidt, Chemistry

The mechanism of the reduction of a mononitrile to a primary amine is being investigated with electrospray ionization mass spectrometry. This reduction is an integral step in the synthesis of aza macrocycles, which find use as starting materials for imaging agents. By describing the structure of the intermediate of this reduction reaction, a set of reaction and isolation conditions may be predicted which allow this reduction to occur with greater efficiency. Initial results may indicate the presence of an intermediate with a borazine structure. No conclusive data has yet been obtained due to noisy signal and pressure fluctuations in the ion chamber. These pressure fluctuations are caused by clotting of the capillary due to this highly viscous intermediate, a characteristic property which has also been noted in the reaction vessel.

10 The Effects of Physical Exercise on Test Anxiety
WE **Megan L. Wells**
Mentor: Joanne Altman, Psychology

Research shows that exercise can decrease stress. However, most of the studies only tested the immediate impact of exercise. This study investigated whether exercise would specifically mediate test anxiety and added a delayed testing condition that better reflects normal schedules of exercise among college students. Participants completed a demographic questionnaire, the Test Anxiety Inventory, and followed along with a 20-minute exercise video. They then took a class exam either immediately or 24 hours after exercise. They retested on the anxiety test before taking their exams. The findings show that exercising 24 hours before an exam decreased test anxiety. The findings were congruent with the literature, which shows that physical exercise decreases stress.

11 The Social Influences on Voting Behavior of College Students
WE **Lydia C. Thompson**
Mentor: Joanne Altman, Psychology

Social influence theory suggests that peers are an important influence on young adults. This study investigated the influence of peers versus family on voting behavior. Participants completed a survey that contained questions pertaining to who they voted for, who their parents and friends voted for, and what resources they looked at to make their voting decision. While students reported that they were most influenced by the media, they were most likely to vote like their parents. The results indicate that McCain voters voted exclusively like their parents and were more likely to vote against their friends. Obama voters voted like both family and friends.

12 Sexualization of Women: 'Sports Illustrated' Coverage of Women's and Men's College Basketball 1978-2008
Katelyn S. Lutgen
Mentor: Cheryl Childers, Sociology - Anthropology

It is the purpose of this study to examine select issues of the 'Sports Illustrated' College Basketball Preview from 1978-2008 for sexualization of women athletes.

13 Links Between Pain and Anger
Ana Cortes
Mentor: Michael Russell, Psychology

This project presents a theoretical review that attempts to reveal the links between pain and anger and what treatments work best to avoid anger management issues. Criticisms will be made of the research methods used in this area and the treatments for anger.

14 How Does the Color of a Room Affect Desirability?
Ashley M. Paulsen
Mentor: Michael Russell, Psychology

With the struggling market, real estate inventory is increasing as foreclosure rates rise. In addition, the number of potential buyers continues to fall as money tightens in the stressed economy. Sellers are being forced to drop prices and find creative ways for their house to stand out among the rest. The purpose of this experiment is to see if wall color makes a difference to the saleability of a house. I have chosen 25 rooms and digitally altered the wall colors to five different shades for each room. I put these 125 pictures in a survey and asked participants to rank which rooms they found the most desirable. Once the data are gathered, I will determine if room color influences a buyers opinion.

15 Development of a Western Blot Assay to Detect HSV-1 Proteins
Shannon Spangler
Mentor: Susan Bjerke, Biology

The goal of this project is to develop a Western Blot assay to detect the UL34 protein expressed by Herpes Simplex Virus 1 (HSV-1). HSV-1 causes cold sores in humans. The virus replicates inside the nucleus of host cells and the UL34 protein is required for the virus to be able to get out of the nucleus and exit the cell. We predict that UL34 interacts with proteins in the nuclear envelope, which allows HSV-1 to undergo primary envelopment and escape the cell. In order to study these interactions, we need a reliable system to track UL34 levels in cell lysates and monitor purified protein. A western blot allows us to separate UL34 from other proteins and identify how much of it is present in an experimental sample. The long term goal of this project is to study interactions between human cellular proteins and UL34.

