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SCHEDULE OF EVENTS

April 8, 2010

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	NSU 238 A&B
	Guest Speaker:	Jerod L. Trouba
1:30-3:00 p.m.	Music Performances	NSE 238 C
11:00 a.m.—Noon	Oral Presentations	Sandhills
1:30-3:30 p.m.		NSU 310
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1:30-4:30 p.m.	Poster Session Open	NSU 238
3:30-4:30 p.m.	Award Reception	NSU 238 A&B
4:45 p.m.	Posters Removed	NSU 238

Luncheon Guest Speaker

Jerod L. Trouba

Jerod graduated from the University of Nebraska at Kearney with a Bachelor of Science in Business Administration in 2003. Upon graduation he received his Juris Doctorate from the University of Nebraska College of Law in 2006, and was admitted to the Nebraska State Bar Association in the fall of 2006. Following law school Jerod went to work for a small law firm in Southeast Nebraska for two years before finding his way back to Lincoln. He currently is an associate with the law firm DeMars, Gordon, Olson & Zalewski.

At DeMars, Gordon, Olson, & Zalewski, Jerod's law practice focuses on general litigation and trial work with emphasis on criminal, juvenile, personal injury, construction and insurance litigation. Jerod is also an active member of the community. He serves on the Runners With a Reason Board of Directors, the Through the Eyes of the Child Prehearing Conference committee, and is active in the Lincoln Bar Association and Nebraska State Bar Association.

As a student at UNK, Jerod presented a marketing research project entitled "Outshopping Perceptions and Behaviors of Rural Retailers" at the 2003 University of Nebraska at Kearney Student Research Day. Jerod and his group went on to present this project at the 2003 National Conference of Undergraduate Research at University of North Carolina at Asheville.

Performance

Music

Presenter: **Christopher Gugel**
Advisor: David Nabb
Title: *A New View on Saxaphone Performance*

In early March, I traveled to Athens, GA to perform a prepared piece in a saxophone master class at the North American Saxophone Alliance Biennial Conference. I spent most of the Fall 2009 semester preparing my piece, and I was selected as one of twenty-one master class participants nation wide through a blind audition. The director of the master class was Dr. Clifford Leaman, Professor of Saxophone at the University of South Carolina. During this master class, I performed my piece and Dr. Leaman criticized my work. He gave me many superb suggestions on how to make my performance, musicianship, and overall musical technique much better.

Presenter: **Jillian Parker**
CoPresenters: **Amy Jensen, Jordan Peterson, Todd Thalken**
Advisor: Anne Foradori
Title: *Regional NATS Conference*

Three students, Jillian Parker, Amy Jensen and Jordan Peterson will sing selections they prepared and performed at the National Association of Teachers of Singing (NATS) West Central Regional Conference Student Auditions. They will be accompanied on the piano by Todd Thalken. On Oct. 30-31, 2009 the singers traveled to Manhattan, KS for the opportunity to sing for evaluation among their peers by other teachers of singing in the region, including Kansas, Nebraska, Colorado and Wyoming. Their work in the competition provided them with useful comments and the opportunity to hear and evaluate their peers.

Presenter: **Jordan Peterson**
CoPresenter: **Todd Thalken**

Advisor: Andrew White
Title: *NATS Competition Performance of Musical Theater and Classical Repertoir*

I and my accompanist Todd Thalken will be performing the pieces I took to the National Association of Teachers of Singing (NATS) West Central Regional Conference Student Auditions, Musical Theater and Classical Divisions. This competition was a great opportunity to receive evaluation by peers and faculty of the work I did on my repertoire. It also allowed me to get my pieces performance-ready by a deadline. The pieces I will be performing are as follows: *A Quei Sospir Ardenti* by Guilio Caccini, *Spring* by Dominick Argento, *She Loves Me* from "She Loves Me" by Sheldon Harnick and Jerry Bock and *Moving Too Fast* from "The Last Five Years" by Jason Robert Brown.

Presenter: **Gustavo Rodriguez**
Advisor: Gregory Sales
Title: *Gradual Development of the Technique for the Classical Guitar*

The development and improvement of the left and right hand technique is completely related to the practice and application that the player gives to his/her performance pieces. Knowing that the hardest issue that players have to face is tonality and dynamics, there are compositions that will allow them to improve their skills. Composers like Fernando Carulli or Robert De Visse, will give to the player a chance to play colorful melodies with accompaniments that help the development of their playing fluency. Now, compositions by Francisco Tarrega and Agutin "Nitsiga" Barrios "Mangore", will challenge the virtuosity of the players. The abilities that the player must have to perform pieces by these composers are built and created by the gradual practice of clarity and speed. The culmination of these abilities constitute a true test for the making of a successful performer.

Presenter: **Robert Roth**
CoPresenters: **Ayae Mori, Chihiro Sugano**
Advisor: Darleen Mitchell
Title: *Windy Whispers*

Windy Whispers is a four-hands piano piece. That is to say, it is for two people at one piano. This creative project is the product of the new Finale 2010 software that was provided by the research grant. With this software, I was able to make necessary revisions and complete the piece in a new format. The piece itself follows an "A" "B" "A1" form. While writing this piece, I was reminded of wind, and of its inconstancy, so to speak. My intention was to mimic a pleasant breeze at the beginning, build its intensity, and then return it back to a breeze.

Presenter: **Brooke Scripter**
Pianist: Marilyn Musick
Advisor: Anne Foradori
Title: *MTNA Collegiate Artist Competition*

The Collegiate Artist Competition sponsored by the Music Teachers National Association is one of the landmark competitions for upper level undergraduate and graduate musicians. The competition is held in three stages from October 2009 through March 2010 in state, regional, and national venues. My creative project was the preparation and performance of a 35-minute voice recital to be used in this competition. Music learned and performed represents a broad spectrum of compositional styles, languages, and time periods. Selections included representative literature from opera, oratorio, and art song in English, French, and German. Each selection was transcribed using the International Phonetic Alphabet (IPA) for accuracy of pronunciation. Through the preparation and performance of this recital, I gained valuable insight and experience in the execution of a large-scale creative project. This experience will help me towards achieving my greater goal of preparation for graduate school and a career as a professional musician.

