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SCHEDULE OF EVENTS

FRIDAY, April 20, 2012

7:30-9:00 a.m.	Poster Set Up	NSU 238
9:00-11:00 a.m.	Judging	NSU 238
Noon-1:30 p.m.	Luncheon Guest Speaker: Jordan Kuck	NSU 238 A&B
1:30-3:30 p.m.	Performances	Sandhills Room
1:30-3:30 p.m.	Oral Presentations	NSU 310 NSU 312 NSU 238 C NSU 238 D
1:30-3:30 p.m.	Poster Session Open	NSU 238
3:45-4:30 p.m.	Award Reception	NSU 238 A & B
4:30 p.m.	Posters Removed	NSU 238

Luncheon Guest Speaker

Jordan Kuck

Jordan Kuck is a PhD candidate in Modern European History at the University of Tennessee, Knoxville. His dissertation, which he plans to finish next year, focuses on the authoritarian regime of Kārlis Ulmanis, the University of Nebraska-educated dictator who ruled Latvia from 1934-1940, after having previously served three stints as that country's democratic prime minister. More broadly, Jordan specializes in the history of the interwar period in Europe, on the topics of nationalism, democracy, and the period's various "isms"—namely, authoritarianism, fascism, communism, and totalitarianism. Additionally, he also has a keen interest in agricultural history.

Jordan has been the recipient of a number of major prizes and awards, including a U.S. State Department Fulbright fellowship to Latvia, a U.S. Department of Education Foreign Language and Areas Studies (FLAS) Fellowship, and the J. Wallace and Katie Dean Non-Service Fellowship from the University of Tennessee Graduate School. Last spring he also received the Chancellor's Extraordinary Professional Promise Award from the University of Tennessee. In terms of scholarship, Jordan has presented papers at a number of regional and international conferences in the U.S. and Latvia. He has also published a number of articles and co-write, with UNK's own Dr. Mark Ellis, the book, *A Century of Sports at the University of Nebraska at Kearney*, which was published in 2007.

Jordan received his B.A. and M.A. from UNK in 2005 and 2007 respectively. His M.A. thesis, which was supervised by Dr. Carol Lilly, was selected as the runner-up for the best graduate thesis that year. During his undergraduate career, Jordan was a member of the Honors Program and Student Support Services. He also was a member of a pedagogical research team that traveled to Rostock, Germany in 2003, studied abroad at Albert Ludwig University in Freiburg im Breisgau, Germany in 2004, and he participated in the 2005 National Conference on Undergraduate Research. Before pursuing his PhD, Jordan worked as a copywriter at the Lincoln-based software firm, Information Technology, Inc.

Poster
Presentations
Ponderosa Room

Fine Arts &
Humanities

Art

Presenter: **Yan Xiong (1)**

Advisor: John J. Stanko

Title: *The process to create an animation*

It is the first time for me to create an animation. The process to create an animation will be shown step by step. The steps included are create the story, storyboard, character design, sketches, paint in Adobe Illustrator and animate in Flash.

Music and Performing Arts

Presenter: **Addison Heeren (2)**

Advisor: Sharon Campbell

Title: *The Hero's Journey in the Rock Musical*

The Rock Musical has become a standard in Broadway repertoire for almost fifty years, and continues to thrill audiences. But what makes these productions so entertaining, and what sets them apart from other more "traditional" musicals? In this project, I have utilized Joseph Campbell's "Hero's Journey" paradigm in order to outline the

main characters' progressions in three Rock Musicals: Claude in Hair, Jesus in Jesus Christ Superstar, and Diana in Next to Normal. This project presents these three characters' Hero Journeys while examining the Rock Musical's unique relationship to this paradigm.

Presenter: **Brooke Harris (3)**

Advisor: Franziska Nabb

Title: *The Flute Music of Gary Schocker*

American Gary Schocker (b. 1959) is the most published living composer of flute music. He also is a talented flutist, pianist, and teacher. He has studied the Alexander Technique, a mind-body practice, for over twenty years. Ms. Harris was able to attend the Gary Schocker summer masterclass in West Park, NY, from July 12-17, 2011, where she received one-on-one and group instruction from Gary Schocker. On February 18, 2012, she presented a lecture recital in the UNK Fine Arts Recital Hall of Mr. Schocker's flute music. During the recital, she was able to raise awareness of Gary Schocker's music through performance. She also discussed his compositions, unique teaching style, and the assistance she received to make her flute playing more tension-free.

Presenter: **James Wolf (4)**

Co-Presenters: **Amaryah Fritz, Nicole Lebah, Robert Roth**

Advisor: David Bauer

Title: *"Beyond the Notes" A Reflection on the American Choral Directors Association's North Central Conference*

The professional development opportunities provided at conferences make for invaluable experiences if approached with the same tenacity found in organizing the event.

“Beyond the Notes” was the name for the conference hosted by the North Central division of the American Choral Directors Associations. As the name suggests, the theme of this gathering was to explore the more nuanced and finer aspects of music, literally going beyond just the notes to explore the quintessence of choral music making. There were many opportunities for future choral music educators to hone their skills, and to expand their knowledge in many detailed areas of the choral arts. The most memorable session provided was the Collegiate reading choir, where future educators had the chance to work with five of the top choral directors in the field and learn techniques to take back to the classroom.

Presenter: **Jonathan Danforth (5)**

Co-Presenters: **Zachary Thomas**

Advisor: James Payne

Title: *Musical Products Research*

A group of music business majors at the University of Nebraska at Kearney desired to learn more about the business side of the music industry at the 2012 NAMM Show, an international music products trade show and market hosted by the National Association of Music Merchants, the International Music Products Association. At the show, the students researched their individual interest areas in several ways. They visited various exhibits in order to see and perhaps work with the products and to visit with the sales representatives or technical development staff asking questions concerning the product or information desired. They attended concerts and demonstrations of new products and attended educational sessions given by NAMM or by NAMM Affiliated Music

Business Institutions (of which UNK is a member) featuring well-known speakers and educators in the industry.

Presenter: **Jamie M. Bentley (6)**

Advisor: Darin Himmerich

Title: *“The Shape of Things” Lighting Design*

This was a student lighting design for the University of Nebraska at Kearney's, Alpha Psi Omega production of "The Shape of Things". Working with a full production team, especially a director and a scenic designer, we developed a concept which provided us the direction for which to take this play. The focus of this lighting design was to both provide flexibility with the different locations mandated by the scenic designer as well as to emphasize the idea of deception within the play. I chose to bring this design to the Kennedy Center American College Theatre Festival to be entered as a regional lighting design project. There I met with experienced lighting designers and received feedback on both the technical and design process as well as an overall response to the lighting design.

Presenter: **Kyle Garrelts (7)**

Advisor: Darin Himmerich

Title: *KCACTF Region V Design Expo*

This is the Scenic Design for UNK's production of The Shape of Things. Kyle Garrelts started with a script and a director's concept statement. He devised his own concept in conjunction with the director and came up with a design to fit not only the script, but the production envisioned by he and the director. Kyle took his design to the Kennedy Center American College Theater Festival regional design expo. At the expo a panel adjudicated Kyle's work. They then

gave Kyle direct responses to his design. His finished design was a very simplistic look into the mind of a self-oriented artist. Feel free to look further into his design and see what emotions it evokes in you.

Presenter: **Kyle Garrlets (8)**

Advisor: Darin Himmirich

Title: *Stage Crew Show Down*

Most athletes dream of competing in the Olympics. However, Theatre technicians dream of competing in the Kennedy Center American College Theatre Festival Stage Crew Show-Down. This is an annual event at the Festival where each school brings a team of backstage technicians and they compete in accuracy and speed against other worthy opponents. This year was UNK's third entry into the competition. We represented UNK in five different challenges: hanging and focusing a light, speed setting props for a scene change, tying complicated knots, doing a costume quick change, and even hanging a curtain. This year our team showed its strengths well to the other schools.

Behavioral & Social Sciences

Criminal Justice

Presenter: **Colten Venteicher (9)**

Advisor: Julia Campbell

Title: *Underage Drinking Citations: Do They Have a Deterrent Effect on Teen Drinking*

Deterrence is meant to prevent future behaviors or actions from occurring due to anticipated punishment or negative consequences for parties involved. In the United States, the legal drinking age is 21, however traditional college freshmen are significantly younger than this when they begin school. The popular culture on many college and university campuses involves heavy consumption of alcohol, even among those students who are considered underage. This study discusses the deterrent effect that underage drinking citations have on American youth's decisions to consume alcohol illegally and also highlights potentially more efficient alternatives to minor in possession citations.

Presenter: **Grant Carlson (10)**

Advisor: Joseph Carlson

Title: *Public Perspective of Law Enforcement Uniforms*

This research helps to identify which style and color of uniform is perceived best for police-community relations. Friendliness, professionalism, and intelligence are characteristics that can influence a person's interaction with an officer. The results found that an officer wearing the common dark blue para-military uniform was most perceived as professional uniform. Lighter colored uniforms were perceived as friendlier than the darker uniforms. Law enforcement agencies can benefit from the information in this research by knowing the perception of the public on uniforms and be able to adjust the color and style to make officers appear more positive for its citizens.

Presenter: **Kendra Dittbrenner (11)**

Advisor: Julie Campbell

Title: *Perceptions and Juvenile Offending*

Juvenile offending is common in the United States, but the perceptions people have about crimes committed may differ from the truth. We will be comparing the perceptions and the actual crimes committed in Nebraska.

Presenter: **Margaret Jackson (12)**

Advisor: Julie Campbell

Title: *Awareness of Hate Crimes in Nebraska*

Hate crimes are defined as crimes against a persons, property, or society that are prompted by prejudice against a member of a certain group such as gender, racial, religious, or any social group. Hate crimes are important because they don't just impact the victim, but the community by inducing terror. This research will involve surveying UNK faculty and students, ages 19 and older, in order to better understand how one's upbringing, race, religion, or any other social group status will affect a person's knowledge and view of hate crimes.

Presenter: **Paul Tompkins (13)**

Advisor: Beth Wiersma

Title: *Sentences of Convicted Sex Traffickers and Labor Traffickers; A Comparison*

Human trafficking, the forcing of people into sexual or labor exploitation or the involuntary removal of organs, is a social injustice plaguing the world today. The purpose of this research is to discover whether, within the United States federal court, the individuals convicted of sex trafficking are being sentenced more

harshly than those convicted of labor trafficking. Fifty sentences of sex traffickers and fifty sentences of labor traffickers are evaluated to determine if either, overall, are receiving harsher punishments.

Geography

Presenter: **Andrew J. Miller (14)**

Advisor: John Bauer

Title: *A Comparison of Two Early Automobile Route Guides*

Automobile route guides were important precursors to the road maps that Americans are familiar with today. Unfortunately, little is known about them and few researchers have analyzed their roles in the history of cartography. Publishers claimed their routes were unique to only their copyrighted guides. This research investigates whether or not this claim was accurate and true. To answer this question, we carefully compared routes from the Official Automobile Blue Book with ones from Kings Official Route Guide. We used a GIS to identify which routes could possibly be coincident, or the result of copying. We then compared these routes turn by turn, mile by mile, to see if they were the same. Overall, our conclusions are mixed. Some routes are exactly coincident, leading us to think that they could have resulted from copying. Others are mostly coincident, further questioning the publishers' claims. Other routes, however, are unique to only each specific guide.

Presenter: **Andrew J. Miller (15)**

Advisor: Jason Combs

Title: *Studying the Impact of Railroads on Nebraska*

In the late 1800s, the United States' population was increasing rapidly and many territories achieved statehood. This is true for Nebraska and many scholars credit the Oregon and Mormon Trails for the growth and settlement of the Great Plains. Although these are important to the nation's history and to extending the settlement frontier, the primary reason for Nebraska's population increase is the extension of rail lines. Railroad companies platted and built towns that are still in existence today. This paper explores the impact of railroad companies on developing and populating Nebraska.

Presenter: **Andrew J. Miller (16)**

Co-Presenters: **Jennifer Linder, Brian Ellis**

Advisor: Paul Burger

Title: *Site Selection of an Urgent Care Facility in Nebraska through GIScience*

Urgent Care facilities are emerging as an alternative to a doctor's office or emergency room. Patients see them as more convenient and less expensive than these traditional modes of treatment. Several jointly-owned urgent care facilities in the Omaha and Lincoln areas are looking to expand their market presence in Nebraska. This study addresses a fundamental question of economic geography: 'Given the supply of a service at existing stores, and demand for that product by consumers across space, where should a new clinic locate?' Through GIScience, a market area is defined using the existing customer base. Using the geographic extent of the existing market area, block-group level consumer data (demand), and the location of existing facilities (supply) enables the location-allocation model to identify potential sites

for a new urgent care facility.

Presenter: **Connor Schulte (17)**

Advisor: Vijendra Boken

Title: *Hurricanes linked to Global Warming*

There has been an increase in hurricane occurrence and intensity over the past fifty years. One theory due to this increase has to do with Global Warming. High water temperatures indicate a higher cause for hurricanes, and the strength of storms directly corresponds with ocean temperature. Global warming, caused by carbon emissions, raises the temperature in the atmosphere, and due to the hydrologic cycle, raises the water temperature as well. This is how the data represented is supported by the correlation between higher temperatures and more intense hurricanes.

Presenter: **Dillon Woodrum (18)**

Advisor: Jason Combs

Title: *Policy Impacts on Native American Tribes: A Case Study Perspective*

American Indians have experienced many tribulations and have been marginalized for over two hundred years. The problems created by arbitrary attempts by the United States government to supplement the Native Americans with government subsidies have consistently fallen short in remedying generational issues. Through the examination of historical documents, I clarify the issues that were not laid to rest by United States government aid. This analysis will bring clarity to the convoluted issue of how government programs have seized the ability of these people to find their own niche in American society; instead, causing Native Americans as a whole to face plagues including:

alcoholism, poverty, dislocation, and isolation. The empirical data comes from a cross-sectional comparison of the publically identified Lumbee Tribe in North Carolina and the Oglala Sioux Tribe in South Dakota. The evidence examined for both tribes includes the history, location, number of members, and per capita funding through government programs. This work intends to create a new domestic agenda for Native Americans in the 21st century.

Political Science

Presenter: **Hayley Rudder (19)**

Advisor: Peter Longo

Title: *International Theory's Place in the United States-Iraqi Relations*

This research project focused on the United States – Iraqi relations from the late 1980s to current day and used the theories of international relations to effectively explain events between the parties. Six prominent theories in the international relations field were used (Balance of Power Theory, Classical Realism, Constructivism, Defensive Realism, Just War Theory, and Offensive Realism). These theories offer viable explanations to three decades of international relations between the United States and Iraq.