16 Partial Sequence Analysis of the N. Fowleri Extrachromosomal Ribosomal DNA Element and Comparison with the N. Gruberi rDNA Element
Rahul Venkat
Mentor: John Mullican, Biology

Amoebae in the genus Naegleria house their ribosomal RNA genes exclusively on extrachromosomal ribosomal DNA (rDNA) elements. Each element each contains a single copy of the nucleolar rRNA genes comprising approximately 6 kbp. The remaining non-ribosomal sequence (NRS) contains little to no significant homology to other species. Unfortunately, we have not completed the sequencing of pFOWL, but partial sequence analyses were performed. When compared to the N. gruberi rDNA element, as expected, the ribosomal genes demonstrate significant homology, while the NRS sequences confirm the hybridization data that little significant homology exists between them. Initial comparative sequence analysis with the N. gruberi rDNA element has permitted the identification of interesting sequence elements that may be important for plasmid replication and maintenance functions. This information will permit designing experiments to determine in vivo functions of these putative regulatory sequences.

17 **Environmental Isolates of Naegleria fowleri from Freshwater Sources in Kansas**
David W. Duniven
Mentor: John 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. A survey of various water bodies in northeast Kansas was undertaken to determine the presence of N. fowleri. Samples were collected from five Kansas lakes using two different collection methods. Amoeba isolates were plated on a non-nutrient agar with a lawn of UV-killed bacteria, grown axenically in liquid media and assessed using temperature tolerance. In a prior study, a total of 46 water samples were collected yielding 152 separate amoeba isolates. A subset of the isolates found to be thermotolerant were then tested using a nested PCR assay. Five of the tested isolates, all obtained from a single lake in Lawrence, KS, tested positive for N. fowleri. This follow-up study sought the genetic confirmation of these results.

18 **Title: Molecular Cloning and Characterization of a Two-Pore Potassium Channel Gene From the Ameboflagellate, Naegleria gruberi, EG-B strain.**
Regan Harrington
Reed S. Howard
Mentor: John Mullican, Biology

The two-pore potassium channel (K2P) is a membrane protein that functions by sensing environmental changes. Studies in plants and animals have shown that K2P proteins are sensitive to environmental changes in pH, oxygen, and certain nutrients. The amoebae genus, Naegleria, respond to their environment by transforming into either flagellates or cysts during changes in pH, oxygen and certain nutrients. To determine whether or not K2P proteins in amoeba respond similarly to these signals, we developed a strategy to clone the complete K2P gene, the cDNA and internal portions of the gene using PCR primers that we designed. Using one primer set, PCR products generated a predicted fragment length of 414 bp, demonstrating that N. gruberi, EG-B strain contains the K2P gene. We are currently cloning the entire gene, which will then be sequenced and characterized. We are in the initial stages of analyzing Naegleria K2P gene expression levels in response to different pH levels.

19 **Cloning HSV-1 Genes into Bacterial Expression Vectors**
Kaitlin M. Cullan
Mentor: Susan Bjerke, Biology

Herpes simplex virus type 1 is a DNA virus that acquires an envelope by budding into the inner nuclear membrane of an infected cell, a process called primary envelopment. This must occur in order for viruses to exit the cell. Previous research shows HSV-1 virions lacking UL34 gene cannot exit the nucleus of infected cells, indicating a key role for UL34 protein in primary envelopment. We seek to discover the molecular interactions that occur between UL34 and other viral and cellular proteins and define which interactions are critical to primary envelopment. The UL34 protein will be cloned into a plasmid vector and expressed in bacteria. Both wild type UL34 sequence and multiple mutant versions of the gene will be cloned. This will allow us to compare the ability of these UL34 proteins to interact with other proteins. By comparing proteins that only interact with wild type UL34 protein and not with mutant proteins, we can determine protein interactions vital to primary envelopment.