Poster Presentations

Fine Arts & Humanities

Music

Presenter: **Blake Thompson (1)**
Advisor: Andrew White
Title: *Nebraskats Chicago Tour*

The Nebraskats ordinarily tour High Schools within Nebraska for recruitment and outreach purposes. This tour will afford them the experience of performing in a variety of venues in Chicago. They also will experience a workshop with a respected Chicago area show choir clinician, and they will have the opportunity to attend a production involving singing and dancing at the highest professional level. The recruitment value of touring will not be lost, because performances in Lincoln and Wahoo will be included on the way out and back. Schedule of Events Friday, 3/26 6:30 p.m., perform at Lincoln Community Playhouse, Saturday 3/27 10:00 a.m. perform at Lutheran Home, Main Chapel 1:00 p.m open rehearsal with clinician Terry Hudson at 6:30 p.m., perform at Union Station Sunday, 3/28 12:30 p.m., perform at Navy Pier, Family Pavilion Stage 2:00p.m., attend Billy Elliot Monday, 3/29 12:00 noon, perform at Willis (formerly Sears Tower Tuesday, 3/30 10:00 a.m., perform at Wahoo High School.

Presenter: **James Weber (2)**
CoPresenter: **Tyler Allen**
Advisor: James Payne
Title: *Music Products Research*

NAMM Show, an international music products trade show and market hosted by the National Association of Music Merchants, the International Music Products Association. The NAMM Show took place January 14-17, 20010 at the Anaheim Convention Center, Anaheim, California. Although this show is closed to the public, the students were admitted as visitors through the membership of UNK in the NAMM Affiliated Music Business Institutions (NAMBI), an organization of thirty universities and colleges who have a music business program that prepares students for entry into the music products industry. The students flew to Anaheim , accompanied by Dr. James F. Payne, Professor of Music at UNK and Director of the Bachelor of Music – Emphasis in Music Business Degree Program. At the Show, the students researched their individual interest areas in several ways. The 1,428 manufacturers of musical instruments, software, sound reinforcement and lighting equipment, and music publishers displayed their products in exhibits open to the 78,091 attendees. The students visited various exhibits in order to see and perhaps work with the products, visit with the sales representatives or technical development staff asking questions concerning the product or information desired, attend concerts and demonstrations of new products, and attend educational sessions given by NAMM or by NAMBI featuring well-known speakers and educators in the industry.

Communication

Presenter: **Travis Schott (3)**
Advisor: Carol Lomicky
Title: *A Content Anyalysis of the Israeli-Palestinian Conflict*

This study examined articles published in "The New York Times" over the past six years dating from 2004 to the present. This content analysis examined 112 articles that centered on or made reference to the ongoing Israeli-Palestinian conflict. The author's objective was to determine if agenda-setting effects would appear reflecting a pro-Israeli agenda as suggested by previous research. These findings, however, contradicted previous examinations of media content with this sample of "New York Times" articles revealing only slight pro-Israeli bias.

Behavioral & Social Sciences

Geography

Presenter: **Helen Breuer (4)**
Advisor: John Bauer
Title: *Distribution of Wal-mart and its Major Competitors*

Most Americans today shop at retail chain stores such as Wal-mart, Target, and K-Mart. Retail chains are a common feature of America's cultural landscape, especially in urban and suburban areas. In some places it is even possible to find the three stores competing in the same, or nearby, shopping center. Because Wal-mart ranks as the nation's largest retailer, geographical studies of chain stores have naturally concentrated on this company. For example, geographer Thomas Graff, in particular, has written extensively about Wal-mart, and his work is used in this project. However, few studies compare Wal-mart's geographical distribution to its competitors. This research poster has done just that through a series of thematic maps.

Presenter: **Austin Barenberg (5)**
Advisor: H. Jason Combs
Title: *Food Stamp Geography: The Spatial Distribution of Participants*

This paper discusses the different participation rates of the food stamp program by state. Many of the key contributing factors and demographic issues are discussed in detail, such as the differences between urban and rural areas, overall state wealth, income and poverty, and minority populations. Part of this discussion includes a historical review of the food stamp program and future plans that government officials have highlighted or proposed. Overall, the paper's goal is to determine how many individuals the food stamp program supports and the distribution of those participants.

Presenter: **Jacob McGlade (6)**
Advisor: H. Jason Combs
Title: *A Geographic Analysis of eBay's Antique Sales in the United States*

Advancements in technology have made the Internet more user-friendly and led to economic strategies known as electronic commerce or e-commerce. For sellers, e-commerce is a cost effective approach for companies to distribute a product with minimal overhead. From a consumer standpoint, the Internet offers convenience which is reflected in the growth of on-line shopping. This study involves e-commerce, focusing on the on-line antiques trade which plays a major role in the preservation of America's past. In addition to traditional auctions, on-line auctions are one method used by many collectors and dealers to acquire and dispense goods. As a result, buyers and sellers are no longer bound by traditional geographic restraints—distance and time. This project analyzes the supply and demand of antiques on the Internet from a socio-demographic perspective by examining several thousand eBay transactions. Zip-codes for this project were collected during a four-year period (2005-2009) from five eBay users and thousands of eBay auctions—a total of 3,004 zip-code transactions were acquired. Sales are analyzed using socio-economic and demographic variables aggregated to zip-codes from census block group estimates for 2006. Initial findings indicate that a significant number of buyers and sellers are located in more densely populated areas that have higher than average incomes. Additionally, access to technology—computer ownership and Internet usage rates—plays a major role in the geography of e-commerce activity.

Presenter: **William Phipps (7)**
Advisor: H. Jason Combs
Title: *Organic Farming: The New Generation of Agriculture?*

Organic farming incorporates a less intensive approach to agricultural production than conventional farming practices. Since the adoption of organic farming in foreign countries, primarily within the European Union, this practice is becoming more popular in the United States. Interest has increased because of the concerns associated with greenhouse gas emissions, renewing or recycling resources, rising fuel and maintenance costs, urban sprawl and high consumption demand for water. This approach provides a new economic option with lower input costs, a higher quality product, is environmentally safer and receives a higher premium at market. The potential to expand new sources of income through sales and development of specialty crops has made the organic market the most rapidly growing and the most profitable in the agricultural sector. This project is based on several journals and a compilation of data retrieved to encourage and effectively integrate new ideas and information to those who have an interest in this relatively new style of farming.