Presenter: **Jared Krejci (20)**

Advisor: Joan Blauwkamp

Title: *Understanding the Extent and Effects of Majority Party Control on Committees in the House of Representatives*

The project seeks to explain how the majority party in the United States House of Representatives uses incentives and punishments to control congressional committees to coax them into producing

legislation that satisfies the majority party's legislative interests. This project expands on methods used by Cox and McCubbins (1993) and tests their hypotheses of committee control on new cases. This project studies three cases in which committee chairs were removed from power and seeks to determine whether the chairs were removed as a punishment for failing to enact legislation that favored the legislative interests of the majority party. To determine party support for the committee's actions, in the session just before each chair was removed, I calculated committee-support scores for the majority party's members and for the minority party's members. Additionally, the project further explores majority party control and chairmanship removal and its effects on substantive policy with an in-depth case study of the House Energy and Commerce Committee's transition from Chairman Dingell in 110th Congress to Chairman Waxman in 111th Congress.

Presenter: **Luke Zinnell (21)**

Advisor: Satoshi Machida

Title: *The Potential Revision of the Japanese Constitution and Security Dilemma in East Asia*

Japan is a country with a very restrained military. After World War II, Japan included a constitutional provision that prevented the country from going to war. This provision is known as Article 9 and it allows Japan to only maintain self-defense forces. In recent years Japan has considered revising their constitution to allow themselves to support a military and go to war. This project researched how the possible revision of Japan's constitution

would affect the security dilemma between Japan and China. Some theories suggest that the security dilemma between these two countries foretells constancy in that region, but further evidence suggests otherwise.

Presenter: **Nathan Bryan (22)**

Advisor: Peter Longo

Title: *Who Owns the Internet?:*

Understanding the Future of Network Neutrality

The internet has fostered a global paradigm shift by allowing any user to access the wealth of human knowledge with unprecedented ease. Since it is still in its relative infancy the rules that govern its dispersion have yet to be clearly defined. In the United States, the Federal Communications Commission's working model is network neutrality, which approaches the internet as an open forum promoting free expression and innovation. Critics of network neutrality cite that this proposal would actually violate the rights and abilities of the internet service providers to deliver competitive services. This research took a comparative approach to the legitimacy of both sides in reference to the established legal precedence and the possible outcomes of the debate over the regulation of the internet.

Presenter: **Parker Jolly (23)**

Advisor: Peter Longo

Title: *Our Nation's Highest Court*

There is no higher legal field or arguably a higher appointment of power and responsibility than being a member of the United States Supreme Court. This research will analyze and evaluate how Supreme Court Justices balance issues of security and liberty in the landmark cases of cases of

Schenck v. United States, Abrams v. United States, Hirabayashi v. United States, Korematsu v. United States, and the cases associated with the Patriot Act. This analysis will reveal varying jurisprudence among Supreme Court Justices as well as provide a framework the balance between liberty and security.

Psychology

Presenter: **Charles E. Sepers, Jr (24)**

Advisor: Richard L. Miller

Title: *The Subjective Placebo Effect: Examining the Proposed Framework*

The subjective placebo effect occurs when an individual believes that an outcome has occurred because an active treatment has been given when in fact a sham procedure was received. This phenomenon has gained interest in recent years as an effective treatment in its own right. While the randomized control trial has set the placebo as the "gold standard" by which the effects of new drugs are measured, the psychological constructs that mediate the placebo effect are largely unknown. This study measured subjective outcomes (i.e., hunger and time-to-onset) and their predictors (i.e., reinforcement history, observational learning, acquiescence, suggestibility, and anxiety change) within a sham, appetite-suppression treatment and explored the relationship between these variables in a theoretical framework proposed by Stuart-Williams (2004). This study takes a necessary first step toward the elucidation of the psychological mechanisms that contribute to the subjective placebo effect.

Presenter: **Chelsea Atkins (25)**

Advisor: Krista Forrest

Title: *College Student's Schemas for Interrogations Involving Drinking and Driving*

We presented our participants with one of three versions of a drinking and driving arrest scenario: describing the interrogation of a friend, stranger, or themselves. We found that participants who wrote about their friend's or own interrogation only wrote more about suspect behavior compared to a previous study. Our research could help potential jurors understand how a suspect's expectations of an interrogation might affect the interrogation itself, and it could help interrogators choose suitable tactics to combat these expectations.

Presenter: **David B. Fox (26)**

Advisor: Joseph Benz

Title: *Effects of Mortality Salience on Mate Choice Decisions*

Pyszczynski et al. (2006) review the subject of mortality salience, whereby being made aware of one's future death changes the answers people gives to questions that effect their cultural worldview.

Additionally, Hershberger et al. (2002a) have indicated that men and women's choices about potential mates change under the influence of mortality salience. In an unpublished preliminary study, Benz (2011) questioned the effectiveness of the primer for the manipulation. Benz (2011) showed that UNK Men are more likely than women to compromise their mate choice standards when presented with existential fear. We predict that women will become more selective about the characteristics they desire in a long-term relationship. Men will become less selective. We also predict that

both sexes will become most selective for traits they perceive as pertaining to cultural worldview. Finally, we predict that changing the expectations of the primer will effect the variable outcomes.

Presenter: **Destinee Nelson (27)**

Co-Presenter: **Kyle Brandyberry**

Advisor: Krista Forrest

Title: *Personality Characteristics of College Students in a False Confession Situation*

We hypothesized certain personality characteristics such as extraversion, conscientiousness and interaction anxiousness would influence false confessions. We gathered data from 37 college students using Kassin and Kiechel's (1996) alt key paradigm. Compared to non-confessors, personality characteristics did not differ for those who falsely confessed.

Presenter: **Gabriella Claybrooks (28)**

Advisor: Theresa Wadkins

Title: *Drug Court and Public Awareness*

Voluntary participation in a drug court program is an alternative to incarceration for non-violent drug offenders. Research supports that this alternative can have a lasting impact on both the individual and our society. This project explored public awareness of drug courts, public perception of its potential financial benefits, and biases toward drug offenders.

Presenter: **Hannah Vontz (29)**

Co-Presenter: **Mariah Ramold**

Advisor: Krista Fritson

Title: *The Effects of Journaling on College Students' Self-Efficacy, Course Engagement, and Test Anxiety*

Does reflective journaling increase self-efficacy, course engagement while reducing test anxiety among college students? Research by Fritson et al. (2008) indicates that reflective journaling significantly improved college students' self-efficacy. A study by Fritson, Forrest, and Bohl (2011) resulted in students reporting more emotional engagement in courses in which they used reflective journaling compared to courses in which they did not journal. The purpose of this study is to determine the effects of journaling on students' academic self-efficacy, general self-efficacy, course engagement, and test anxiety. Data was collected from students in three psychology courses. Participants completed four surveys at three different points in the semester. In each course participants were divided into two groups and then instructed to journal the first half of the semester and not journal the second half and vice versa.

Presenter: **Jamie Brisbin (30)**

Co-Presenter: **Kevin Kalkowski**

Advisor: Wayne Briner

Title: *The Comparative Toxicity of Nanoparticles*

Nanoparticles are a relatively new form of material finding application in areas ranging from medicine to computing. The increasing use of these materials has not been accompanied by an increase in our understanding of the toxicity of these substances. This study undertakes a multisystem comparison of nanoparticle toxicity for nickel, copper, and zinc nanoparticles. Several aspects of this study make it unique: nanoparticle size is held constant (<50nm), all are divalent metal cations, all are administered as oxides, all are of similar atomic radius and have

relatively similar LD50s. Brain, heart, lung, liver, and renal tissue are collected at predetermined times after the acute administration of nanoparticles and examined using standard histological methods. We will present our preliminary findings.

Presenter: **Jana Reier (31)**

Advisor: Krista Fritson / Wayne Briner

Title: *Anxiety Levels in Multiple Choice Exams When Consecutive Answers Correspond to the Same Letter Answer*

It is a well-known fact that exams can cause anxiety. According to one study 25% to 40% of students experience test anxiety (Cassidy, 2010; Huberty, 2009). But is it the student suffering from test anxiety or is the exam itself causing the students to become anxious? The purpose of this study was to see if anxiety levels of participants who complete a multiple choice exam in which the letter answers to three or more consecutive questions are the same, are greater than the anxiety levels of participants who complete an exam in which two or fewer consecutive questions correspond to the same letter answer. My hypothesis is that the group with more consecutive questions corresponding to the same letter answer will show significantly higher levels of anxiety.

Presenter: **Kevin Kalkowski (32)**

Co-Presenter: **Jamie Brisbin**

Advisor: Wayne Briner

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increasing use of these materials has not been accompanied by an increase in our understanding of the toxicity of these substances. This study undertakes a multisystem comparison of nanoparticle toxicity for nickel, copper, and zinc nanoparticles. Several aspects of this study make it unique: nanoparticle size is held constant (<50nm), all are divalent metal cations, all are administered as oxides, all are of similar atomic radius and have relatively similar LD50s. Brain, heart, lung, liver, and renal tissue are collected at predetermined times after the acute administration of nanoparticles and examined using standard histological methods. We will present our preliminary findings.

Presenter: **Mariah Ramold (33)**

Co-Presenter: **Cesia Roche**

Advisor: Richard Miller

Title: *How Relationships and Situations Affect the Efficacy of Hollow Forgiveness*

The extent to which individuals ask for forgiveness depends, in part, on the kind of relationship they have with the individual they have offended. One form of forgiveness is hollow forgiveness, or asking for forgiveness when not sorry. The present study examines hollow forgiveness and the factors that affect its efficacy: the nature of the offense needing forgiveness and the relationship to the person. Average means indicated that participants were most inclined to ask for hollow forgiveness after offending their spouse or significant other and least inclined to seek hollow forgiveness from an acquaintance. Participants indicated that they were most inclined to ask for hollow forgiveness for a joke and borrowing and less likely to ask

for forgiveness for eavesdropping or argument. Analysis of variance indicated that women were more likely than men to ask for hollow forgiveness from a significant other for eavesdropping, and from a professor with whom they had an argument.

Social Work

Presenter: **Abbie Olson (34)**

Advisor: Jody Van Laningham

Title: *Mothers' Marital Satisfaction and the Transition to Parenthood*

Many studies have examined the impact of the transition to parenthood on marital satisfaction. The current study examines specific demographic and relationship factors influencing the marital satisfaction of a sample of 145 first-time mothers. More highly educated mothers, those with more income, and those employed outside the home reported higher marital satisfaction. Women in earlier years of marriage and those who were younger at the time of marriage were also more likely to report higher marital satisfaction. The results further reveal a positive effect on marital satisfaction for both quality time spent alone with one's spouse and the frequency of sexual intimacy. It was also found that the effect of decreased spousal time on marital satisfaction was more pronounced for mothers who were not working outside the home. Implications for assisting couples with maintaining marital quality during the transition to parenthood are discussed.

Presenter: **Stephanie Klein (35)**

Advisor: Maha Younes

Title: *The International Adoption Story from Beginning to End*

This qualitative study is groundbreaking in its presentation of the longitudinal perspective of parents who adopted children internationally and their now adult adoptive children about the impact of international adoption on their lives beginning with the adoption process and ending with the time of study. Thirty parents from twenty-five different families and twenty-six adult children participated in telephone interviews and responded to questions that explored the overall impact of international adoption on their lives. The following areas were explored: Adoption and adaptation of family and child, challenges experienced along the way, influence on various aspects of their lives, adult-child relationship, rewards and regrets associated with the adoption experience; recommendations for those considering international adoptions; and an adjective that would describe their journey. The outcome of the study illuminates the success of international adoptions and the life-changing bond that is formed when parents and children transcend all boundaries to form a family to call their own.

Natural & Physical Sciences

Biology

Presenter: **Amanda Hagstrom (36)**

Advisor: Letitia Reichart

Title: *Baseline levels of corticosterone of Red-Winged Blackbirds (*Agelaius phoeniceus*) during development*

During nestling development, chicks experience a variety of social and environmental cues that may influence baseline levels of corticosterone (CORT), the avian stress hormone. This hormone is primarily involved in regulating homeostasis in organisms and is associated with survival. Few studies have measured baseline levels of CORT in nestlings during development; however measures of baseline levels of CORT may provide a method to evaluate nutritional stress or competition among offspring within the nest. Thus for this study will we monitor CORT in nestling red-winged blackbirds (*Agelaius phoeniceus*) during development. In this poster we will present our research questions, summarize our sample collection procedure during summer 2011, and provide preliminary results.

Presenter: **Aric Buerer (37)**

Advisor: Keith Geluso

Title: *Local and Regional Effects of Water Resources on Herpetofauna in Central Nebraska: A Preliminary Examination*

Presence and location of water resources influence the populations of reptiles and amphibians across landscapes. We

examined how various types of water resources in grasslands affect species richness and abundance of reptiles and amphibians at a local and regional scale in south-central Nebraska. We did not detect a local effect of a water resource on species richness but, we did detect greater abundance of individuals when a water resource was present. At a regional scale, species richness and abundance was greater along the Platte River floodplain, intermediate in wetlands in the Rainwater Basin, and lowest in uplands along the Platte and Republican rivers. Endangered whooping cranes (*Grus americana*) have a carnivorous diet. Riverine and wetland ecosystems in south-central Nebraska are known to provide important night-time roosting sites, but abundant prey items around such water resources may be another reason such habitats are frequently used during migratory stopovers.

Presenter: **Brett Schaepler (38)**

Advisor: Janet Steele

Title: *Preventing Post-Traumatic Stress Disorder: Effects of an Adrenergic Blocker on Memory in Mus musculus and Rattus norvegicus*

Post-traumatic is a common disorder found in humans today. It is characterized by extreme fear and anxiety in persons who experience traumatic events. There are serious long-term effects caused from post-traumatic stress that include impaired memory function and impaired emotional states. The fight or flight response of the sympathetic nervous system stimulates the release of norepinephrine. Increased levels of norepinephrine affect brain function. Specifically, it acts to alter the regions of the brain involved in emotion and memory.

The administration of adrenergic blockers may be able to decrease the effect of norepinephrine on target tissues. Research suggests that administration of adrenergic-blockers immediately following a traumatic event acts to decrease symptoms of post-traumatic stress. In our study, we will look at the effects of the alpha-blocker, prazosin, and the beta-blocker, propranolol using laboratory mice (*Mus musculus*) and rats (*Rattus norvegicus*) as experimental subjects.