20 **The Effects of Low vs. High Glycemic Index Breakfast Foods on Short-Term Memory, Mood, and Executive Functioning**
wTE **Mark J. Simonson**
Mentor: Joanne Altman, Psychology

Research shows that eating breakfast can improve memory. Although the literature investigated the type of breakfast, it did not investigate the effect on advanced cognitive functioning such as executive function (decision making). Therefore, this study investigated the effect of high vs low glycemic breakfasts on mood, short-term memory, and executive functioning. The participants completed the PANAS mood test and ate either a high glycemic

cereal bar, a low glycemic cereal bar, or did not have breakfast. They returned 60-75 minutes later; repeated the mood test, completed a short-term memory task and an executive function task. No effect of breakfast was evident. This might be due to the fact that cereal bars are not quite enough of a breakfast.

21 The Effect of Videogame Violence in Both Online and Home Consol Mediums
Kevin P. Martenson Goetz
Mentor: Joanne Altman, Psychology

Research demonstrates that exposure to violence in movies leads to violent behavior or desensitization to violence. In addition, studies show that video games lead to violence. However, the entertainment technology continues to advance and video games can be played online against other real people. Online games add a social aspect to gaming and may alter the stereotype of the isolated gamer. This study investigated the effects of violent versus nonviolent online and consol video games on hostility, social anxiety, and sensitivity to violence. Participants played 1 of 4 video games, filled out surveys on social anxiety and hostility, and assigned sentences to criminals. This study found that playing violent video games decreased hostility, while playing online videogames increased social anxiety.

22 Herpes Simplex Virus Type I UL34 Protein Interactions Critical to Primary Envelopment
Tyler Drew Goetz
Mentor: Susan Bjerke, Biology

Herpes Simplex Virus Type 1 UL34 protein is required for envelopment of viral capsids in infected host cells. It is thought UL34 complexes with viral proteins and cellular proteins to alter the nuclear lamina. To understand protein-protein interactions that mediate primary envelopment, charged cluster mutants were utilized that did not complement a UL34-null virus. These mutants were cloned and purified with a 6-His tag. Preliminary pull-down interactions were performed between the wild type and mutant UL34 protein and a Hep2 cellular lysate. Yeast-2-hybrids were utilized to confirm interactions between UL34 proteins and other viral and cellular proteins. Furthermore, a HSV-1 Bacterial Artificial Chromosome system (BAC) was used to generate specific point mutations in the HSV-1 viral genome. These studies ultimately aim to identify important interactions between UL34 and other proteins which might lead to treatments that block these interactions and prevent the spread of herpes.

23 Mitigating Deception in Negotiation
Amanda Lynn Guffey
Mentor: Michael McGuire, Psychology

Negotiations are critical to the management of both businesses and society. Each negotiation offers the parties involved the choice between ethical and unethical practices. This project reviews variables that mediate the negotiation process. For example, the choice to use deception is often a risk-management, rather than a moral decision (Schweitzer, Brodt, & Croson, 2002). Using deception is risky because once trust is broken it is difficult to repair (Schweitzer, Hershey, & Bradlow, 2004). Lying by omission is often preferable to lying by commission, therefore asking direct questions can increase honesty. Based on the literature, suggested strategies for negotiating are recommended.

24 Gender Stereotypes in Print Advertising
Caitlin R. Corbin
Mentor: Cheryl Childers, Sociology - Anthropology

I will present research conducted on male stereotypes in print advertising based upon given characteristics to prove that male stereotypes reinforce traditional gender roles and ideology.

25 **Can Wide-Band Tracheid Differentiation Be Promoted Using Leaf and Stem Cell Protoplasts of Anacampseros Rufescens (Portulacaceae)?**
Jonathan E. Dageforde
Mentor: Vic Landrum, Biology

Plant cells from stems and leaves of Anacampseros rufescens (Portulacaceae) were converted into protoplasts by degrading their cell walls with a lysis buffer containing the enzymes cellulase and pectinase. These cells were then grown in a liquid culture medium containing the hormones auxin and cytokinin in ratios designed to produce stems/leaves. After three days, samples were taken to determine if any of these protoplasts had differentiated into wide-band tracheids (novel tracheids that occur in the xylem tissue of these plants). Success with this procedure was determined by the presence of wide-band tracheids with primary walls. This type of experiment can be used for further studies on hormonal influences on wide-band tracheid formation, specifically auxins and cytokinins.