Presenter: **Shane Riley (8)**
Advisor: H Jason Combs
Title: *The Gridiron: The Home of NFL Players*

Could America have a new pastime? Baseball lost some of its luster after the 1994-1995 strike and America did not waste time searching for a new pastime--football to some degree simply replaced baseball. From August to February, for many Americans conversation is dominated by football. However, there is debate: What state produces the greatest football players? Is it California, Florida, Texas, or one of the other forty-seven states? This paper examines the 2,250 players who were on 2009-2010 National Football League rosters to determine what state produces the most NFL-caliber players. After finding the top states, the focus transfers to what percentage of the state's population makes it into the professional league. The project concludes by detailing the cultural factors which help explain the spatial distribution of NFL athletes.

Presenter: **Jamie Stroup (9)**
Advisor: H. Jason Combs
Title: *Deforestation of the Congo Basin Forest Using Satellite Data*

Africa's Congo Basin forest is the second largest area of contiguous rainforest in the world. The forest covers parts of six African countries: Democratic Republic of the Congo, Central African Republic, Gabon, Republic of the Congo, Equatorial Guinea and Cameroon.
This is an active ecosystem that supports various species of animal life and is home to many indigenous tribes. Deforestation is a major concern affecting the area due to large and small scale logging, mining and unsustainable

Presenter: **Rachel Walker (10)**
Advisor: H. Jason Combs
Title: *Developing Slums Whilst Planning Cities*

Brazil and India are two rapidly developing countries that are abandoning age-old systems of city growth through process, spontaneity and time, in order to create entirely planned cities. For instance, Brasilia, Brazil is quickly becoming a well-established city and Gurgaon is a newly developed urban centre in India. The design of these cities represents the modern capital metropolis by housing governments and the more affluent professionals in gated communities and superblocks where all facilities are in close reach. However, along the borders of these monumental and highly designed cities large make shift slums exist. Paradoxically Brasilia and Gurgaon's master plan did not account for the creation of these shantytowns, which have developed as a byproduct of the planned cities. These slums house the workers building the planned metropolis along with immigrants and farmers who lost their land to the planned city. Not only do city boundaries segregate poor and rich in an extremely distinct fashion, the borders broaden the gap between rich and poor. The research project examines the creation of the two planned cities and the role Brasilia and Gurgaon play in the development of their nations in addition to a future perspective on planned cities and development.

HPERLS

Presenter: **Maggie Sass (11)**
Advisor: Kate Heelan and Nancy Foster
Title: *Parental Influence on Child Weight Loss in 12-Week Family based Pediatric Obesity Treatment Program*

Obesity is a prevalent health concern for children and family interventions are key in defeating childhood obesity (Wrotniak et al., 2004). The purpose of the current study was to determine if parental weight loss and parental attendance influence child weight loss during a treatment program. Ten children (age: 9.6±1.3 yrs, BMI percentile: 97.4±1.37) and their parents (9 attendance and parent weight loss with child weight loss. A stepwise multiple regression analysis was used to determine if parental weight loss predicted child weight loss. Child weight loss was negatively associated with attendance at weekly meetings ($r = -0.76$, $p<0.05$). The mothers' percent weight loss accounted for 59% of the variance ($R^2=0.59$, $p<0.05$) in child weight loss. This current study suggests that attendance and mothers' weight loss may predict child weight loss success.

Presenter: **Charles Sepers (12)**
Advisor: Todd Bartee
Title: *Parental Influence on Child Weight Loss in a 12-Week Family based Pediatric Obesity Program*

The purpose of this study was to examine the correlation between weight loss in children with change in parental self-efficacy, exercise planning, social support, and goal setting (mediating variables), within the first three weeks of a 12-week family-based pediatric obesity intervention. The study targeted children ages 6-11 with a body mass index greater than the 97th percentile for age and gender. Intervention components included weekly sessions of nutritional education, structured physical activity, and behavioral counseling. Questionnaires administered at baseline, week three, and week twelve measured parental mediating variables. The results indicated no significant correlation between mediating variables and child weight loss at three weeks. However, at the end of 12 weeks, increased parental goal setting showed a significant correlation with child weight loss. Parental self-efficacy, social support, and exercise planning did not show a direct significant positive correlation with child weight loss, although correlations between parental mediating variables were identified.

Presenter: **Britney Zeller (13)**
Advisor: Kate Heelan
Title*: Mother's Influence on Child's Weight Loss Success*

Perception of self efficacy (SE), social support (SS), and physical activity enjoyment (PAE) have been shown to be predictors of weight loss in adolescents and adults (Palmeira et al., 2007; Foley et al., 2008). The purpose of this current investigation was to determine if child and/or parent SE, SS, and PAE predict child weight loss in a family based pediatric weight loss program. Ten obese children (age 9.6 ± 1.3 years; BMI percentile 97.4±1.37 for age and gender) and parents (9 mothers, 8 fathers, BMI 33.12±7.5 $kg \bullet m^2$) were assessed for SE, SS and PAE at baseline and after a 12 week weight loss program. Children lost 4.55 ± 4.45 % body weight ($p<0.05$). Stepwise regression analysis indicated that 91% of the variance in child weight loss is accounted for by the mother's baseline PAE (.PAE ($R^2=0.66$; $p<0.05$) and SE ($R^2=0.25$; $p<0.05$). Mothers SE and PAE may influence child's weight loss success.

Political Science

Presenter: **Jayleen Lambert (14)**
CoPresenter: **Becky Mathine**
Advisor: John Anderson
Title: *Trust Among Small-Town Communities*

Becky and I have taken data collected by Dr. Longo and Dr. Anderson and compared it to different ideals on trust; the data came from surveys given to different communities. Our interest was in the surveys distributed to the Eustis-Farnam community, primarily in three questions related to trust of neighbors, community, and the US in general. We compared our results to the different outlooks on trust from Aristotle, E. Uslaner, and T. Govier. These individuals all have different views on what trust consists of and how trust is viewed among groups of people.