Presenter: **Drew Schissel (39)**

Co-Presenter: **Cody Stegal**

Advisor: Brian Peterson

Title: *White-tail Deer use of Minerals with cameras-Focus on diurnal/nocturnal patterns*

Humans have baited wildlife such as white-tailed deer (*Odocoileus virginianus*) for generations with the primary purpose being to increase hunting and harvest success. In addition, big game hunters and researchers now utilize trail cameras to pattern game. Our research developed supplemental mineral sites set in front of infrared digital trail cameras. Deer camera captures were determined to be use of, or passing through the mineral site. Age, sex, duration and seasonal day and night use was documented. Results found bucks highest use was May and June while does use was highest during May and August. Use and pass through results were higher during the diurnal hours as opposed to the nocturnal hours.

Presenter: **Drew Stone (40)**

Advisor: Kerri Farnsworth-Hoback

Title: *The effects of different crop residue on soybean seedling damage by Armadillidium vulgare*

Isopods, such as *Armadillidium vulgare* are found in a wide range of habitats. Recently there have been reports of isopods acting as pests in agriculture fields. Changes in agriculture, such as no-till farming and crop rotation, could be causing changes in isopod habits. *A. vulgare* was chosen for this study because it is a common nonnative species in the US. This study tested three different treatments of ground cover. The treatments all had soybean seedlings planted in the different ground covers. Damage from *A. vulgare* to seedlings was recorded after one week. We hypothesized that if crop residue is related to damage done by *A. vulgare* to soybean seedlings, then dicot residue will have lighter damage than monocot residue or the control.

Presenter: **Heather Harris (41)**

Co-presenter: **Travis Kirchner**

Advisor: Dawn Simon

Title: *Characterization of rRNA introns in Lichen Fungi*

Introns are intervening sequences that are removed during RNA processing. They have no known general function, yet are present in every eukaryote. Understanding their origin is a fundamental question in biology. In this project we use the rRNA gene in lichen-forming fungi as a model to understand this process. Specifically, we hypothesize that in this system spliceosomal introns arise through the degeneration of group I ribozymes. There are many types of intervening sequences within lichen-

forming fungi, some can clearly be identified as group I ribozymes, others seem to be canonical spliceosomal introns, and finally there are apparent intermediate forms. To test our hypothesis we must first clearly identify the insertions. For example, we expect intermediate forms to share some characteristics with group I ribozymes and others with spliceosomal introns. We are using a combination of sequence, structure and in vivo splicing to characterize a subset of rRNA introns.

Presenter: **Jeff A. Shaw (42)**

Advisor: Dawn Simon and Mary J. Harner

Title: *Fungal Diversity of a Cottonwood Root System*

Mycorrhizal fungi are symbiotic partners of plants that facilitate nutrient uptake. Historically, identification has been based primarily on morphology, but better estimates of diversity can be obtained using molecular techniques. In our research, DNA was extracted from four distinct locations within the root system of a single cottonwood tree (*Populus* spp.), and a region of the ribosomal RNA was amplified, cloned, and sequenced. Our results are based on over 100 fungal sequences from two general categories: ectomycorrhizal and non-mycorrhizal fungi. The ectomycorrhizae are relatively homogenous with an average sequence identity of 93% and found preferentially on roots near the surface. Fungi at lower depths tend to be general soil fungi that have not been identified as mycorrhizae. Based on previous morphological evidence, the lack of arbuscular mycorrhizae in our study was surprising. We therefore conclude that arbuscular mycorrhizae play a minimal role in nutrient uptake in cottonwood trees.

Presenter: **Jennifer N. Merlino (43)**

Advisor: Joseph Springer

Title: *Furry Friends of the Willa Cather Memorial Prairie: Who They Are and Where to Find Them*

Although they are often overlooked, small mammals are very important parts of every ecosystem. Vegetative cover is vital to small mammal communities as it is used as protection from predators, as well as a food source. Thus, interfering with the amount of vegetative cover available by means of grazing or burning may have varying effects on small mammals depending on the species present. In this study, live mammal trapping was used to determine the small mammal composition of two different study sites at the Willa Cather Memorial Prairie. Out of 1095 trap nights, 210 small mammals were captured, consisting of 10 different species. The western harvest mouse (*R. megalotis*) was captured most frequently in Site 1 and the white-footed mouse (*P. leucopus*) was most frequently captured in Site 2. No statistical significance was found between the total number of captures between Sites 1 and 2.

Presenter: **Kari Page (44)**

Advisor: W. Wyatt Hoback

Title: *Population of American Beetle (*Nicrophorus americanus*) in Relation to Small Mammal Population*

This project is being conducted to determine if there is a correlation between American Burying Beetle (*Nicrophorus americanus*)(termed ABB in this paper) populations and small mammal populations. Background information was collected on past populations. Starting in June, small live animal traps will be set to determine the

small mammal population in various areas. Pitfall traps will also be set to trap and determine the beetle population in those same areas. The results will be compared to determine any correlation between the two. This paper is based on the background research that has already been conducted.

Presenter: **Kellie D. Licking (45)**

Advisor: Kimberly Carlson

Title: *Drosophila melanogaster Nora Virus Cross-Infectivity of Novel Hosts*

Nora virus is a recently discovered RNA picorna-like virus that produces a persistent infection in *Drosophila melanogaster*, the common fruit fly. Currently, the only known hosts of Nora virus are *D. melanogaster* and *Nasonia* parasitoid wasps, however, it is likely that other hosts exist. Host shifts persist as an explanation for emerging infectious disease, especially as the realization that sources of human and domesticated plant and animal pathogens originated from the wild. To test this, four *Drosophila* species were cross-infected with *D. melanogaster* Nora virus to evaluate the ability of the virus to shift hosts. Positive Nora virus infection was detected from all five *Drosophila* species, both infected and uninfected. Currently, analyses are underway to determine the Nora virus levels present in each *Drosophila* species. This research offers insight on the ability of RNA viruses to switch hosts, which has implications in studying disease-emergence.

Presenter: **Kelsie Musil (46)**

Advisor: Paul Twigg

Title: *The effects of nitrogen deprivation on lipid accumulation and development of a new RNA isolation procedure in *Chlamydomonas reinhardtii**

Chlamydomonas reinhardtii is an excellent organism to study for biodiesel production. Under nitrogen depleted environments, *C. reinhardtii* shows a substantial increase in lipids production and accumulation. Initially for this project, cells were grown in nitrogen replete media and transferred to nitrogen deplete media. Once in the nitrogen deplete media, timelines were established for lipid accumulation under the conditions in this lab. Samples were taken daily for a total of 10 days and observed under fluorescent microscopy. Also, a new technique for RNA extraction was attempted using Direct-zol™ RNA MiniPrep (Zymo Research Irvine, CA).

Presenter: **Maria Rojas (47)**

Advisor: Letitia Reichart

Title: *Developing a Method to Measure Atrazine in Avian Eggs*

A method to measure atrazine in avian eggs was developed using spiked chicken eggs and a Gas Chromatography Mass Spectrometer (GC-MS). An estimated chicken (*Gallus domesticus*) egg mass similar to the mass of a Red-winged Blackbird (*Agelaius phoeniceus*) egg was measured into 50mL Falcon tubes and the sample was spiked with a known amount of atrazine. The samples were vortexed and centrifuged at 4000 rpms for 10min. and then 1mL of the supernatant was transferred into a glass vile and run on a GC-MS. Atrazine was detected at a concentration of 100ppm. Fresh Red-winged Blackbird eggs were collected in south-central Nebraska (areas near agricultural fields that are treated with herbicides) and will be used for a future test to determine if wild eggs are exposed to atrazine.

Presenter: **Samantha Mitchell (48)**

Advisor: Kimberly Carlson

Title: *Detection of OTK18 via Immunoprecipitation*

OTK18 is a human transcriptional suppressor implicated as a regulator of immune system genes under homeostatic conditions. The role of OTK18 protein and promoter elements to which it binds under homeostatic conditions are unknown. This can be elucidated once full-length OTK18 is produced, purified and target OTK18 DNA binding sites are known. Therefore, full-length OTK18 with an N-terminal His tag was generated in the presence of protease inhibitors to prevent the degradation of OTK18 and aid in purification. Western blot analysis of purified His-tagged OTK18 protein in the presence of inhibitors showed intact full-length OTK18 protein with minimal degradation. Further, immunoprecipitation with an OTK18 monoclonal antibody was successful. The purified OTK18 protein can be used to determine the target DNA binding domains of candidate genes. Results of this study will characterize the OTK18 binding sites of candidate regulatory genes and insight into the elucidation of the organismal function of OTK18.

Presenter: **Scott Salzgeber (49)**

Advisor: Joseph Springer

Title: *How to Catch Herptiles and Where to Find Them*

The Willa Cather Memorial Prairie is a large natural prairie that has never been touched by a plow. This makes it an important treasure to Nebraska and also to the United States. As such it is important to keep this prairie in its natural condition, and

also to perform periodic examinations of its ecosystem. Amphibians and reptiles (hereafter referred to as “herptiles”) are an excellent indicator of the health of an ecosystem, amphibians being especially susceptible to outside human influences such as pesticides. Pitfall and funnel traps are useful in the trapping of all herptiles, and when incorporated with drift fencing provide excellent biodiversity results. Few studies have focused on determining the most effective trapping technique for various herptile species, as such the major foci of this study are on the most effective trapping techniques for different herptile species along with comparing habitat biodiversity.

Presenter: **Tony Bridger (50)**

Advisor: Keith Geluso

Title: *Late season movements and thermoregulation of garter snakes in a riparian floodplain*

Little is known about the hibernation behavior of garter snakes in river flood plains. Radio transmitters, often used to follow movements of vertebrates, were surgically implanted into 4 garter snakes, 3 common garter snakes and 1 plains garter snake. The daily movements and temperatures were tracked and documented from September through December. Habitat descriptions and weather conditions were documented for each observation. Daily movements were minimal for each specimen until early October when the greatest distances were traveled from grassland to woodland areas. Late October and November movements were slightly more restricted than during September. Daily internal temperatures of the snakes were typically warmer than corresponding

air temperatures. The current data suggests the importance of woodland locations during hibernation. Future management strategies should focus on conservation of woodlands in riparian floodplain habitats along the Platte River in central Nebraska.

Presenter: **Travis Claybrooks (51)**

Advisor: Julie Shaffer

Title: *Comparison of Antimicrobial Characteristics in *Nicrophorus carolinus* and *Nicrophorus marginatus**

Chemistry

Presenter: **Junqi Wang (52)**

Advisor: Haish Cao

Title: *Novel N-heterocycle carbenes*

In this context the project interest lies on the development of active acidic catalysts that are able to convert non refined oil and animal fats into biodiesel under low energy

Presenter: **Lingyun Yang (53)**

Co-Presenters: **Qiao Song, Junqi Wang, Wendi Mao, Mengnan Wang**

Advisor: Haishi Cao

Title: *Develop C=N recognition unite on 1,8-naphthalimides for toxic metal ion detection*

As part of the major industrial pollutants, Pb²⁺ and Hg²⁺ cause adverse environmental impacts and human health related problems, particularly for children (where lead poisoning is defined as blood levels above 5µM). Thus, developing a reliable and efficient approach with ability to detecting samples containing trivial amount cations is extremely important. Compared to traditional approaches relied

on complicated sample preparation or sophisticated instrumentation, fluorogenic probes provide a rapid, facile, and sensitive tool for metal cations detection. In our group, a C=N recognition unit on 1,8-naphthalimide was recently developed for detection of metal ions with high selectivity.

Presenter: **Noah Broekemier (54)**

Advisor: Hector Palencia

Title:

Presenter: **Noland Broekemier (55)**

Advisor: Hector Palencia

Title: *Brønsted acidic catalyst for the esterification of oleic acid with methanol*

Brønsted acidic catalyst for the esterification of oleic acid with methanol Biodiesel is an alternative to petrodiesel, with advantages such as lower emissions, low toxicity, and similar fuel properties, which makes possible to use it without modifying the engine vehicles. As biodiesel production is increasing, it is necessary to search for alternatives that can reduce its production cost, using non food feedstock. The problem is that alternative feedstock has a high content of free fatty acids (FFA) which deactivate standard basic catalysts. Brønsted acids, ionic liquid type, are explored as catalysts that can transform FFA into biodiesel at low cost. In this context we had synthesized several Brønsted acids and screened them as catalysts for the esterification reaction using oleic acid and methanol as a model to develop conditions. Oleic acid is a cheap material and accounts about 25% of soybean oil and for these reasons was selected. The synthesis of Brønsted acidic

catalysts and yields of methyl oleate, the ester product, will be presented.

Presenter: **Qiao Song (56)**

Advisor: Gene Wubbels

Title: *Acid-base Probes of a Putative Zwitterion σ -Complex in Photo-Smiles Nucleophilic Aromatic Photosubstitution*

Intra- or intermolecular nucleophilic photosubstitution para to a nitro group of aromatic ether is anomalous. We have shown that the intramolecular reaction (Smiles photorearrangement) occurs meta to nitro and is subject to general base catalysis. Irradiation of the para precursor at pH>11 generates dihydrobenzenes and stable nitronate anions. At 2 M NaOH, Smiles photorearrangement occurs by a geminate radical mechanism. Intermolecular para photosubstitution by an amine was recently shown by us to occur through a zwitterion σ -complex. We seek to demonstrate through intentional control of acid-base chemistry that the hitherto unknown para photo-Smiles rearrangement occurs, owing to a zwitterions σ -complex intermediate that does an unprecedented sigmatropic rearrangement.

Presenter: **Britni Hervert (57)**

Advisor: Hector Palencia

Title: *The Use of Organocatalysts in Sustainable Chemistry*

Vegetable oils are renewable resources for biopolymers, chemical intermediates, and biofuels. Glycerin is a cheap byproduct of the biodiesel synthesis from the transesterification between vegetable oils, such as soybean oil and methanol. Glycerol carbonate is seen as a promising green solvent that can be synthesized from

glycerin and dimethylcarbonate. We had developed a method that uses new, non-symmetrical N-heterocyclic carbenes (NHCs) for the transesterification of dimethylcarbonate and glycerol at room temperature and under solventless conditions. One of the most active catalysts yielded glycerol carbonate with 4 mol % at room temperature in less than an hour. Several catalysts were synthesized and screened for the reaction. The new catalysts were compared with other known NHCs and they were more active under the same conditions.

Math

Presenter: **Alicia Titus (58)**

Advisor: Pari Ford

Title: *Sanitation Insanity*

This project examines the current commercial sanitation routes in the city of Kearney, NE. The motivation for this project came from the author's interest in Operations Research [OR]. OR is the analysis of real life scenarios with a goal of improving overall efficiency (i.e. lowering cost, time, distance, etc.). There are many factors related to this project and the author focused on minimizing the distance of a particular day's routes. This was achieved through gathering data from the Director of Sanitation, mapping current routes, and comparing to alternative routes. The routes were mapped using the Google Earth application. This problem is the traveling salesman problem in graph theory. The alternative routes were composed based on optimization using the nearest neighbor algorithm. Though this doesn't guarantee the shortest route, the route is significantly more efficient.