26 **The Effects of Traditional and Hold/Relax Stretching on Range of Motion (ROM) in the Lower Extremity**
Teresa A. Burton
Mentor: Lori Khan, Allied Health

Subjects were asked to complete a pre-treatment questionnaire. Then measurements were taken via pre-stretching ROM in the hip, knee and ankle in both legs. Next, the subjects were instructed in traditional stretching exercises in one leg. In the opposite leg, they were instructed in using hold/relax stretching techniques. Again measure and record the outcome of each of these exercises and compare.

27 **Gender Differences in the Interpretation of Positive Feedback**
Megan E. Maes
Mentor: Michael Russell, Psychology

Motivating employees is one of the main goals of all managers. Positive feedback frequently leads people to perceive themselves as more competent and has generally been shown to increase intrinsic motivation. Thus providing positive feedback is a method which many managers utilize in hopes of increasing intrinsic motivation. The relationship of the difference in the way that men and women interpret positive feedback and if written feedback affects an individual's intrinsic motivation was examined in this study.

28 **The Effects of Employee Recognition and Generational Differences on Productivity**
Lacey N. Bisnett
Mentor: Michael Russell, Psychology

Job satisfaction has been shown to be a predictor of productivity and one major way to affect job satisfaction is through employee recognition. Employee recognition programs however, have varied greatly over the years and not all kinds work for all types of workers. These differences are especially relevant at this time because, for the first time, there are four generations working together. In this study a form of recognition will be formed which; gives responsibility to all employees, is timely, relevant, and not linked to technology. It is hypothesized that these points will effectively boost productivity across generations. The importance of these factors will be considered with respect to the findings of the current study.

29 **Review of Video Games and Learning: Guidelines for Educational Game Design**
Chun Wai Yu
Mentor: Michael McGuire, Psychology

Recent studies suggest that there are relationships between motivation and video games. Moreover, in the Teaching with Game Project, 53 percent of the teachers experienced an increase of motivation for schoolchildren; the primary reason for using games was for learning purposes. While video games are seeing the light of educational use, there are problems associated with technology. This literature review covers a brief history of video games

and console development. Then, it introduces how educational video game development can benefit from the new generation consoles. The goals of this paper are to review the current research investigating video games and learning, summarize Gee's learning principles for video game, and establish guidelines for designing educational games.

30 Solar-powered Marine Deforestation: The Biological Impact of Astrophysical Ionizing Radiation Events

Jacob E. Peterson
Mentor: Brian Thomas, Physics - Astronomy

Unbeknownst to many, astrophysical ionizing radiation events, such as gamma-ray bursts and supernovae can have a great impact upon biological organisms, by means of ultra-violet radiation. In turn, we will briefly share some background information that shows the connection between such events and increased ultraviolet radiation. Moreover, we will primarily to discuss the damage of high levels of ultraviolet radiation upon small CO2 consuming organisms with a specific focus on marine phytoplankton. In order to acquire such data, a tool that uses the combination of a radiative transfer model with ozone column density data has been developed to obtain the intensity of light at the surface of the earth.