Psychology

Presenter: **Nicholas Loyd (15)**
Advisor: William Wozniak
Title: *Cognitive Mapping and Memory for Place Settings*

Cognitive mapping is a type of mental processing in which an individual can acquire and decode information about relative locations. We tested the ability of participants to form cognitive maps of place settings. Thirty undergraduate students were asked to view 4 separate orientations (0 degrees, 90 degrees clockwise, 90 degrees counterclockwise and 180 degrees) in 2 different types of organizations (formal and disorganized) of table settings. We measured the accuracy and the time to reproduce the studies arrangement. The results were analyzed using a 2x2x4 mixed analysis of variance. There was a significant main effect of type of organization. A negative correlation of time and accuracy was found only for the formal place setting.

Presenter: **Destinee Nelson (16)**
CoPresenters: **Janeen Stuthman, Mikayla Brune**
Advisor: Krista Forrest
Title: *An Analysis of Interrogation Content and Legality across 14 years of Law and Order*

Because police officers and potential suspects use television and movies when describing interrogation techniques, we examined interrogation strategies from randomly selected episodes of Law and Order. Preliminary analyses indicate no differences across years in police interrogation coerciveness and the presence or absence of Miranda warnings.

Presenter: **Kelli Oelsligle (17)**
CoPresenter: **Abby Benz**
Advisor: Wayne Briner
Title: *An Analysis of Interrogation Content and Legality across 14 years of Law and Order*

Depleted uranium is a slightly radioactive heavy metal that is used in, among other things, armor-piercing munitions, armor protection, and radiation shielding. When ingested, depleted uranium is known to cause adverse health effects. This study attempted to see if some of these health effects could be altered by use of antioxidants. We conducted behavioral testing and various chemical assays on mice exposed to depleted uranium in drinking water for two weeks with half of the sample also exposed to antioxidants via food consumption. We report significant effects on open-field behavior, lipid oxidation, and MTT tests.

Presenter: **Abbie Olson (72)**
Advisor: Theresa Wadkins
Title : *Determining Accuracy*

There is question to how accurate people can detect lies.

In previous research, Porter, Doucette, Woodworth, Earle and MacNeil (2008) videotaped stories of five students' personal accounts of truthful and deceptive stories. They found that deceptive stories had similar behaviors compared to the truthful stories . The study also indicates that increased physical movements can cause the observer to identify a story as truthful or deceptive. The purpose of this study is to view videotapes, of stories recorded, and determine how accurately lies can be identified. Stories were recorded for one male and one female's account of an accomplishment, and of an embarrassing moments. For each account an honest and a deceptive story was told, for a total of eight stories. Deceptive stories were more accurately identified, compared to truthful stories.

Presenter: **Jenna Rycek (18)**
Advisor: William Wozniak
Title: *Imagination Inflation*

Research has shown that people can increase their confidence rating about hypothetical childhood event went asked to imagine them participating in those events. In study 1, three independent variables were studied; Age (student tor professor), type of explanation (Control, Positive or Negative) and test number (Pre or Post test). The participants were given the LEI the containing over 70 childhood events and asked to rate their confidence. The researches randomly assigned them items to be imagined whether positive or negative and had the participants explain the items. The participants returned approximately a week later to retake the LEI. Study 2 followed the same protocol as Study 1 but used sixth graders and juniors from a local school. Overall, the results show that the participants did experience a significant change in their confidence rating. The significant change in confidence rating shows a negative change, which could be the result of imagination deflation.

Presenter: **Bryan Todd (19)**
CoPresenter: **Jason Wood**
Advisor: Joseph Benz
Title: *The role of Mortality Salience in Mate Selection*

Research suggests that people who are aware of their mortality will be more likely to act according to strict personal beliefs. We sought to determine whether a person that is subjected to mortality salience would lower their standards in selecting a mate. Participants were assigned to mortality salience and control conditions and were asked to rate the attractiveness of stimulus photos according to a number of factors. We hypothesized that participants in the mortality salience group would rate all photos as more attractive than would the control group. The significant findings were that mortality salience affected the two sexes perception of attractiveness conversely. Future research should focus upon these gender differences.

Presenter: **Collette Wagner (20)**
Advisor: Krista Forrest
Title: *Ploy complexity and its influence on mock jurors' interrogation evaluations and verdicts*

Purpose: Interrogators use false evidence ploys to encourage suspects to confess. False evidence ploys vary in complexity with simple ploys involving interrogators' verbal claims of evidence and orchestrated ploys requiring suspect interaction with the false evidence.

Method: We randomly assigned 105 participants to one of three ploy complexity conditions (none, simple, orchestrated). Results: Participants in simple and orchestrated conditions rated interrogation techniques as more deceptive and coercive. Despite difficulty in identifying orchestrated ploys, participants in the orchestrated condition convicted less often. Conclusions: Participants evaluated defendants differently as a function of ploy complexity. We discuss the use of expert testimony to educate jurors about ploy complexity.

Presenter: **Adrianne White (21)**
Advisor: Krista Forrest
Title: *Interrogation Prototypes and their Content: What average Joes expect occur in Police Investigations*

Individual participants formed mental images of a typical police interrogation and then described the events in written form. Compared to less experienced counterparts, participants in the high police experience conditions included fewer media sources and more interrogator behaviors, however participants in both conditions reported similar environmental, emotional details, and suspect behaviors.

Social Work

Presenter: **Rebecca Brooks (22)**
Advisor: Tobi DeLong Hamilton
Title: *Motivation Mastery in 3-5 year old Children*

This study utilized an existing survey, The Dimensions of Mastery Questionnaire, from Dr. George Morgan at Colorado State University. Three daycare centers in Kearney, Nebraska, agreed to participate in the study. In addition to the DMQs that the daycare providers were asked to answer, the current researchers compiled and delivered packets to the parents in the three centers. These packets included an identical copy of the questionnaire, a consent form, and an additional questionnaire for parents to complete. To protect the anonymity of all participants, a slotted box was provided to each center, and identifying information was not requested from the parents. The researchers collected the surveys and coded the responses. Finally, the data were analyzed, interpreted and then organized into a final report.