Presenter: **David Hayes (59)**

Advisor: Aaron Clark

Title: *Limit Cycles*

The identification of limit cycles in planar differential equations, both linear and almost linear, was explored. Numerical techniques were used to identify the possible locations of the limit cycles and various analytical techniques were used to prove or disprove their existence. A possibly new method of identification was discovered and its validity tested.

Presenter: **Josh Brummer (60)**

Advisor: Aaron Clark

Title: *Conway's Game of Life*

Conway's Game of Life is a well-known simulation which involves a square lattice of living and dead cells. As time progresses, the state of each cell changes based how many living and dead neighbors the cell has from one iteration to the next. My research involved the introduction of the ability of cells (which I considered vertices) to spawn new neighbors if conditions are just right. I examined how different initial conditions and states affected the evolution of the graph and whether periodic behavior could be reliably predicted.

Physics

Presenter: **Benjamin Fullerton (61)**

Advisor: Ken Trantham

Title: *Earth's Magnetic Field Effect Reduction*

My goal for the project is to minimize the earth's magnetic field effects on a region of the spin polarized electron device. Since the device was moved from its previous location it has failed to function correctly. Dr. Trantham believes the electrons are

being lost due to the earth's magnetic field deflecting them off the expected pathway to the detector. We have built electromagnets to minimize the earth's magnetic field in the region of the device necessary to correct the error. Before building the electromagnets, we worked with the Bio-Savant Law to model the expected results from a predetermined electromagnet configuration. These models were created on spreadsheets which allowed us to look at the magnetic field at any point from the magnetic coil. The current in the magnetic coil and the location of the magnetic coil must be adjusted until the desired results are accomplished. Once this project is complete, research can resume on electron spin polarization.

Presenter: **Jason Teten (62)**

Advisor: Liubov Kreminska

Title: *Experimental Study of the Edge Dislocation Wave During Diffraction of Light on the Obstacle*

This experiment is a further examination of the Sommerfeld solution of plane-wave diffraction from a perfectly conducting half-plane. We were looking to be able to characterize the diffraction field as a superposition of real physically existing waves. The project consisted of setting up the experimental optics equipment necessary to study the existence of the Edge-Dislocation wave, occurring at diffraction of light on the edge of the obstacle. With data taking instruments we were able to optimize parameters to improve our initial results. Analysis of our experimental data was conducted to see how it compared with the theoretical results. This characterization of

the diffraction can be applied to amplitude-phase mask for holography and navigation systems used in optics.

Presenter: **Kayla McMahon (63)**

Advisor: Liubov Kreminska

Title: *Analysis of Phase Transitions of Lyotropic Chromonic Liquid Crystals*

I have been researching lyotropic chromonic liquid crystals. I read both recent and previous publications on the topic. Recently, I have been analyzing samples that I made of the liquid crystals using differential scanning calorimetry. I plan to continue doing this to test the temperature at which the phase changes occur.

Presenter: **Nathan Brady (64)**

Advisor: Liubov Kreminska

Title: *Study of Phase Transitions in IR-806*

Our focus for this research is the study of the Lyotropic Chromonic Liquid Crystal phases of IR-806 and the perfection of the data collection process. We have reviewed past data and research from other undergraduate researchers and have begun the initial measurement check of the equipment with known polarizers for precision and accuracy of actual samples. Review of Labview code and debugging was necessary for the automated laser measurements in later testing. This research will help to improve the accuracy of data by incorporating different preparation methods and to streamline the data collection process for IR-806.

Presenter: **Tyler Troyer (65)**

Advisor: Timothy Reece

Title: *Production of Transmission Holograms Using Semiconductor Lasers*

Using modern techniques, transmission holograms were produced using a relatively unconventional laser. The best holograms are produced by projecting a light wave interference pattern onto a photographic/ photosensitive film. This only works with coherent light, so a laser must be used. For clean interference to occur, the beam profile of the laser beam is ideally smooth, regular, and Gaussian in nature. This limits the types of lasers that can be ideally used for hologram production. It was found that by using a semiconductor based laser, (with a beam aberration) clean holograms can still be produced – even as the beam profile is oval in shape. Holograms produced by the experimental setup will be displayed along with a mock up of the experimental setup itself. The physical and chemical mechanisms behind hologram production will also be presented.

Professional & Applied Sciences

Communication Disorders

Presenter: **Candace Long (66)**

Co-Presenter: **Meghan McKeone**

Advisor: Linda Crowe

Title: *Child Misarticulations and Teacher Response*

By using pre-recorded language samples of ten preschool aged children, we will analyze their misarticulations with respect to teacher feedback or non-responsiveness. The language samples were recorded in a preschool setting and transcribed with the Computerized Language Analysis (CLAN). After creating commands and transcribing the videos, the child's language and the teacher-child conversation will be analyzed. This will be accomplished by counting the number of misarticulations of the child and the number of teacher responses to the misarticulations. We are specifically interested in the teachers' appropriate or inappropriate responses to child misarticulations and whether or not this is affected by the total number of child utterances.

Computer Science and Information Systems-CSIS

Presenter: **Jacob Beck (67)**

Co-Presenters: **Ben Versaw, Rikiya Ishizaki, Jeonghoon Yun**

Advisor: Sherri Harms

Title: *AI Robotics: Grid-world Robot Race*

This project presents the results of robots navigating a grid world maze. The objectives of this project were 1) understand the interplay between the physical design of a robot and the mental capacity of the robot in solving a problem; 2) experiment with various physical designs as well as mental, or algorithmic designs; and 3) compare the robotic designs by having them compete against one another. On each attempt, a

robot will be allowed a maximum of four minutes to navigate the grid-world to find the goal. The robot that successfully navigating both grid-worlds in the shortest combined time is the winner. This project concluded with a robotics competition at the Midwest Instruction and Computing Symposium (MICS) in Cedar Falls, IA on April 13th, 2012. The students' robot competed against robots created by university students in a six-state area.

Presenter: **Kelsey Bard (68)**

Advisor: Sherri Harms

Title: *User Assessment of Aviation Records Management System: System Features, Usefulness, and Ease of Use*

This research involves conducting a usability study of an aviation records management system. This system was created during the 2010-2011 academic year and designed for the University of Nebraska at Kearney Aviation Systems Management program. The goal of the current research is to explore the best practices for conducting usability studies, create the study as per University policy, conduct the survey on the usability of this system, analyze the results, and make necessary changes to the system. Records management can often be a cause of lacking security and organization within a department, and this is especially true for aviation related departments. The survey covers topics such as overall satisfaction, success of meeting user expectations and desires, and ease of use. From the results, I will be able to enhance the system to better support various aviation programs and ultimately make the system available open-source for any interested parties.

Presenter: **Kelsey Nuzum (69)**

Advisor: John Hastings

Title: *Experimenting with LED energy usage*

The objectives of this project were 1) collecting data about energy used on building when computer program runs a light show; 2) understand programming sequencing involved in switching light on and off to create a pattern; 3) making a model of one such show to display to an audience. Within the model I use LED lights with a circuit board, to simulate the large scale model. I will record the energy used in the process according to controlled data from a software program called Arduino with the Teensy (USB-based microcontroller development system). My goal is to experiment with aspects of using different amounts of voltage and find ways to control and minimize energy usage.

Presenter: **Tyler Adelung (70)**

Advisor: John Hastings

Title: *Assessing Case-Base Coverage Using Solution Similarity*

The ability of a case-based reasoning (CBR) system to adequately solve new problems it faces is critical to its performance. This solution ability is tied greatly to the coverage of problem space by the case library. Prior research does not attempt to measure the solutions (for the new cases), and thus would fail to fully assess how well the case library covers problem space. We argue that any assessment of problem space coverage must also look at the solutions. The quality of any generated solution is unknown. However, we suggest that solution similarity can be used as an alternate next-best measure of expected

solution quality. Instances of new problems with high case similarity and low solution similarity suggest deficiencies with the system and/or the coverage of problem space which should be further investigated. Our research introduces this approach and provides the results of this approach on an example CBR system.

Economics

Presenter: **Roy Machamire (71)**

Co-Presenters: **Anne Maina, Pamela Thindwa**

Advisor: Frank Tenkorang

Title: *The Economic Impact of the 2010 FIFA World Cup-South Africa*

The desire to host the Federation of International Football Association (FIFA) World Cup stems from many factors including the likelihood of winning the cup, and potential macro and micro economic benefits. Of the 19 world cups as of 2010, there have been only six host nation champions, two runners-up, and three third placed. Hence it is fair to say that the chance of a host nation winning the cup is about 32 percent. The question to ask is, whether the cost involved is worth taking such a 30ish percent chance? Our research focuses on the economic impact of the 2010 FIFA World Cup hosted in South Africa. The objective of this study was achieved by analyzing inflation rates, unemployment, Gross Domestic Product (GDP), Foreign Direct Investment, and exchange rates. Notably, the job market created during the preparations for the World Cup especially in the development and expansion of infrastructure such as roads, public transportation, stadiums, and airport renovations.

Presenter: **Ryan Dethlefsen (72)**

Advisor: Frank Tenkorang

Title: *Time Series Analysis of Corn Price Forecasting*

The emergence of the relationship between agricultural and energy markets is well observed. The relationship implies the agricultural market is exposed to the volatility in the energy market. Historically, the ability of producers to forecast prices has been a way to alleviate risk for producers. The research question being explored is whether the observed relationship has any effect on the accuracy of forecasting agricultural prices. One of the best predictors of what will happen tomorrow is known to be what happened yesterday. Corn prices are no different. Using historical corn prices as well as crude oil prices, a forecasting model (ARIMA) was estimated to explore the power of these historical price sets in conjunction with one another in predicting corn prices in the future. The model performed quite well.

Family Studies & Interior Design

Presenter: **Emily M. Smith (73)**

Advisor: Tawnya Westfall

Title: *Literature review about university dorm lounges and their effect on the current student population*

This literature review is looking at research, articles, and interviews others have done that explore the design of dormitories in universities and how they affect students. It also looks into how students can affect the way that universities build their housing. Housing is now a big part of what students look at when they are choosing a college

and schools know that. Although this is included in the literature review, my primary focus is the dormitory lounge effect on the current student population. The design can affect the students' social life, their study habits, and their involvement on campus. Although universities are playing "keeping up with the Joneses", this study is meant to shed light on what college students really need out of dormitory lounge designs, though they think they need just the latest luxuries.

Geography

Presenter: **Allison Claar (74)**

Co-Presenter: **Austin White**

Advisor: Jeremy Dillon

Title: *Tree-Ring Analysis of Recent Climate vs. Land Use Changes*

This is a pilot study to evaluate the usefulness of tree-ring analysis in identifying recent climate and land use changes in the Kearney area. We have obtained core samples from 10 trees in Cottonmill Park: Five from Cottonwood trees and five from Ponderosa Pine. We selected trees from irrigated and non-irrigated sites. Our plots of ring width versus Average Annual Precipitation (AAP) show a relatively weak correspondence between AAP and tree ring width. This is likely due to our small sample size and the timing of rainfall events. However some basic trends appear. For example, low AAP during the years 2001–2003 can be identified in most cores. Human disturbance (nearby construction and implementation of irrigation) is also identified. Our results show the potential of tree ring analysis for various applications in the Kearney area.

Presenter: **Jesse Bartels (75)**

Advisor: Jeremy Dillon

Title: *Differences between Soil Mapping Units in a Playa Dune Landscape*

In this study we use field and laboratory data to test a soil-landscape relationship commonly used by the Soil Conservation Service to map soil series over large areas. Our site is a deflation basin and related dune in Kearney County, Nebraska. We obtained one soil core from the dune, two cores from the basin, and one from a relatively flat surface outside of the playadune system. Our results show that the soils at the site are different than the soil series mapped in the Soil Survey. They are similar, but all have thicker soil horizons and overall soil profiles. The soil on the dune reflects burial by eolian deposition. The soils in the basin reflect burial by stream deposition and "leveling" for agriculture. These data illustrate the complexity of "straightforward" soil landscapes.

Presenter: **Kiley Anderson (76)**

Co-Presenters: **Austin Land, Jaci Wright**

Advisor: Jeremy Dillon

Title: *A Comparison of Laboratory Methods for Soil Organic Matter Content*

Total organic carbon is an important soil constituent. Along with its benefits to plant growth, the amount of organic carbon in a soil is an important tool for various investigations in physical geography and geology. In this study we compare two procedures used to measure the amount of organic carbon in a soil. We are completing the Loss on Ignition (LOI) method at 1, 1.5, and 2-hour combustion times. The second

method (CO₂ gas volumetric – the “gold standard”) will be completed by the NRCS National Soil Survey Laboratory in Lincoln. Our goal is to compare our LOI method to the “gold standard.” We will complete regression analysis to 1) evaluate which heating duration best correlates with the CO₂ gas volumetric results, and 2) calculate a correction factor for our LOI method. The correction factor will then be used for future student research and teaching projects.

Health, Physical Education, Recreation, and Leisure Studies - HPERLS

Presenter: **Bridgette Schneekloth (77)**

Co-Presenter: **Dylan Oatman**

Advisor: Erin Holt

Title: *Difference in Moderate to Vigorous Physical Activity Minutes during Organized Indoor Recess Activities and Indoor Free Play*

School recess provides an opportunity for elementary students to accumulate 30-45 minutes of physical activity (PA) per day. However, during inclement weather, recess is spent indoors, which normally reduces minutes of physical activity. The purpose of this study was to compare minutes of moderate to vigorous PA (MVPA) during organized indoor recess and indoor free play. Ninety-nine elementary students (4th-5th grade; 50 females; 49 males) participated in organized indoor recess activities (Geo-Fitness®, Wii® Just Dance™, and small space games) and indoor free play while wearing MTI Actigraph accelerometers to assess minutes of MVPA. Differences in MVPA between organized indoor recess and indoor free

play will be calculated using a t-test ($p < 0.05$). We will present and discuss the results of this analysis.

Presenter: **Hannah Harmon (78)**

Advisor: Nita Unruh

Title: *The Impact of Sports on Body Image*

The Impact of Sports on Body Image is a research project to look into the role of sports in the development of a person’s body image. Sports play a huge role in society and wanted to see if participation will either positively or negatively affect a person’s perception of body image. Research from previous studies were gathered, read published articles, and conducted a survey. Focused the study on University of Nebraska at Kearney students and their perception of their body image from high school sports participation and now through other forms of sports participation, exercise, or no sports participation at all. By conducting meaningful surveys to help gain insight on the issue will help better see how students here at the University perceive their body image in connection with sports participation and media. Researching other previous studies will help compare the results found here at University .