31 Analysis of Water Quality Parameters in a Perennial Stream in Northeast Kansas

Sarah D. Noller
Mentor: Kellis Bayless, Biology

Conventional agriculture is the contributor to the decline in water quality of our nation's streams due to fertilizers, pesticides and erosion of soil. Conservation buffer strips are utilized in agriculture to intercept pollutants and have the potential to improve water quality from field runoff. To test the effectiveness of a properly placed filter strip, turbidity and temperature were measured and water samples collected. Water samples from a stream located along a Round-Up Ready soybean farm with a conservation buffer strip were analyzed according to procedures developed by K-State's Citizen Science program for on-farm water testing to identify potential contaminants. Results indicated no measurable contaminants in the stream adjacent to the buffer strip

32 Changes in the Acid Base Balance of the Body Alters the Anaerobic Thresholds of College Aged Males

Tom C. Kriley
Mento.r: Paul Wagner, Biology

During the 2008 Olympics, numerous athletes took sodium bicarbonate to enhance performance. The reason for this is the ability of sodium bicarbonate to buffer the increased acid produced during exercise that leads to fatigue. We were interested to know if the reverse is true: if there is a decrease in the buffering capacity of the blood then will athletic performance also decrease? We decreased the buffering capacity of the blood by having our subjects ingest a carbonated drink. After ingesting either the carbonated drink or water (control), subjects (males; age: 18-24 yrs old), performed an incremental cycle ergometer test to volitional exhaustion. Physiological variables and lactate kinetics were examined. Although there were no observable changes in athletic performance, there were changes in lactate kinetics.

33 Recruitment of Honeybees from a Artificial Feeding Station

Andrew Joseph Core
Mentor: Ursula Jander, Biology

Honeybees are eusocial insects that work together to collect nectar and pollen for the colony. A single bee that finds a food source will recruit fellow bees by a special dance performed within the hive. These recruited bees in turn will recruit other bees to collect the food. In this study we discovered that honeybees' recruitment increases exponentially over time. In addition, we also measured the amount of food being carried by individual bees. The average crop-filling of a single bee was between 60-70uL.

34 **Through an Imperfect Lens: Art and Architecture of the Ancient Maya as Seen Through a Holga**
Carl Dillman
Mentor: Mary Dorsey Wanless, Art

Contained in this collection are photographs of iconic Mayan art and architecture taken with a Holga camera. The imperfections in each negative caused by the camera's manufacturing flaws create a surreal atmosphere within the images. The subject matter is portrayed in a very straightforward documentary fashion despite the lack of clarity. This erratic style reflects our incomplete knowledge base concerning the Maya. Destroyed by nature or foreign aggression, much of Mayan history and knowledge has been lost. Archaeologists and anthropologists continue to do what they can with the remnants, but a complete model of Mayan life may forever elude us. It is not the intention of this collection to only emphasize the futility of such an undertaking. The informative sketches accompanying each image demonstrate that enough is known about each site that the greatest achievements of the Maya will not be forgotten.

35 **The Peg Game**
Christine E. Potter
Mentor: Sarah Cook, Mathematics & Statistics

Through this project, I explored the well-known triangular peg game in which a player jumps pegs on the board until arriving at the desired outcome of one peg left on the board. I was able to analyze solutions of the game using modular arithmetic and group theory. In addition to exploring this triangular board, I was able to draw interesting conclusions about triangular boards of other sizes as well as linear boards.

39 **Effects of Ovulation of the Rater and Speaker on Detecting Voice Attractiveness in Women**
wE **Molly E. Kelley**
Mentor: Joanne Altman, Psychology

Research shows that naturally cycling women have higher voice attractiveness ratings than those using contraceptives (Pipitone & Gallup, 2008). In addition, the highest ratings of voice attractiveness occur when the speaker is ovulating (Feinburg, 2007). Evolutionary theory explains that voice signals ovulation and, therefore, sexual receptivity. However, these studies only measured men's rankings of women's voices. This study investigated whether women also detected ovulation in others, recognizing another woman's attractiveness to men. Women rated the voices of older and younger women across the menstrual cycle. The data will be discussed in terms of whether women are aware of another's sexual receptivity, and attractiveness. Evolutionary theory suggests it is adaptive for women to be able to recognize "the competition".