Presenter: **Sapana Upadhyay (23)**
Advisor: Jody VanLaningham
Title: *The Comparative Study of Breastfeeding Between the US and Nepal*

Breastfeeding is an important marker of child nutrition and psychosocial bonding between mothers and their children. However, there exist differences in the breastfeeding practices between different countries. This study was aimed to compare breastfeeding status and socioeconomic variations in the breastfeeding practices between the U.S. and Nepal. The study used cross-sectional data from NHANES 2005-2006 for US and NDHS 2006 for Nepal. A logistic regression of breastfeeding indicators on different socioeconomic variables was applied to look for the evidence of association between the variables. The result suggested that the breastfeeding practices in the U.S differs from that in Nepal in terms of indicators like ever breastfed, length of exclusive breast-feeding and duration of breastfeeding.

Sociology

Presenter: **Abigail Harris (24)**
Advisor: Suzanne Maughan
Title: *Families on Television*

The present research investigated the changes in families portrayed on television from the 1950's to today. Popular television shows from each decade were examined for family screen-time (how often were families portrayed),

family structure (traditional/nuclear vs non-traditional), socio-economic status, and race/ethnicity of the main characters. A further content analysis of selected television shows reflect the changes in familial relationships and causes of tensions within families throughout the decades.

Natural & Physical Sciences

Biology

Presenter: **Anna Barber (25)**
Advisor: Paul Twigg
Title: *Genetic response of soybeans to soybean aphids at advanced Damage Time Points*

Aphids are the most damaging group of agricultural pests worldwide. They transmit diseases, withdraw phloem sap, and can elicit drastic responses in the plant. In our study, we attempt to address this problem by examining soybeans tolerant to aphid infestation. Tolerance has a much broader genetic basis than resistance and is therefore more durable. We infested soybean plants tolerant to soybean aphid and in parallel another variety that was susceptible. We previously presented data from a 7-day post-infestation subtraction library for each type of plant. In this study, we present the data from further subtractive libraries at the more advanced damage time points of 14 and 21 days post-infestation. Putative identities and functions will be assigned to each using GenBank searches and GO ontology to allow classification of the transcripts into functional categories. This project was supported by grants from the North Central Soybean Research Project and UNK URF program.

Presenter: **Joshua Bauer (26)**
Advisor: Kim Carlson
Title: *Characterization of Homeostatic Role of OTK18 Protein in Monocytic Cells*

Human Immunodeficiency Virus (HIV) is prevalent and active in many places around the world. The innate immune response of humans to HIV is still not fully understood. Recent studies have shown OTK18, a human transcriptional suppressor, possesses a role in the regulation of HIV-1 infection of mononuclear phagocytes, cells involved with immune response. OTK18 is expressed in all normal human tissues, but its homeostatic function is yet to be characterized. In an effort to characterize its function, siRNA technology was used to silence its translation. The level of OTK18 silencing was analyzed using quantitative reverse transcriptase polymerase chain reaction (qRT-PCR). cDNA microarrays were then used to uncover genes hypothesized to be regulated by OTK18. The results of this study provide insight into the function of OTK18.

Presenter: **Brittany Caldwell (27)**
Advisor: Wyatt Hoback
Title: *Botfly parasitism of Peromyscus leucopus by month*

Many studies have explored the effects of bot flies on the white-footed mouse, Peromyscus leucopus. The bot fly eggs are deposited on vegetation in areas where the mice travel. The larvae traveled to the inguinal region of mice and may affect mobility and reproduction. The objective of my study was to determine which month had the most bot fly infestations. The mice were trapped near Kearney, NE, observed, and released back into the trapping area. Observations were recorded from January to September of 2009. There were more bot fly infestations in the warmer months.

Presenter: **Roxanna Fees (28)**
Advisor: Keith Geluso
Title: *Epizoochory in cattle: Different rates between cows and calves and implications for plant dispersal*

Zoochory is the dispersal of seeds using animal vectors, and epizoochory is the dispersal of seeds via the outside of the organism. Few studies have examined epizoochory and its possible implications in seed dispersal in grasslands in the Great Plains. Our study examined dispersal rates of macroscopic seeds in the hair of cattle (Bos taurus) in both cows and calves during one entire growing season. Seeds were collected once a month and then counted and identified. Number of seeds peaked August and September whereas seed dispersal was minimal in all other months. Of all seeds collected, 77% were dispersed by calves and 23% were attached to cows. Our results have implications for range management practices which often transport cattle from different pastures during the year. In areas where dispersal of invasive species of plants is of concern, limiting the movement of calves may decrease seed dispersal of unwanted species.

Presenter: **Becky Fusby (29)**
Advisor: Kim Carlson
Title: *Purification of OTK18 for Determination of Promoter Element Binding*

OTK18 is a human transcriptional suppressor implicated in regulation of human immunodeficiency virus (HIV) replication and as an innate immune gene regulator under homeostatic conditions. It is a poly-Zinc Finger (poly-ZF) gene, but the role of it's protein and the promoter elements to which it binds under homeostatic conditions is unknown.

One hypothesis is that OTK18 functions to contribute to rapid morphological and behavioral evolution by regulating developmental gene transcription. This can be elucidated once the target OTK18 DNA binding sites are known.

Therefore, the focus of this research is to begin to identify the DNA binding sites for OTK18, by first purifying the OTK18 protein. The results of this study provide insight into the elucidation of the organismal function of recently expanded human poly-ZF genes, such at OTK18. This is an important step in understanding recent primate evolution and could be important in understanding modern human disease and genetic variation. The project described was supported by the NIH grant number P20 RR016469 from the INBRE Program of the National Center for Research Resources.