Presenter: **Caitlin Golden (79)**

Advisor: R. Todd Bartee

Title: *Self-regulation and self-monitoring and the success rate of participants in a 12-week family based intervention*

Background: Self-regulation and self-monitoring have been identified as important predictors of physical activity. These two factors are expected to result in positive outcomes with nutrition related behavior changes and weight loss. Methods:

Children ages 6-11 and have a BMI percentile of 95th or higher based on CDC growth charts completed a 12-week family-based intervention. Families were encouraged to complete weekly habit books accessing consumption of “red” foods, their minutes of accumulated physical activity, and the number of steps taken every week. Results: This project examines the completion level of self-monitoring and their success rate in the program with weight loss and nutrition related behavior changes. Discussion: Implications for program modification will be discussed along with comparisons to similar studies.

Presenter: **Charles E. Sepers, Jr (80)**

Advisor: R. Todd Bartee

Title: *Efficacy of Two Theory-Based 12-Week Internet-Mediated Walking Programs*

The purpose of this study was to measure the effects of two, 12-week, internet-mediated walking programs of differing degrees of theoretical fidelity, on behavioral mediating variables, program engagement, and weekly physical activity (PA). We hypothesized these variables would improve significantly among participants in a high fidelity (HF) group when compared to those in a low fidelity (LF) group. Participants included 52 Caucasian women from a rural, Midwestern community, recruited through worksite wellness coordinators. After 12 weeks, participants in the HF group significantly increased weekly PA from baseline compared to the LF group, however, only Walking Self-Efficacy had significantly improved in the HF group. Engagement and the majority of the mediating variables were not significantly different between groups, $p > .05$. These results indicate that pedometer use has the

potential to increase Walking Self-Efficacy in walking behavior-change programs, but increasing participant engagement is an important next step in future internet-based programs.

Presenter: **Danielle Perry (81)**

Advisor: Kate Heelan

Title: *Validity of the Online Calorie Counter MyFitnessPal.com*

Free online calorie counter applications, like MyFitnessPal.com, have become popular downloads over the past few years to assist individuals in calculating energy intake. These programs allow people to select foods that they have eaten from a large database, and then calculate their total daily energy, macronutrient, and micronutrient intake. PURPOSE: To examine the validity of MyFitnessPal.com against a criterion research grade nutrient analysis program; The Food Processor® Nutrition and Fitness Software (esha Research, Salem, OR) for energy, macronutrient, and micronutrient intake. METHODS: Thirty food logs will be entered in both MyFitnessPal.com and the Food Processor. Pearson correlation coefficients will be used to determine validity coefficients between the two nutrient analysis programs for total daily energy intake, macronutrient, and micronutrient intake.

Presenter: **Emma Carstens (82)**

Advisor: Kate Heelan

Title: *Family Influence on Physical Activity*
During childhood, family influence on exercise behavior is based on modeling of skills and interests, reinforcing behavior, and providing activity prompts and settings (Dishman, et. al., 1985). The purpose of this

study is to determine the association between parent participation in family based physical activity and child's weekly participation in physical activity. Each week at Building Healthy Families meetings, parents will be rated on level of participation in the family activity using a sum of observation scores. Parent activity scores and weekly step scores will be correlated with children's weekly step counter results and weight loss using s Pearson correlation coefficients.

Presenter: **Jayleen Lambert (83)**

Advisor: Kate Heelan

Title: *The impact of a physically active instructional technique on classroom behavior and time spent on-task among elementary students.*

While the importance of physical activity for overall health and fitness is widely known and well documented, the impact of physical activity on child behavior, particularly in an educational setting is still in the infancy stage (Mahar et al., 2006). Data has suggested that the purposeful inclusion of physical activity into the daily curriculum has resulted in increased test scores as well as decreased the need for disciplinary action (Torporek, 2011, Viadero, 2008). PURPOSE: To determine if implementing ten minutes of physical activity during instructional classroom time will increase students' time spent on-task and improve classroom behaviors. METHODS: 47 kindergarten, 2nd, 3rd, and 4th grade students were observed on two separate occasions during a teacher selected, 60 minute, instructional time block. Each student was observed for 60 seconds followed by a brief recording period where behavior was listed as work

(W), fidget (F), listless (L), or disruptive (D); time spent on or off-task was also recorded. This observation/recording cycle was repeated for the entirety of the 60 minute classroom period. Students were observed on two separate occasions during typical classroom instruction and following a teacher led, physically active lesson to determine whether the physical activity affected students behaviors and time spent on-task. The percentages of time spent on-task and off-task as well as the four behaviors (W,F,L,D) were compared between the typical classroom and physically active classroom periods.

Presenter: **KayCee Upton (84)**

Advisor: Greg Brown

Title: *Elevator versus Stair Use by UNK Students in Centennial Towers East*

Physical Activity is essential for the prevention of numerous diseases and the promotion of an overall healthy lifestyle. Physical activity does not need to be "exercise" to have a meaningful impact on health, but can simply be a matter of incorporating physical activity such as taking the stairs instead of the elevator. This research project evaluated stair use compared to elevator use in a residence hall on the UNK campus. On numerous occasions during spring semester 2012 the entrances to the stairs and elevator in CTE were observed, and the numbers of people using the stairs and elevator (ascending or descending), time of day and gender were recorded during the observation periods. The data from this project will be used to refine the observational techniques to be used in a future intervention being designed to enhance stair use.

Presenter: **Krista Scheer (85)**

Co-Presenter: **Sarah Siebrandt**

Advisor: Greg Brown

Title: *Heart Rate, Oxygen Consumption, and Ventilation due to Different Physically Active Video Game Systems*

PURPOSE. The purpose of this study was to compare heart rate, oxygen consumption, and ventilation while playing three hand to hand combat-style games--Nintendo Wii Boxing, XBOX Kinect Boxing, and Sony Move Gladitorial Combat. **METHODS.**

College-aged participants were assessed for resting heart rate, oxygen consumption, and ventilation. The participants engaged in a maximal exercise test evaluating heart rate, oxygen consumption, and ventilation. On another day, the participants played Wii Boxing, Kinect Boxing, and Move Gladitorial Combat against a computer or human opponent for eight minutes each.

CONCLUSIONS. Playing Nintendo Wii Boxing, XBOX Kinect Boxing, and Sony Move Gladitorial Combat increase heart rate, oxygen consumption, and ventilation above resting levels. However, the magnitude of increase in heart rate, oxygen consumption, and ventilation is not influenced by gaming system, or playing against another person. Overall, playing a "physically active" video game meets only the minimal threshold for moderate intensity physical activity.

Presenter: **Lindsey Eubanks (86)**

Advisor: R. Todd Bartee

Title: *Physical Activity's Impact on Oral Health*

Background: Oral health is affected by more than just good tooth brushing. Dietary influences as well as physical activity may

also have an impact on oral health.

Osteoporosis is characterized by decreased bone density and is also caused by many factors including inactivity, menopause, and diet. The purpose of this study was to determine the relationship between oral health status, osteoporosis and physical activity. **Methods:** Three major health-related data bases (Pubmed, National Institutes of Health, and Journal of Dental Health) were searched for studies related to physical activity, bone mass, osteoporosis, oral health, and or periodontitis. **Results:** Women with osteoporosis were three times more likely to experience tooth loss than those who do not have the disease. Exercise was shown to optimize bone strength throughout life and prevent osteoporosis. **Conclusion:** Positive oral health could possibly be enhanced by being physically active.

Presenter: **Michelle Jarvi (87)**

Advisor: Greg Brown

Title: *Paintball is a Blast ... But is it Exercise?*

Paintball has been played as an organized sport since the 1980's, but there has been minimal evaluation of paintball as physical activity. This project used accelerometry and heart rate to evaluate quantity and intensity of physical activity in boys playing paintball. Average heart rate during the 6 hours of paintball play was 127.4 ± 6.5 beats/minute, representing ~40% of heartrate reserve. During the 6 hours of paintball play the boys accumulated 141.8 ± 24.3 minutes of moderate and 6.1 ± 4.6 minutes of intense physical activity. Throughout the seven games of paintball play, which totaled 80.6 ± 10.0 minutes, the boys accumulated 63.2 ± 15.1 minutes of

moderate activity and 2.6 ± 2.8 minutes of vigorous activity. Therefore, 82% of physical activity during paintball is of moderate to vigorous intensity, and a full day of paintball provides some intense physical activity and enough moderate physical activity to promote health.

Presenter: **Shelby Zimmerman (88)**

Advisor: Kate Heelan

Title: *Energy Intake of Obese Children*

Portion sizes have significantly increased over the past two decades, along with the prevalence of obesity, as approximately 17% or 12.5 million children and adolescents between the ages of 2-19 years are currently obese (CDC.gov). PURPOSE: To evaluate the energy and macronutrient intake of obese children and compare to the recommended Dietary Reference Intakes for children. METHODS: Three day food records of 30 obese children will be analyzed for energy and macronutrient intake using nutrient analysis software. Total daily energy intake (kcal/day) and macronutrient intake (grams of protein, fat, and carbohydrate) will be compared to the Recommended Dietary Allowances provided by the United States Department of Agriculture and the Dietary Reference Intakes created by the Children's Nutrition Research Center at Baylor College of Medicine based on age and gender.

Management

Presenter: **Landon Fuller (89)**

Advisor: David Palmer

Title: *The Origins of Going Green*

Sustainability and the notion of "going green" has become more evident as an organizational strategy. This paper explores the origins of this trend. What does it mean

to be "green?" What effect does "going green" have on consumers, business, and the community? Is it a fad or does it represent a fundamental paradigm shift?

Teacher Education

Presenter: **Betsy Battreall (90)**

Co-Presenter: **Marissa Schleiger**

Advisor: Jane Strawhecker

Title: *An Invitation to Learning: Involving Community as Guest Speakers to Prepare Kappa Delta Pi Teacher Education*

The research project was based on UNK's Chapter of Kappa Delta Pi-Eta Phi. At the biannual National Convention 2011, we presented a poster demonstrating how our chapter is able to have such a great community relationship. Our survey, process, pictures, and quotes from our Chapter are displayed on the poster. Kappa Delta Pi-Eta Phi's relationships with the community is strengthened through: holding Mock Interviews with local principals, learning about technology, approaching resume's and cover letters, communicating with first-year teachers, and more. The idea is to prepare future educators to be the best teacher they can be and continue to be.

Presenter: **Jennifer Benzo (91)**

Advisor: Jeff Kritzer

Title: *Special Education in Spain*

Two elementary schools in Madrid, Spain are surveyed to determine services provided to students with disabilities. A paper is being written that discusses the history of special education in Spain, important laws and the process by which students are served.

Graduate Poster Presentations

Biology

Presenter: **J.J. Moose Henderson (92)**

Advisor: W. Wyatt Hoback

Title: *Overwintering of Isopods in Three Riparian Environments*

Terrestrial isopods, commonly known as sowbugs, pillbugs, woodlice, or roly polies, are important detritivores found mainly under wood, loose bark, and under stones. Detritivores play an essential role in the decomposition and movement of organic matter. In addition, isopods and other arthropods are an important food source for other insects, birds, small mammals and amphibians. In Nebraska, there are 9 species of terrestrial isopods, including *Armadillidium vulgare*, the common pillbug. These isopods are not native to the U.S. and the literature suggests that they suffer high mortality during winter when they are away from human settlements; however no direct tests for overwintering of this species have been reported. Thirty tubes, one meter long and 10 cm in diameter, were sunk into the ground on October 14, 2010 at Ft. Kearney Recreational Park and 20 isopods were added to each tube. Ten tubes were extracted the first week of January 2012, an addition 10 were extracted the first week of March 2012 and the final 10 will be extracted in May 2012. Contrary to our hypothesis that isopods would bury below

the frost-line we found living isopods at the surface. Upon completion of this study, we hope trials will help illuminate how and where isopods overwinter and will clarify the impacts of habitat disturbance, restoration, and conservation efforts.

Presenter: **Michael Cavallaro (93)**

Advisor: W. Wyatt Hoback

Title: *Come Hypoxia or High Water: Immersion Tolerance of the Semi-Terrestrial Platte River Caddisfly (*Isonychia plattensis*)*

The Platte River caddisfly (PRCF), *Isonychia plattensis*, is an insect that is only found associated with side river channels in central Nebraska. During the summer months, these areas are subject to spring flooding followed by drying. The PRCF is adapted to this cycle, partitioning its time as larvae in water and on land. Flooding can cause hypoxia or oxygen limitation and most terrestrial organisms that are trapped underwater drown in a short period. For the aquatic larvae, drying can lead to algal blooms in shallow, warm waters which results in severe hypoxia. This may play an important role as an environmental stimulus for larvae to move to land. We exposed aquatic and terrestrial PRCF larvae to severely hypoxic water and found that the aquatic stage is more sensitive to hypoxia. This study is important to understanding environmental factors that affect this rare species and its unusual lifecycle.

Presenter: **Sara English (94)**

Advisor: Dawn Simon

Title: *Effects of Soil Nitrogen levels on fungal abundance in an urban ecological reserve*

Only a fraction of the estimated 1.5 million species of fungi have been described, at the same time fungal abundance and diversity are declining. Loss of unknown biodiversity is a particular problem in urban habitats, which are prone to nitrogen pollution. Excess nitrogen can cause a decrease in sporocarp (above-ground fruiting bodies) production, which precedes the loss of underground fungi. This study examined the impact of soil nitrogen on total sporocarp abundance in an urban ecological reserve in Charlotte, NC. Sporocarp abundance and soil nitrogen was measured at four different ecotypes (creek, flood plain, hardwood forest and pine forest) over a two month period. Soil nitrogen and the number of sporocarps were inversely proportional in our study, but the results were not statistically significant. However, the number of sporocarps did differ significantly based on ecotype. This indicates that factors other than soil nitrogen are important in determining sporocarp abundance.