40 **Analysis of Polymorphic Allergenic Plant DNA by RAPD-PCR**
Nicholas L. Anderson
Mentor: Janice Barton, Chemistry

The Giant Ragweed plant (Ambrosia trifida) has been known to cause severe allergic reactions for many individuals worldwide. A cure for allergic reactions caused by Giant Ragweed is yet to be discovered. Another plant of interest is the Sawtooth Sunflower (Helianthus grosseserratus). It belongs to the Asteraceae family, the same family as Giant Ragweed. Unlike Giant Ragweed, the Sawtooth Sunflower does not cause allergic reactions in humans. Since these two plants belong to the same family, their deoxyribonucleic acid (DNA) will be similar. At the moment, the genetic code is unknown for either one of these plants. To investigate the genetic sequences of these two plants, the methodology of randomly amplified polymorphic DNA (RAPD)-polymerase chain reaction (PCR) was employed.

41 **Increased Body Mass Index Interventions: A Provider Comparison Study**
Christina A. Everts
Dawn S. Magee
Mentor: Marian Jamison, School of Nursing

The purpose of the study was to examine archived patient data to determine if providers in a primary care setting initiated weight loss interventions for patients with increased body mass indices. It also examined whether there was a difference in the frequency of interventions initiated by nurse practitioners and physicians. The sample consisted of 180 medical records of patients with increased BMI's from a family practice clinic. The clinic employs two nurse practitioners and six physicians. The medical records were reviewed for documentation of interventions with increased body mass index. A quasi-experimental research design was undertaken resulting in statistical significance, p= 0.000. Nurse practitioners intervened more frequently than physicians (NP=61.1%, physicians = 7.8%). The results indicate a need for clinician education targeting obesity as a means to prevent comorbidities.

43 **Using Virtual Machines to Standardize Students' Computing Environment**
Sean A. Schbley
Mentor: Cecil Schmidt, Computer Information Sciences

Designing a combination of free and open source technologies to create a manageable and deployable platform-independent computing environment for use in the classroom. Furthermore the distribution method of this solution will be cheap and easily attainable USB key drives, limiting the demand on system resources to one that can be easily met by most student machines.

46 **Implementing Sound Processing Algorithms in Java**
Akash Deepak Shah
Mentor: Bruce Mechtly, Computer Information Sciences

We created a java library to add audio effects such as echo, flanging, alternating sound between two speakers, speeding up and slowing down the sound in a wav format audio file. The sound can be a musical track or a recorded voice. For user's simplicity, we have created a graphical application that makes it easy to add these effects to any wav format file.

47 **High Performance Computing Utilizing CUDA Technology**
Patrick J. Bridge
Beau Fails
wE **John B. Johnston**
Mentor: David Bainum, Computer Information Sciences

High Performance Computing can require a huge amount of capitol to achieve desired results. Utilizing nVIDIA's high end Graphical Processing Units (GPUs), the cost of building a High Performance Computing Unit can be lowered dramatically.

48 **A Java Certificate Authority**
Kristof Mattei
Mentor: Bruce Mechtly, Computer Information Sciences

We created a Java application to use OpenSSL to create and manage a new certificate authority, and to generate new certificates, for both client and server. A certificate authority is a private key infrastructure, where the keys are used both for signing documents (to prove the origin) and to encrypt the document, or both. The GUI was written in Java, to run on any operating system.

49 **Applying Photographic Decals to Ceramic Tiles**
Daniel W. Coburn
Mentor: Mary Dorsey Wanless, Art

My passion for photography has led me to an interest in permanently applying photographic images to ceramic tiles and vessels. Images printed on archival papers have a life expectancy of 200-500 years. Ceramic Tiles and Vessels can be preserved for thousands of years. This potential makes terra cotta and stoneware tiles an interesting and unique substrate for printing photographic images. During my presentation I will demonstrate all procedures and showcase all materials for applying decals on ceramic tiles. I will provide my audience with technical guidelines and resources for those wanting to duplicate or learn more about this process. I believe this presentation will be of interest to a diverse cross-section of students and faculty at Washburn University.

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