Presenter: **Samantha Hanna (30)**
Advisor: Paul Twigg
Title: *Inhibitory Effects of Kudzu Root (Pueraria lobata) on B16 Melanoma Cells*

The goal of this study was to examine the inhibitory effects of kudzu root (Pueraria lobata) in the form of supplement pills on B16 melanoma cells at varying concentrations. Experiments were performed in vitro. Four 6-well plates were used to grow B16 melanoma cells with kudzu root added at concentrations ranging from 5mg/mL to 150mg/mL after 24 hours. A positive control contained B16 melanoma cells with media only. Cells containing higher concentrations of kudzu root (for example, 90mg/mL and above) were shown to cause cell death. Cell counts showed a significant decrease in experimental plates when compared to the positive control. These results suggest that kudzu root supplements have inhibitory properties and can suppress/inhibit B16 melanoma growth.

Presenter: **Travis Kirchner (31)**
CoPresenter: **Whitney Prokupek**
Advisor: Dawn Simon
Title: *The Degeneration and self-splicing ability of a red algal group II intron*

Spliceosomal introns have been found in every eukaryote and comprise about one third of the human genome. Despite their prevalence, they have no known general function and on the surface, their very existence is puzzling. It is now widely believed that spliceosomal introns arose through the degeneration of group II introns. The diversity of group II introns in nature suggests that degeneration occurs frequently, however this has seldom been studied in detail. In this project we will focus on an exemplar intron in red algae to better understand the process of degeneration. Specifically group II introns in the psaA gene from different species of red algae will be cloned and subject to self-splicing tests. Group II introns are auto-catalytic and in some cases can self-splice in vitro. We expect self-splicing ability to vary with phylogenetic position as well as state of degeneration. The most degenerate introns are least likely to self-splice.

Presenter: **Jess Lammers (32)**
Advisor: Wyatt Hoback
Title: *Rainfall and Cool Temperatures do not Reduce Captures of American Burying Beetle, Nicrophorus*

The American burying beetle (ABB) Nicrophorus americanus Olivier is a federally endangered species that is monitored using baited pitfall traps. Currently, the USFWS trapping protocol requires that traps be closed and that survey results be ignored when temperatures are below 15.5 oC (60 oF) or when there is rainfall before midnight. In August 2009, we placed baited pitfall traps for ABB in upland prairie in Holt County, Nebraska, and used two portable weather stations to record precipitation, temperature, and wind speed data. An average of 15 ABB ap night (range 2-52 beetle/d) were collected over 14 days. Warmer nighttime temperatures were negatively correlated with ABB capture. Relative humidity and wind speed did not influence captures. However, contrary to FWS protocol, rainfall did not limit captures, and 52 ABB were captured on a night with more than 5 cm of rain. In addition, examination of historic data revealed captures of ABB when midnight temperatures were as low as -2.7 oC. Our data suggest ABB may increase activity when conditions are cooler and wetter and that USFWS trapping protocols should be re-examined. Activity during cooler, wetter nights may be an ecologically important mechanism to limit desiccation, and additional physiological studies on nocturnally active carrion beetles should be conducted.

Presenter: **Maria Rojas (33)**
Advisor: Julie Shaffer
Title: *Identification of Potential Loktanella Species from Alkaline Lakes in Western Nebraska*

Seven bacteria samples were isolated from alkaline lakes in western Nebraska for identification. Previous work suggests that these bacteria are closely related to Loktanella, which are known to be primarily marine, making this interesting since these are from inland lakes. The goal is to identify the bacteria and to see how closely related they are to known Loktanella species. DNA was extracted from the samples and quantified using the Nanodrop Spectrophotometer. PCR was used to amplify the 16S rRNA gene using universal primers.

The PCR products were purified and quantified before being sent for sequencing at UNMC. Using BLAST the closest relative was identified. The results show that two of the tested bacterial samples from the alkaline lakes are Loktanella, two are Bacillus, one is Halomonas, and two are Rheinheimera. The next step is to use biochemical testes to indentify the exact species or if these are new species.

Presenter: **Eric Smits (34)**
Advisor: Joseph T. Springer
Title: *Small Mammal Diversity Within Wetlands of the Rain Water Basin*

Wetlands within the Rainwater Basin are isolated habitat islands that are exposed to repeated disturbance. The diversity of small mammals within these wetlands is affected by routine disturbance, habitat diversity, size, and distance from natural habitat. Using Sherman live taps, I determined the diversity of small mammals within different wetlands of Buffalo, Hall, Kearney, Gosper, Phelps, Adams, Custer, Harlan, Franklin and Webster Counties. I used statistical tests to compare diversities within each wetland and to determine the relationship between diversity, size of wetland, and distance from natural habitat.

Presenter: **Evan Suhr (35)**
Advisor: Mary J. Harner
Title*: Independent and mixed-species decomposition of Russian olive and cottonwood leaf litter*

Russian olive (Elaeagnus angustifolia) is a non-native, N-fixing plant that grows along rivers throughout the central and western U.S. Its leaves contain high levels of nitrogen, which may contribute to accelerated leaf decomposition.

We tested the hypothesis that Russian olive alters leaf litter decay of cottonwood trees (Populus deltoides) along the Platte River. We placed litter packs containing Russian olive, cottonwood, or a mixture of Russian olive and cottonwood leaves in a riparian forest and measured leaf decay and nutrient release over one year. Russian olive litter decayed the fastest, mixed leaves decomposed at an intermediate rate, and cottonwood leaf litter decayed the slowest. Over one year, Russian olive leaves released an order of magnitude more nitrogen to the environment than cottonwood leaves or mixed leaves. Our results demonstrate that Russian olive can provide a substantial amount of nitrogen to riparian soils, especially when it dominates a plant community.

Presenter: **Alicia Virgl (36)**
Advisor Dawn Simon
Title*: Secondary Structure Degeneration of A Red Algal Plastid Group II Intron*

The origin of spliceosomal introns is not well understood. The leading hypothesis is that they arose from group II introns. While there is good evidence for this hypothesis, it is unknown whether this is an ongoing process. In this study we are characterizing group II intron degeneration in an intron found in the plastid of the psaA gene in red algae. This particular intron is unique for several reasons. First, it has been vertically inherited within a single class (Stylonematophyceae) of red algae, which allows us to reconstruct its evolutionary history based on the algae. Secondly, the intron varies in size (382 -585 nucleotides) among different species suggesting it is undergoing degeneration. The aim of this project is to sequence the psaA gene from additional species of red algae. Secondary structures of the introns will be folded and examined in a phylogenetic context in order to understand the pattern of degeneration.