Presenter: **Allyn Lambertz (95)**
Advisor: Kimberly Carlson
Title: *Decreasing rates of*

Physics and Physical Science

Presenter: **Laura Slaymaker (96)**
Advisor: Ken Trantham
Title: *Exploration of Color Quantification Techniques Essential to Brewing and Proposed Device for Obtaining Color Values*

Understanding and exploring the brewing process is important to producing a

consistent product consumers continue to buy. One important aspect of this process is the control of color in the final product. Due to the large potential variation in color, it is necessary to develop a systematic method for determining beer color that is precise, efficient and easy to use. In an industrial setting, color be carefully controlled and measured to ensure homogeneity of the final product This is typically done using expensive laboratory equipment. Home brewers also want quantify the color of their final product and need a simple way to measure color. In this research, a proposed electronic device, used to simplify the color measurement, measured absorbance values at certain wavelengths. The results from the device were compared to values obtained from a UV-vis spectrophotometer to verify the device's accuracy and to provide a standard for calibration.

Marketing/MIS

Presenter: **Riza Dogan (97)**
Advisor: Sri Seshadri
Title: *Antecedents to Students' Performance in MBA Programs*

Graduate schools of business use several criteria for admitting applicants into their program with the intent of weaning out those who are unlikely to succeed in their MBA program. It is important to select promising students who will succeed in the program because successful completion of the MBA and immediate job placement directly impacts the reputation of the business school. Standardized tests like GMAT/GRE, undergraduate grade point average (UGPA), the length and quality of work experience etc. are some of the factors that admission committees consider before

making admission decisions. The literature review suggests that GMAT scores and UGPA are the good predictors of MBA student performance in terms of Graduate GPA (GGPA). However, these two factors do not completely explain the variation in MBA student performance; therefore, other factors such as work experience, internal-motivation, language efficiency etc. should also be considered by graduate schools before making admission decisions.

HPERLS

Presenter: **Andrew Hudson (98)**

Advisor: Kate Heelan

Title: *Evaluation of Weight Loss in Parents Participating in a Pediatric Obesity Treatment Intervention*

Building Healthy Families (BHF) is a 12-week pediatric obesity treatment program consisting of nutrition, physical activity and behavior modification curriculum. BHF was created in response to the increase in childhood obesity epidemic and requires parental participation for creating child social support systems. The primary aim of the current investigation is to evaluate weight loss results of parents participating in a family-based pediatric obesity treatment program. Five cohorts of families with children above the 95th BMI percentile participated in the program. 61 parents were assessed at baseline and 12-week post intervention for weight loss. Adults lost 14.92 ± 10.59 lbs ($p < 0.01$) or $6.97 \pm 4.64\%$ of body mass ($p < 0.01$) during the 12 week program. For weight loss, a large effect size was found ($d= 1.48$, $p < 0.01$) from the BHF intervention. Family-based pediatric obesity programs can provide a

successful weight loss modality intervention for adult participants.

Presenter: **Joe Scharfenkamp (99)**

Advisor: Kate Heelan

Title: *Relative Energy Expenditure at a Given Rate of Perceived Exertion on an Elliptical Cross Trainer and Cybex Arc Trainer*

Cross-trainer machines have become an increasingly popular modality for people to achieve an effective, yet low impact cardiorespiratory workout. PURPOSE: To compare energy expenditure between the Cybex 750 Arc Trainer and the EFX 546 Precore elliptical cross-trainer at a given rate of perceived exertion (RPE).

METHODS: 12 college-aged students exercised on the arc trainer and elliptical cross-trainer at a similar RPE (13-14) while respiratory gasses were measured with a Parvo Medics TrueOne 2400 Metabolic Measurement System. RESULTS: There was no significant difference between the elliptical and the arc trainer for energy expenditure (11.47 ± 3.71 vs 11.87 ± 4.20 kcal/min; respectively, $p > 0.05$).

CONCLUSION: The Cybex Arc Trainer showed similar levels of energy expenditure when compared to an elliptical cross-trainer. Both modalities can be used to attain an effective cardiorespiratory workout.

Performance Presentations Sandhills Room

- 1:30 Presenter: **Jonathan Hunzeker**
Advisor: Seth Fletcher
Title: *Arrangements for Loper Low Brass*
- 1:50 Presenters: **UNK Voice - JoanAnn Blomstedt, Sydney Clifton, Addison Heeren, Madison Hoge, Elizabeth Liebermann, Codie Milford, Dillon Nelson, Jordan Peterson, Katherine Ridder, Nate Rocke, Lauren Rudolph, Kaylie Wilson**
Advisor: Andrew White
Title: *Regional NATS (National Association of Teachers of Singing)*
- 2:10 Presenter: **Brooke Harris**
Advisor: Franziska Nabb
Title: *Gary Schocker's "Ambidextranata"*
- 2:30 Presenter: **Dan Yu**
Advisor: Nathan Buckner
Title: *Solo Piano Performance*
- 2:50 Presenters: **Natalie Burling & Nate Rocke**
Advisor: Janice Fronczak
Title: *Irene Ryan Acting Competition Package*
- 3:00 Presenter: **Lauren Rudolph**
Advisor: Anne Foradori
Title: *Musical Teacher National Association Collegiate Artist Competition*
- 3:10 Presenter: **Christopher Gugel**
Advisor: David Nabb
Title: *2012 North American Saxophone Alliance Biennial Master Class Performance*

**Musical
Performance
Sandhills Room**

1:30 p.m.

Presenters: **Jonathan Hunzeker**

Advisor: Seth Fletcher

Title: *Arrangements for Loper Low Brass*

The pieces “Duel of the Fates” by John Williams and “Christmas Time is Here” by Vince Guaraldi were arranged for the Loper Low Brass. Research included studying scores, listening to different recordings of these pieces, studying similar types of music, researching the composers, and becoming acquainted with the capabilities and general rules of arranging for the instruments involved.

1:50 p.m.

Presenters: **UNK Voice: JoanAnn Blomstedt, Sydney Clifton, Addison Heeren, Madison Hoge, Elizabeth Liebermann, Codie Milford, Dillon Nelson, Jordan Peterson, Katherine Ridder, Nate Rocke, Lauren Rudolph, and Kaylie Wilson**

Advisor: Andrew White

Title: *Regional NATS*

UNK Voice students had the opportunity to participate in the regional student auditions and conference of the National Association

of Teachers of Singing in November at Fort Hays State University in Hays, KS.

Students compete against peers from other institutions in a four-state region, entering in classical or musical theatre categories.

Representative performances will be presented for Student Research Day.

2:10 p.m.

Presenter: **Brooke Harris**

Advisor: Franziska Nabb

Title: *Gary Schocker’s “Ambidextranata”*

American Gary Schocker (b. 1959) is the most published living composer of flute music. He also is a talented flutist, pianist, and teacher. He has studied the Alexander Technique, a mind-body practice, for over twenty years. Ms. Harris was able to attend the Gary Schocker summer masterclass in West Park, NY, from July 12-17, 2011, where she received one-on-one and group instruction from Gary Schocker. On February 18, 2012, she presented a lecture recital in the UNK Fine Arts Recital Hall of Mr. Schocker's flute music. *Ambidextranata* is a work that openly displays Gary Schocker’s creativity; the piece is for flute and piano, one player. The performer holds the flute in the left hand while playing piano with the right.

2:30 p.m.

Presenter: **Dan Yu**

Advisor: Nathan Buckner

Title: *Solo Piano Performance*

The present performance consists of solo piano literature performed during the

divisional level of the Music Teacher's National Association Young Artist Piano Competition held in January of 2012 in Boulder, Colorado; along with piano literature prepared more recently. Composers include Johann Sebastian Bach, Isaac Albeniz, and Franz Liszt.

2:50 p.m.

Presenter: **Natalie Burling**

Co-Presenter: **Nate Rocke**

Advisor: Janice Fronczak

Title: *Irene Ryan Acting Competition Package*

From my performance in The Rocky Horror Show at UNK last fall, I was nominated to be an Irene Ryan Acting Competition candidate and I competed at our regional Kennedy Center American College Theatre Festival this January. It is a major acting competition to win a large scholarship and be able to go and further compete at the Kennedy Center. I then rehearsed a six minute total package which included two scenes and one monologue. Out of almost 300 candidates, I made the first cut down to 65 students at our regional festival where theatre departments from seven states were represented.

3:00 p.m.

Presenter: **Lauren Rudolph**

Advisor: Anne Foradori

Title: *MTNA Collegiate Artist Competition*

The Collegiate Artist Competition sponsored by the Music Teachers National Association promotes a high-level

competition of classical recital repertoire for students, ages 19 - 26 on all principal instruments, including voice. As the Nebraska vocal representative, I competed against students from a seven-state region at the District Competition in Boulder, Colorado in January, 2012. Today, I will present excerpts from that competition recital.

3:10 p.m.

Presenter: **Christopher Gugel**

Advisor: David Nabb

Title: *2012 North American Saxophone Alliance Biennial Master Class Performance*

On March 16, 2012, Chris performed in a saxophone master class as part of the 2012 North American Saxophone Alliance Biennial Conference, which was held at Arizona State University in Tempe, AZ. To be selected for master class participation, Chris had to prepare a recorded audition piece and submit it for review. This master class was open to student saxophonists of all age levels from across the nation. The presenter of the master class was Dr. Eugene Rousseau, one of the greatest American saxophone pedagogues to date. During the master class, Chris had the opportunity to perform for a large audience, as well as work individually with Dr. Rousseau on certain musical concepts that could be applied to all aspects of saxophone performing and teaching.

Oral Presentations - Room NSU 238 C

Music and Musical Performance

- 1:30 Presenter: **Daniel Gibbs**
 Advisor: Darleen Mitchell
 Title: *Preparing an Arrangement of Video Game Music "Passion" for Wind Ensemble*
- 1:45 Presenter: **Daniel Gibbs**
 Advisor: Darleen Mitchell
 Title: *Exploring Global Music in Selected Cultures*
- 2:00 Presenters: **Anthony Ford, Tyler Allen**
 Advisor: Richard Scholwin
 Title: *Class Recording Project*
- 2:15 Presenter: **Cindie Reneau**
 Advisor: Ting-Lan Chen
 Title: *Eugène Ysaÿe's Six Sonatas for Solo Violin, Op. 27*
- 2:30 Presenter: **Edwin Fattig**
 Advisor: Darleen Mitchell
 Title: *Cincinnati Music Hall*

Communications

- 2:45 Presenter: **Katie Lamb**
 Advisor: Rachelle Kamrath
 Title: *Teaching Gay History in California Public Schools: The Effects on Heteronormativity*
- 3:00 Presenter: **Jordan Myers**
 Advisor: Rachelle Kamrath
 Title: *Children's Literature: "Maggie Goes on a Diet.", Examining Body Image Issues in Young Girls*
- 3:15 Presenter: **Robert Friedman**
 Advisor: Rachelle Kamrath
 Title: *Examining Malaysia's Reality TV Show, "Imam Muda" through the lens of Communication and Religion*
- 3:30 Presenter: **Brooke Alstrom**
 Advisor: Rachelle Kamrath
 Title: *Examining Forced Virginity Tests in the Middle East Through the Rhetorical Lens of Reciprocal Empowerment*

Oral Presentations - Room NSU 238 D

Biology

1:30 Presenter: **Jess T. Lammers**
 Advisor: W. Wyatt Hoback
 Title: *Test of Burial Depths for Silphidae During Periods of Inactivity*

Graduate Biology

1:45 Presenter: **David Schumann**
 Advisor W. Wyatt Hoback
 Title: *Evaluation of Sprayed Fluorescent Marks as a Technique to Mass Mark Fish*

Mathematics & Statistics

2:00 Presenter: **Benjamin Fullerton**
 Advisor: Aaron Clark
 Title: *Design and Calibration Of A Filter Paper Based Disdrometer*

Biology

2:15 Presenter: **Jennifer Frisch**
 Advisor: Joseph Springer & Letitia Reichart
 Title: *Identification of Molecular Markers used to Distinguish Coyote Populations*

English

2:30 Presenter: **Lacey McPhillips**
 Advisor: Allison Hedge Coke
 Title: *The Voice of the Irish*

Physics and Physical Science

2:45 Presenter: **Adrian Sanabria-Diaz**
 Advisor: Timothy Reece
 Title: *Langmuir Film Characterization by Brewster Angle Microscopy (BAM)*

Chemistry

3:00 Presenter: **Corey Willicott**
 Advisor: Annette Moser
 Title: *Determination of Herbicides in Water Samples Using Gas Chromatography-Mass Spectrometry*

3:15 Presenter: **Taylor Carlson**
 Advisor: Annette Moser
 Title: *Development of a Chromatographic Method to Quantify Concentrations of Atrazine in Avian Egg Samples*

Marketing

3:30 Presenter: **Justin Vogel**
 Advisor: Heather Schulz
 Title: *UNK Recruitment and Retention*

Oral Presentations - Room 310

HPERLS

- 1:30 Presenter: **Hannah Harmon**
 Advisor: Nita Unruh
 Title: *The Impact of Sports on Body Image*
- 1:45 Presenter: **Charles E. Sepers Jr.**
 Advisor: R. Todd Bartee
 Title: *Attrition and Engagement within Theory-Based Physical Activity Programs: How Might We Do Better*

Graduate History

- 2:00 Presenter: **Amber Alexander**
 Advisor: Mark Ellis
 Title: *Fighting the War from Home: The Impact of the Fairmont, Harvard, and Brunning Army Air Fields on Rural Nebraska Residents*
- 2:15 Presenters: **Jennifer Richardson**
 Advisors: Mark Ellis & Mary Beth Ailes
 Title: *Piracy in the Age of Elizabeth I*
- 2:30 Presenter: **Lacey Mack**
 Advisor: Mark Ellis
 Title: *A Plague on the Plains: Grand Island, Nebraska and the Rocky Mountain Locust Infestations of the 1870's*

Political Science

- 2:45 Presenters: **Pamela Thindwa, Sharon Thindwa, Kailah Onsager, Miguel Verdugo Jr.**
 Advisor: Satoshi Machida
 Title: *Harvard National Model United Nations 2012*

History

- 3:00 Presenter: **Megan Veburg**
 Advisor: Vernon Volpe
 Title: *History in the Legends: Basis of Charlemagne Legends in History*

Political Science

- 3:15 Presenter: **Connor Marshall**
 Advisor: Peter Longo
 Title: *The Constitutionality of the Affordable Care Act*
- 3:30 Presenter: **John Lawless**
 Advisor: Peter Longo
 Title: *The Wisconsin Labor Union Situation: The Association Implications of Inter-Branch Conflict*

Oral Presentations - Room 312

Psychology

- 1:30 Presenter: **Markeya Dubbs**
 Advisor: William Wozniak
 Title: *The Testing Effect and Environment-Dependent Contextual Learning*
- 1:45 Presenters: **Destinee Nelson & Hannah Vontz**
 Advisor: Krista Fritson
 Title: *Students' Perceptions of Journaling in Undergraduate Classes*
- 2:00 Presenter: **Brooke Brown**
 Advisor: Richard Miller
 Title: *Predicting How the Opposite Sex Seeks Social Support*
- 2:15 Presenter: **Charles E. Sepers Jr**
 Advisor: Richard Miller
 Title: *The Effects of Apparel Advertising Primes on Anti-Fat Attitudes and Job Applicant Hirability among College Students*
- 2:30 Presenters: **Mackenzie Bohl & Destinee Nelson**
 Advisor: Richard Miller
 Title: *The Effects of Stereotype Threat on the Test Performance of College Students with a Physical Disability*
- 2:45 Presenter: **Mackenzie Bohl**
 Advisor: Krista Forrest
 Title: *Using Fictional Character Images To Teach Autistic Children To Recognize Facial Expressions*

Graduate History

- 3:00 Presenter: **Kaylene Vieselmeyer**
 Advisor: Mark Ellis
 Title: *Nebraska Colleges and World War II: A Changing Academia*

English

- 3:15 Presenter: **Eliot Wondercheck**
 Advisor: Marguerite Tassi
 Title: *Exeter Book Riddles*
- 3:30 Presenter: **Sarah Hoeffler**
 Advisor: Marguerite Tassi
 Title: *The Odyssey: Finding Justice within the Epic*

Oral Presentations

Biology

Presenter: **Jennifer Frisch**

Advisors: Joseph Springer & Letitia Reichart

Title: *Identification of Molecular Markers used to Distinguish Coyote Populations*

Nebraska contains varying climates across the state which influence the coat coloration of native wildlife. For example the Sandhills have influenced the coloration of deer mice, *Peromyscus maniculatus*. Deer mice are generally dark brown however the subspecies living in the Sandhills have a light coat coloration which matches the soil color. Anecdotally, coyote, *Canis latrans* coat coloration across Nebraska follows this same pattern in which coyotes along the Missouri River are dark and coat colors are lighter westward across the state and into Wyoming. Thus, I hypothesize that the reason coyote coat coloration differs within Nebraska is genetic. In addition, no study has documented genetic differences for coyotes in the Midwest. We used DNEasy QIAGEN® Kits to successfully extract DNA and have begun optimization of microsatellite loci using Polymerase Chain Reaction. These molecular markers will be useful for a future analysis of potential genetic differences in coyote coat color.