Presenter: **Quinn Willett**
Advisor: Paul Twigg
Title: *Assessment of Peroxidase Gene Expression in Buffalograss Cultivars Infested With Chinch Bugs*

Buffalograss is a low-growing warm-season grass native to the central U.S. It is low growing and quite drought resistant. These characteristics make buffalograss appealing for home use. It however has a significant problem in that most varieties are susceptible to chinch bug infestation. Susceptible cultivars will quickly turn brown when infested. Breeding efforts have largely focused on the appearance of the grass without directly considering insect susceptibility. In a previous study, we identified a peroxidase from a subtraction library of the tolerant cultivar infested with chinch bugs. In this study, we used a TaqMan gene expression assay designed from the peroxidase that we identified to determine the levels of transcript accumulation in infested and uninfested tolerant and susceptible plants. We will present our data from this study assessed over a time course. This research was supported by grants from the Nebraska Research Initiative, the UNK URF program, and the USGA.

Presenter: **Taylor Carlson**
Advisor: Annette Moser
Title: *Development of a Chromatographic Immunoassay to Determine the Concentration of Virginiamycin in Water Samples.*

A chromatographic immunoassay capable of determining the concentration of virginiamycin in water samples has been developed. In this method, the sample was preconcentrated using an anti-virginiamycin antibody column. After concentration, a reversed phase column was used to separate the virginiamycin from the buffer peak. The area of the resulting virginiamycin peak allowed for the quantification of the amount of virginiamycin in the original sample. Using this method, a minimum concentration of 1 ppb could be detected. The linear range for this method was determined to be 1 ppb to 100 ppm.

Presenter: **Britni Hervert (38)**
Advisor: Cheri Barta
Title: *Cu-Gd Complexes for use as Potential PET/MR Imaging Agents*

Many imaging technologies exist that image different parts or functions of the human body. Unfortunately, many complications exist with several of these techniques including high costs, the use of toxic agents, and poor resolutions. Recently, a devise that combines Positron Emission Tomography (PET), an imaging technique that produces 3-D images of functional processes in the body, and Magnetic Resonance Imaging (MRI), an imaging technique used to visualize internal structures of biological systems, has been developed. This equipment allows for the correlation of structural information through MRI with functional information from PET resulting in life-like images of biological tissues that can be used for accurate diagnosis and assessment of disease states. A drawback to this new technology, however, is the lack of sufficient, non-toxic PET/MR imaging agents. The synthesis and characterization of a PET/MRI imaging agent that incorporates both Cu2+ and Gd3+ in the same entity will be presented.

Presenter: **Caitlin Jacquot (39)**
Advisor: Haishi Cao
Title: *Synthesis of Fluorescent Sensors*

Using research, we have been able to explore the world of science and use organic molecules to create sensors. In this project, we examine the fluorescent nature of pyrenebutric acid when combined with thionyl chloride and EDT to use as a mercury sensor.

Presenter: **Jaicee Post (40)**
Advisor: Cheri Barta
Title: *Agents for Positron Emission Tomography/Magnetic Resonance Imaging*

Recently a new imager has been developed that incorporates both MRI, an imaging technique used to visualize internal structures of an organism, and PET imaging, a nuclear imaging technique that produces 3D images of functional processes in the body. This new imager will allow for better correlation and more accurate diagnoses for a variety of disease states. This technology, however, lacks necessary imaging agents. In our research, we have been designing and synthesizing small molecules that combine a PET marker with an MRI agent. It is our hope that these new imaging agents will not only lower dosing requirements, but will also reduce associated toxicity linked to poorly designed MRI agents. If successful, these will be the first reported PET/MR imaging agents that incorporate both imaging markers in the same molecule. The synthesis and characterization of these ligands and their associated Gd/Cu complex will be presented.

Presenter: **Jordan Westengaard (41)**
Advisor: Frank Kovacs
Title: *Further Development of Switchgrass Genebank*

This project reflects a continuation of one initiated last year where our goal has been to find and clone genes from a switchgrass cDNA library into protein expression vectors containing the histidine purification tag sites. After many unsuccessful attempts at expressing a protein from any of our initial genes, we have had to reevaluate our procedures and redesign our approach and organization of the gene bank. Here we will present results showing the problems we encountered as well as the solutions we have come up with for them. Our first step was to determine the entire sequence for each clone. Additionally, we have implemented a new screening and organizational plan.

HPERLS

Presenter: **Jennifer Fritson (42)**
Advisor: Kate Heelan
Title: *Effects of a Family Based Obesity Treatment Program on Pediatric Blood Pressures: Preliminary Findings*

Hypertension is a known risk factor for coronary heart disease in adults and children (Luma et al., 2006). The purpose of this study was to determine the effects of a family based weight loss program on blood pressure (BP) levels of obese children. Ten obese children (age 9.63±1.31 yrs) and their families volunteered to participate. BP levels were classified as hypertensive (avg. systolic BP (SBP) and/or diastolic BP (DBP) ≥95th percentile) or prehypertensive (avg. SBP or DBP ≥90th percentile) (Pediatrics, 2004). Change scores from baseline to 12-week for SBP (-1.8±9.3 mmHg) and DBP (-3.0±12.99 mmHg) were non-significant ($p>0.05$). However, change in SBP was strongly associated with change in BMI percentile ($r=0.83$, $p<0.05$). In 12-weeks participants lost 4.54±5.26% of their body mass and saw non-significant decreases in BP.

However, not all participants increased activity nor lost weight. A larger study would evaluate BP changes among participants who responded to the intervention..