Presenter: **Jess T. Lammers**

Advisor: W. Wyatt Hoback

Title: *Test of Burial Depths for Silphidae During Periods of Inactivity*

Ecologists are increasingly aware of the role detritivores play in the environment.

Arthropods are the most numerous detritivores in multiple terrestrial biomes and have a substantial effect on plant productivity and nutrient cycling throughout their respective ecosystem. This study will test burial depth by species of Coleoptera Silphidae. The experiment will consist of observation habitats in environmental chambers and polyvinyl chloride (PVC) tubes both with sandy loam soil. The observation habitats in environmental chambers will have their day and night time temperature reduced by four degrees daily. We hypothesize burial depths will be influenced during periods of inactivity by the individual biology of each burying and carrion beetle species. There is a federally endangered member of the Silphid family; *Nicrophorus americanus* Olivier commonly called the American burying Beetle, or ABB. *N. americanus* is currently without a habitat designation. Ultimately, this research will provide intrinsic knowledge about the biology of these species outside of the carrion trap.

Chemistry

Presenter: **Taylor Carlson**

Advisor: Annette Moser

Title: *Development of a Chromatographic Method to Quantify Concentrations of Atrazine in Avian Egg Samples.*

Avian eggs have shown high sensitivity to external toxins which interfere with normal embryonic development and can result in rapid embryonic death. Herbicides such as atrazine have been reported to result in eye,

brain, edema, and limb malformations. A quantitative chromatographic method for determining the concentration of atrazine in avian eggs has been developed utilizing QuEChERS extraction followed by GC-MS analysis. Atrazine-d5 was used as an internal standard. This method could be used on a variety of avian eggs to determine the levels of different environmental toxins present.

Presenter: **Corey Willicott**

Advisor: Annette Moser

Title: *Determination of Herbicides in Water Samples Using Gas Chromatography-Mass Spectrometry*

An analytical method was developed to determine herbicides in agricultural drainage water. Water samples were processed using solid-phase extraction with C18 cartridges and analyzed by using gas chromatography-mass spectrometry. Validity and accuracy of the method was determined by using atrazine-d5 as an internal standard. The method allowed a determination and confirmation of the herbicide with good reproducibility and low detection limits. The developed method will be used for the detection of atrazine levels in soils and water around the Platte River by environmental biologists.

Communications

Presenter: **Brooke Alstrom**

Advisor: Rachelle Kamrath

Title: *Examining Forced Virginity Tests in the Middle East Through the Rhetorical Lens of Reciprocal Empowerment*

Forced virginity tests in the Middle East slander innocent women. The 2011

International Women's Day incident in Cairo, Egypt caught the attention of global media. In April, 2011 Egyptian Major General Abdel Fattah al-Sisi promised that the Egyptian army will no longer force these exams. His declaration to Amnesty International may be a turning point for feminism in the Middle East. Using Patricia Darlington and Becky Mulvaney's feminist communication model of Reciprocal Empowerment, the project answers the question, "How did the International Women's Day Incident in Cairo impact the course of feminism in Egypt?"

Presenter: **Robert Friedman**

Advisor: Rachelle Kamrath

Title: *Examining Malaysia's Reality TV Show, Imam Muda through the lens of Communication and Religion*

Islamic youth in Malaysia are disengaged from their faith. In an attempt to reengage young Muslims in Malaysia, a reality TV show titled, "Imam Muda" was launched. The show pits 10 young men against each other to claim the title of Malaysia's next religious leader. Muslim youth from Malaysia, Singapore, and Europe are avidly following the religious quest of the contestants. To analyze its impact, the project asks the rhetorical question, "What impact will Imam Muda have on the disengaged youth in Malaysia?" The project uses James Baesler's communication model; Religious Orientation, Persuasion, and Communicator Style.

Presenter: **Katie Lamb**

Advisor: Rachelle Kamrath

Title: *Teaching Gay History in California Public Schools: The Effects on Heteronormativity*

In 2011, California passed Senate Bill 48; requiring California Public Schools to teach Gay History in social science courses. Conventional education uses heteronormativity as the social standard leaving all other types of sexual orientation viewed as alternative or abnormal. Infusing LGBT issues into education may have a profound impact on how students perceive all types of sexual orientation. The project addresses the question, "Can Senate Bill 48 create a new communication paradigm to view all types of sexuality as normal?" A dual-rhetorical lens is used to analyze how children perceive "other" sexualities.

Presenter: **Jordan Myers**

Advisor: Rachelle Kamrath

Title: *Children's Literature: Maggie Goes on a Diet,"Examining Body Image Issues in Young Girls*

In October, 2011 children's author Paul M. Kramer released his book, "Maggie Goes on a Diet" aimed at overweight young girls. The story depicts an overweight girl battling social ridicule. After a radical weight loss, Maggie is popular and happy. The story and illustrations combine a curious mix of health consciousness and social acceptance as motivators behind a healthy lifestyle. Through the rhetorical lens designed by Tracy Tylka and Natalie Sabik titled, Nexus of Influence, the project answers the rhetorical question, "Does the book, 'Maggie Goes on a Diet' succeed in persuading girls to make healthy choices?"

English

Presenter: **Sarah Hoefler**

Advisor: Marguerite Tassi

Title: *The Odyssey: Finding Justice within*

the Epic

The Odyssey is a very well-known piece of ancient literature. However, most do not see the Odyssey as a poem that explores the meaning and realm of justice in the ancient Greek culture. Instead, the Iliad has been used as a reference to the ideal of justice in that time period. In this essay, the obvious acts and roles of justice are discussed and analyzed from the perspective of the Odyssey, showing how it is not only involved in the story, but a central theme flowing throughout.

Presenter: **Lacey McPhillips**

Advisor: Allison Hedge Coke

Title: *The Voice of the Irish*

Today, the Irish people are integrated almost seamlessly into American culture, but it was not always so. The poetry of this project reflects the voices of the Irish people as they made their journey from the sufferings in Ireland, across the Atlantic, into America, and finally spread throughout the land trying to make a home for themselves. All of the poetry was written in response to reading historical books, as well as diaries and memoirs of Irish people. Hear the voices of people of all ages as they witness and experience the obstacles and triumphs on their journey through history.

Presenter: **Eliot Wondercheck**

Advisor: Marguerite Tassi

Title: *Exeter Book Riddles*

In the Exeter Book of Old English poetry, tucked between songs of exile and longing, is a group of small, curious poems we have come to call the Exeter Riddles. These Riddles show us how a keen mind feels wonder at the world around him, giving speechless objects a voice of their own and

letting them describe themselves. I have tried to imitate this mindful wondering by translating a small portion of the Riddles from Old English into Modern English, and by writing brief commentaries on each.

History

Presenter: **Megan Veburg**

Advisor: Vernon Volpe

Title: *History in the Legends: Basis of Charlemagne Legends in History*

The basis of history lies in stories. Without legends told or events related, history as it is known today would not exist, although some stories appear more accurate than others. Just as with the famous of today, historical celebrities attracted many legends and much speculation. Charlemagne, Frankish king and Holy Roman Emperor who ruled at the end of the 8th Century AD, is one of those celebrities. Along with the accepted history known of him and his time, there is a plethora of myths assigned to him as a person and his reign. Yet, just how mythical are these stories? This article, “History in the Legends: The Basis of Charlemagne Legends in History,” examines this question by discovering how myths evolve, which contain significant truth, and the seemingly legendary parts of his life in order to separate some of the myth from the history.

HPERLS

Presenter: **Hannah Harmon**

Advisor: Nita Unruh

Title: *The Impact of Sports on Body Image*

The Impact of Sports on Body Image is a research project to look into the role of sports in the development of a person’s

body image. Sports play a huge role in society and wanted to see if participation will either positively or negatively affect a person’s perception of body image. Research from previous studies were gathered, read published articles, and conducted a survey. Focused the study on University of Nebraska at Kearney students and their perception of their body image from high school sports participation and now through other forms of sports participation, exercise, or no sports participation at all. By conducting meaningful surveys to help gain insight on the issue will help better see how students here at the University perceive their body image in connection with sports participation and media. Researching other previous studies will help compare the results found here at University

Presenter: **Charles E. Sepers Jr.**

Advisor: R. Todd Bartee

Title: *Attrition and Engagement within Theory-Based Physical Activity Programs: How Might We do Better?*

Theory-based interventions offer an effective means to increase physical activity (PA) among adults; however, one of the greatest challenges facing program implementation is participant attrition. In a recent internet delivered, work-site walking program, only 24 of 78 (31%) participants completed the 12-week intervention. Further, only four individuals participated in a 12-month maintenance program offered in succession to the intervention, despite the use of best-practice strategies for increasing participant engagement. These outcomes are typical of PA interventions. Improving participant engagement and ultimately

reducing program drop out is needed to increase the efficiency of wellness programs. This paper compares the participant attrition rate of this PA behavior change intervention and that of similar programs. Improving active engagement within internet-based walking programs has the potential to increase the effectiveness of future programs.

Marketing

Presenter: **Justin Vogel**

Advisor: Heather Schulz

Title: *UNK Recruitment and Retention*

Last semester, I conducted research via Qualtrics data collection software that pulled 500 random UNK students. These students were asked questions about their college decision-making process and what factors were the most important/ most influential in that process, as well as why they chose UNK specifically as their college choice. Several demographic questions were also asked and were used to show any trends that may be present with the types of students that come to UNK and what impact these demographic factors have on the college decision-making process. Upon collecting the data, each question was broken down and analyzed on an individual basis to report on its findings in a formal written report.

Mathematics

Presenter: **Benjamin Fullerton**

Advisor: Aaron Clark

Title: *Design and Calibration Of A Filter Paper Based Disdrometer*

The project will be to build and test a filter paper based disdrometer. The inspiration behind this project is an experiment completed in the 1960s which used filter paper to determine the size and distribution of raindrops. To improve this technique, we have built a mechanical device to move the filter paper automatically during a rain event. The filter paper has been treated with a chemical so that drops leave a stain on impact with the treated filter paper, similar to the result observed when water is spilled on standard colored tissue paper. From the stain left by the water droplet, the original drop size can, with proper calibration, be determined. Assuming that the relationship between the diameter of the stain and actual diameter of a water droplet can be described via a simple power-law, we will explore the true raindrop size distribution and its evolution in time and space.

Historically, one of the challenges of this technique was to protect and dry the filter paper before analyzing the data by hand. This was a slow and inefficient process taking large amounts of time and labor. To combat this dilemma we have modernized this technique using a digital camera to record the data after the filter paper has passed through the rain event. With the information digitized we can then use our software we wrote to analyze the area of the stain, and then be correlated to the diameter of a raindrop. To combat the different densities of rainfall during an event, adjustments to the motor in the device can be made to move the filter paper through the event at higher or lower rates. Ultimately, this project will help advance our understanding of climate and environmental changes.

Music and Performing Arts

Presenter: **Edwin Fattig**

Advisor: Darleen Mitchell

Title: *Cincinnati Music Hall*

My project was to take an existing piece of music and arrange it for jazz band.

However, it grew into a separate entity, one that could hardly be called an arrangement, or even an adaptation.

I started with an existing piece of music. In this case, it was George Crumb's "A Haunted Landscape". It was composed in a mode of limited transposition, making it post-tonal and distinguishing it from 19th century styles of composition. Crumb's piece also has asymmetrical, freely metered phrasing which I used in my project.

Furthermore, the form of Crumb's piece is not that of a traditional jazz.

The rhythm in my piece, Cincinnati Music Hall, however, is intended to be "swung" which is characteristic of jazz music. It also draws, from time to time, on walking bass which is another distinguishing facet of jazz music.

In the end, my jazz band piece became something of an art song, drawing from many styles. It is dissonant, eclectic and esoteric.

Presenter: **Anthony Ford**

Co-Presenter: **Tyler Allen**

Advisor: Richard Scholwin

Title: *Class Recording Project*

As a class project for Music 312 Advanced Sound Recording and Reinforcement all 12 students recorded and mixed a composition of their choosing.

Presenter: **Daniel Gibbs**

Advisor: Darleen Mitchell

Title: *Preparing an Arrangement of Video Game Music "Passion" for Wind Ensemble*

This project involved creating an arrangement and preparing a manuscript and parts for concert band. The original work was an orchestra piece from the video game "Kingdom Hearts 2." I purchased "Finale," music writing software, and began to arrange music in earnest. To do so, I had to get permission from the copyright holders. The process has involved learning orchestration skills, how to edit score and parts, and how to properly present the score and parts with appropriate layouts. My arrangement of "Passion" was performed live by the UNK Wind Ensemble on April 19th at the UNK Fine Arts Recital Hall. Many college student are interested in gaming music, and in doing this project, I have made a very popular piece of music more accessible in a concert venue to younger audiences as well as the general public.

Presenter: **Daniel Gibbs**

Advisor: Darleen Mitchell

Title: *Exploring Global Music in Selected Cultures*

Exploring global music, specifically Native American, Eastern Indian, and Asian, has been the focus of my research. I will be presenting the musical characteristics, culture, societal role, and instruments of various groups within these areas of inquiry. Musical characteristics will include the types of scales used in different cultures such as various anhemitonic and hemitonic pentatonic scales which are prevalent in these cultures. The role of music in the

culture involves specific texts for rituals, work songs, and songs for rites of passage. The societal role of music involves gender assignment, community status, and narrative songs. Finally, the instruments indigenous to each culture will be discussed such as bone flutes, shawms, and koto. The impact of this study is to expand the awareness of global music which will enhance future work for music educators and composers.

Presenter: **Cindie Reneau**

Advisor: Ting Lan Chen

Title: *Eugène Ysaÿe's Six Sonatas for Solo Violin, Op. 27*

Bridging the gap between the nineteenth and the twentieth century style of violin playing, Eugène Ysaÿe (1858-1931) greatly influenced the world of violin performance through his work as a composer and as a violinist. Today, only a handful of his 60 or so works are remembered. Among his most famous compositions are his Six Sonatas for Solo Violin, Op. 27 (1923). Each Sonata was dedicated to one of six violin virtuosos of his time, and the entire set places tremendous technical and emotional demands on its performers. This presentation will evaluate all the six Sonatas in terms of performance techniques and styles, with the main focus on the second sonata, dedicated to the legendary French violinist Jacques Thibaud.

Physics & Physical Science

Presenter: **Adrian Sanabria-Diaz**

Advisor: Timothy Reece

Title: *Langmuir Film Characterization by Brewster Angle Microscopy (BAM)*

In recent years, there have been many

examples of interesting applications for thin films that are deposited using the Langmuir-Blodgett method. With this technique, a film spreads out to a thickness of about a molecule or several molecules when deposited on water. These films have seen applications in industries that require thin layers of specially polarized materials, as well as solar cells, and even digital storage media because of certain physical properties these extremely thin films possess. 1,2 Brewster Angle Microscopy (BAM) is a technique that can be used to directly observe and characterize the behavior of Langmuir layers. It takes advantage of the fact that different kinds of materials exhibit different Brewster angles, the angle at which light does not reflect off the material's surface, but is completely transmitted through it. In the case of this study, ultra-thin films are deposited onto a water sub-phase, which is then illuminated by a polarized laser beam oriented at the Brewster angle for water. At this angle, reflections off the surface will only occur at locations where the Langmuir film is present, providing a means to study film topography with a spatial resolution of two microns. This useful observation tool is discussed and results for a crystalline film such as pentadecanoic acid are presented. 1. Y. Yuan, T. J. Reece et al. Nature Materials 10, 296-302 (2011). 2. Langmuir 26, 12165-72 (2010)

Political Science

Presenter: **John Lawless**

Advisor: Peter Longo

Title: *The Wisconsin Labor Union Situation: The Association Implications of Inter-Branch Conflict*

This paper's purpose is to provide an analysis of the inter-branch and public policy issues that have been raised in Wisconsin, occurring as the result of the Budget Repair Bill passed by the Wisconsin State Legislature and signed into law by Wisconsin Governor Scott Walker in March of 2011. This particular situation presents a compelling example of how important state constitutionalism and state decisions are. This paper is particularly focused on the increased importance when resources shrink rapidly at all levels. The presence of labor unions in Wisconsin was once thought to have provided the basis for civil negotiations, but the scarcity of resources (i.e. money) has changed the landscape. The current movement by state governments to limit the negotiation power of organized labor in the public sector has sparked a debate not only in Madison, Wisconsin, but across the nation. This topic demonstrates the ongoing struggle of the freedom of association in the United States. As the situation drags out, one can witness the resulting quick-moving, inter-branch conflict created between the executive and the legislative branches, the legislative branch within its self, the legislative and the judicial branches, and the executive and the judicial branches. This conflict can lead to what I am going to refer to as courtroom public policy. Most importantly, it blurs the line between judicial activism and restraint to the point where one is unable to tell the two apart. This paper utilizes legislation, court decisions, law reviews, and newspaper articles to frame the rapidly evolving situation in Wisconsin and other states. What was determined is that the added pressure of severe budget cuts and a shift of political orientation within the state resulted

in a breakdown of the typical policy resolution processes.

Presenter: **Connor Marshall**

Advisor: Peter Longo

Title: *The Constitutionality of the Affordable Care Act*

The purpose of my research is to understand, analyze, and determine the constitutionality of the 2008 Affordable Care Act. I will use prior state and national judicial decisions, as well as the literature that was laid down by this country's founding fathers in the United States Constitution to build and support my research. Upon review of these documents, a decision will be made in my research as to whether or not the 2008 Affordable Care Act is constitutional.

Presenter: **Pamela Thindwa**

Co-Presenters: **Sharon Thindwa, Kailah Onsager, Miguel Verdugo Jr**

Advisor: Satoshi Machida

Title: *Harvard National Model United Nations 2012*

This year, UNK's Model United Nations attended Harvard's 58th session of National Model United Nations (HNMUN). The conference was hosted at Boston's Park Plaza Hotel from February 16th through the 19th. With a delegation of 17, we represented the Republic of Senegal in a number of committees such as Disarmament and International Security (DISEC), Special Political and Decolonization (SPECPOL), World Health Organization (WHO), Legal, Social, Humanitarian and Cultural Committee (SOCHUM), and Special Summit on Non-Discrimination, to name a few. Within a period of six months, we

extensively studied topics that significantly affect the global community. We addressed issues such as immigration and global security, the effects of atomic radiation and nuclear safety, humanitarian intervention, refugees, Hezbollah and Hamas, the role of information technology in reactionary movements, the rights of minorities in international law, child health in the developing world, and so forth. HNMUN seeks to “provide students interested in exploring the difficulties and complexities of international relations with the best possible simulation of diplomacy and negotiation.” As delegates, we not only address international issues, we were able to formulate working papers and draft resolutions with the aim of finding the best possible solutions to global challenges.

Psychology

Presenter: **Machkenzie Bohl**

Advisor: Krista Forrest

Title: *Using Fictional Character Images To Teach Autistic Children To Recognize Facial Expressions*

We examined whether exposing familiar cartoon characters displaying various facial expressions can improve expression detection in children with an Autism Spectrum Disorder. Although we expected that children exposed to favorite character’s facial expressions would outperform controls, a ceiling effect occurred suggesting members of our sample already had these skills.

Presenter: **Mackenzie Bohl**

Co-Presenter: **Destinee Nelson**

Advisor: Richard Miller

Title: *The Effects of Stereotype Threat on the Test Performance of College Students with a Physical Disability*

It was hypothesized that individuals with a physical disability, that were primed with a stereotype threat prior to taking a test, would have decreased test performance. Results indicated that the opposite was true. Individuals with a physical disability that received a stereotype threat actually performed better than all other participants.

Presenter: **Brooke Brown**

Advisor: Richard Miller

Title: *Predicting How the Opposite Sex Seeks Social Support*

This study examined the ability of men and women to predict how the opposite sex would seek social support after a relationship break-up. Participants indicated what they would do and what they expected the opposite sex would do. Men and women were almost equally inaccurate in predicting each other’s behavior.

Presenter: **Markeya Dubbs**

Advisor: William Wozniak

Title: *The Testing Effect and Environment-Dependent Contextual Learning*

Research indicates recalling material facilitates subsequent recall. Memory improves as material is recalled more. This phenomenon is known as the testing effect. The effects of differences in the studying and testing environment have been explored, and a trend referred to as environment-dependent contextual learning has been identified. This study investigated the possibility of interactions between the testing effect and environment-dependent contextual learning. The independent variables were study method, initial

location, and final location. Participants were randomly assigned to one of eight possible conditions combining the three variables. Data was analyzed to determine if study method and/or environment combination had a significant effect on participants' ability to recall information. Analysis revealed the main effects, two-way interactions, and the three-way interaction were all non-significant. Pairwise comparisons revealed the group whose condition most closely resembled the typical college student's study habits performed significantly better on the free recall task than all other groups.

Presenter: **Destinee Nelson**

Co-Presenter: **Hannah Vontz**

Advisor: Krista Fritson

Title: *Students' Perceptions of Journaling in Undergraduate Classes*

It has been suggested that self efficacy and engagement are crucial in the development of personal growth, professional development, and learning (Hubbs & Brand, 2005). While previous research has indicated that journaling has been underused as a teaching and learning tool, very few researchers have explored how journaling affects college students' perceptions of their classroom engagement compared to classes when the students do not participate in journaling (Hiemstra, 2002). In the current study, the effects of journaling on student course engagement and self-efficacy were studied. Data consisted of half of two introductory psychology courses journaling for only half the semester. A content analysis was done on students' perceptions of journaling and results will be discussed.

Presenter: **Charles E. Sepers Jr.**

Advisor: Richard Miller

Title: *The Effects of Apparel Advertising Primes on Anti-Fat Attitudes and Job Applicant Hirability among College Students*

Anti-fat attitudes can influence the hirability of overweight job applicants. The purpose of this study was to measure the effects of advertisements featuring plus-size models as visual primes on anti-fat attitudes and weight-status hirability among college students. Participants viewed either a normal weight or an overweight model prime, completed an anti-fat attitude measure, and then rated the hirability of either overweight or normal weight job applicants. No differences were detected between normal-weight and overweight prime conditions on anti-fat attitudes, $p > .05$. However, those primed with overweight models were more likely to hire overweight job applicants than applicants of normal weight, $F(1,44) = 4.24, p = .046$. Men with lower body mass indexes were more likely to indicate greater anti-fat attitudes after viewing the overweight-model prime. These results are consistent with the mere exposure effect and may provide implications for job applicant selection.

Graduate Studies

Oral Presentations

Biology

Presenter: **David A. Schumann**

Co-Presenters: W. Wyatt Hoback, Keith D. Koupal, Casey W. Schoenebeck

Advisor: W. Wyatt Hoback

Title: *Evaluation of Sprayed Fluorescent Marks as a Technique to Mass Mark Fish*

A technique for mass-marking fish was evaluated that encompasses forcing fluorescent pigment into dermal tissue with compressed air. To determine possible fisheries applications; mark retention, readability, and mortality were evaluated for six fish species that represent various taxonomic groups. Eighty individuals of each species were marked with fluorescent spray and visible implanted elastomer (VIE) and 20 were marked with only VIE tags, forcing readers to delineate between fluorescent marked and unmarked individuals. Marking mortality ranged from 0% to 100% for fish species marked. Mark retention declined at different rates for each species and was between 6 and 65% after five months. False-positive values and imperfect detection on poorly marked individuals affected retention. For two species, growth of marked fish was significantly lower than unmarked individuals. Because of inconsistency within and among species, fluorescent spray techniques should be abandoned as a

marking technique until such time that reliable methods are developed.

History

Presenter: **Amber Alexander**

Advisor: Mark Ellis

Title: *Fighting the War from Home: The Impact of the Fairmont, Harvard, and Bruning Army Air Fields on Rural Nebraska Residents*

During World War II eleven army airfields were built and operated in Nebraska. Each of these greatly impacted their surrounding communities. The Fairmont, Bruning, and Harvard Army Airfields were three located within 45 miles from each other which shared many resources and labor. Each of these airfields was constructed near towns of small population and the great influx of people had significant impacts, both good and bad. Problems such as eminent domain, insufficient housing, lack of entertainment, and crime plagued these communities. Despite these negative effects, these airfields also brought their share of good fortune by providing jobs to area civilians, boosting local business, and encouraging relationships between soldiers and neighboring residents. These airfields served as a way for local residents to play a part in the war from their own backyards. The lively existence of these airfields was short-lived, but the effects long-lasting.

Presenter: **Lacey Mack**

Advisor: Mark Ellis

Title: *A Plague on the Plains: Grand Island, Nebraska and the Rocky Mountain*

Locust Infestations of the 1870's

Nebraska in the 1870's was a difficult time for the settlers who called the state their home. Drought and the numerous economic crises that resulted after the Panic of 1873 resulted in dire straits for early pioneers, many of whom were forced to leave the state in droves. All of these problems were intensified by the onset of what seemed to be a plague of Biblical proportions to those attempting to carve out an existence on the Plains; wreaking havoc on everything edible it encountered, this catastrophe arrived in the form of the grasshopper. This occurrence and its subsequent consequences are examined in the background of this paper. The abundance of primary resources available surrounding the subject, including personal accounts, letters, and newspaper articles, make it possible for one to understand, but not fully comprehend, the difficulties faced by Nebraska's pioneers. It is from these that one can see the attempts of settlers to cope and deal with the locust problem. This is what constitutes the main body of this paper, as this plague epitomizes the strength and resilience it took to survive on the Great Plains.

Presenter: **Jennifer Richardson**

Advisors: Mark Ellis and Mary Beth Ailes

Title: *Piracy in the Age of Elizabeth I*

The mention of Elizabethan pirates conjures the image of swashbuckling pirates like Black Beard; however, that was not the case. In the time of Elizabeth I of England, pirates took on a completely different image. Men like Francis Drake and William Hawkins plundered and pillaged but they did it in a completely different way, with the

sanction of the crown. This era has even been referred to as the golden age of piracy. Due to Elizabeth's need for income and an increasingly hostile foreign policy with Spain, England used men like Hawkins and Drake as privateers. These privateers contributed to English society and politics throughout Elizabeth's reign and would help form what became the Navy Royal that helped defeat the Spanish Armada.

Presenter: **Kaylene Vieselmeyer**

Advisor: Mark Ellis

Title: *Nebraska Colleges and World War II: A Changing Academia*

It would be change that would impact college campuses for generations to come, but it is what started this change that would significantly impact Nebraska college campus forever. The year was 1941, but more importantly the day was December 7th. It was on this historical day that generations would be impacted for years to come after the bombing of Pearl Harbor. There were many changes across the nation, but specifically there were changes very close to home.

The focus of this research will look at these impressionable changes for the first six months across the nation's campuses after Pearl Harbor, but specifically the Nebraska campuses. Campuses that were selected based on impact and programs across Nebraska: Creighton University, Concordia University, Doane College, University of Nebraska-Kearney, University of Nebraska-Lincoln, and University of Nebraska-Omaha.

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