Presenter: **Suzanne Hoefer**
Advisor: Gregory Brown
Title: *Revisiting a Classic Concept in Physiology: Does ventilation limit VO2max?*

A standard tenet in exercise physiology indicates that at maximal aerobic capacity (VO2max) pulmonary ventilation (VE) is much lower than ventilatory capacity. However, the original research substantiating this theory cannot be found. The purpose of this project was to compare VE at VO2max to maximal voluntary ventilation (MVV) in 21 healthy college aged adults (10 females, 11 males). Pooling the data for males and females, at VO2max, the measured VE was 113.8 ± 27.5 L/min (mean ± standard deviation) while the measured MVV was 140.0 ± 56.8 L/min. There was a trend (P=0.086) towards a significant difference between the 2 ventilatory values. These data indicate that lung capacity and the ability to move air through the lungs does not limit maximal aerobic capacity in healthy young adults.

Mathematics & Statistics

Presenter: **David Hayes**
Advisor: Aaron Clark
Title: *Simulation of Radiative Transfer Through Clustered Computing*

Throughout the year, my mentor and I have created a 20 computer computational environment. Even with substandard hardware it has shown great potential in high powered scientific computing. We have run many benchmark simulations relating to radiative transfer through clouds with compare quite favorably to many expensive commercial alternatives. Each Node in the cluster runs a Pentium 4 processor running around 2.2 Ghz with 1 Gb of RAM. They each run their own copy of Ubuntu Server Linux version 9.04. On the head node we have install MPICH2 as an application to harness their collective power.

Presenter: **Travis Minne**
Advisor: Pari Ford
Title: *Counting Path through a Grid with Missing Vertices and Applications*

This paper describes a method of counting paths through a grid of m x n size with a particular vertex deleted. Counting the number of paths through a given vertex determines how that vertex affects the grid. Applications for this formula are useful on systems of one way flow through nodes and how the grid is affected with a deletion of a node in the grid system such as street, sewers, water, and resistors. A case study of a residential area in Kearney depicts effects of converting a street intersection into a neighborhood park.

Physics

Presenter: **Ben Fullerton**
Advisor: Michael Larsen
Title: *Filter Paper Based Disdrometer*

This research re-investigates a technique pioneered in the 1960s to use 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 is treated with a chemical so that arriving water drops leave a stain, similar to standard colored tissue paper with water spilled on it. From the stain left by the water droplet, the original drop size can 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 can explore the true raindrop size distribution and its evolution in time and space. Historically, one of the challenges of this technique was protecting or drying the filter paper before the data were compromised due to paper bleed-through. In order to combat this dilemma, a digital camera is used to record the image of the filter paper before collection. Instead of the painstaking, labor-intensive method of measuring each stain by hand, we are able to use a camera to examine the data digitally. Then, with computer software we wrote, the information is analyzed to determine the area of the stain. From the area, the diameter of stain can be determined and correlated to the diameter of a raindrop. In order to combat different densities of rainfall during an event, part of the device covering has been made adjustable to expose the filter paper for more or less time. Ultimately, this information will help better our understanding of atmospheric phenomena and storm evolution.

Presenter: **Riley Howsden (47)**
Advisor: Kenneth Tranthan
Title: *Electron Optical Excitation Functions in Methane*

Spin polarized electron collisions with organic molecules are of interest in understanding the origins of biological homo-chirality. This work will look for spin dependent electron interactions with methane, a common gas in pre-biotic atmospheres. A low energy, spin polarized electron scattering apparatus is presently being constructed and tested. This will examine the correlation between the polarization of emitted fluorescence, due to collisional excitation, and spin of the incident electron. As an initial, and early measurement for the apparatus we will present optical excitation functions in methane; that is, looking at florescence intensity of visible hydrogen wavelengths as a function of incident electron kinetic energy.

Presenter**: Kyle McClary (48)**
Advisor: Michael Larsen
Title: *Ethanol and its Relationship to Accelerated Wear and Efficiency in SNRE's*

Ethanol is a regional topic of interest in Nebraska. This interest naturally brings to question whether the fuel is reliable for use in a variety of different applications. Through our research we were able to see the advantages and disadvantages of running each fuel that is available to the average consumer as it relates to small engine wear. In particular, our research addresses the open question as to whether ethanol causes more wear in small internal, spark combustion engines.In this research project, we used six brand new Briggs and Stratton 3.5 horsepower, 4 stroke engines that were tested in the areas of fuel consumption, oil temperature, engine spark regularity and qualitative evidence of wear with a variety of different fuels. We found that as ethanol content increased, so did the visible wear. Also noteworthy was the difference heating and cooling patterns the different gasoline and ethanol blends associate with. We experienced vapor locking with the engines and there was a noticeable tendency that the higher the ethanol content, the higher the tendency to vapor lock. We found that the ethanol in the engines was more hazardous to the engines that the regular gasoline based on wear. We have found evidence that #10 in small non-road engines may be more hazardous to some engines than previously expected.

Presenter: **Matthew Noffke (49)**
Advisor: Michael Larsen
Title: *Polar Plot Mapping of Localized Wind Data*

A three-dimensional sonic anemometer was installed on the roof of Burner Hall of Science to .

aid in the analysis of data for several research projects conducted by the Atmospheric Science Research Group. Wind direction and speed can influence the collection and results of data. Most specific, the collection and analysis of rain data and the EPA radiation monitoring machineThis project uses data collected from the roof where these projects are conducted. The data is collected at thirty-two Hertz and is presented in three-dimensional speed, direction, and temperature. Using this information polar plots can be generated for any given time segment up to 32 hertz. Each plot is a polar histogram that indicates the amount of time the wind has come from a certain direction in a 360 degree representation. These plots can be used by other researchers to spot and explain possible influences in their data.

Presenter: **Danielle Policarpio (50)**
Advisor: Michael Larsen
Title: *Characterizing Various Conductive Fabrics*

Several capacitors were built from various types of conductive fabrics. A controlled-signal frequency sweep is sent through a resistor-capacitor circuit (RC circuit) from a signal generator. A data acquisition system is used to automatically perform the frequency sweep and collect the transmitted signals. The data collected is then analyzed. The reactance of the capacitor is compared to the resistance of the resistor in order to identify the capacitance of the capacitor in question.

Presenter: **John Shafer (51)**
Advisors: Trecia Markes, Mark Markes
Title: *Comparison of Results on the Force and Motion Conceptual Evaluation for Calculus-Based and Algebra-Based General Physics Students*

The Force and Motion Conceptual Evaluation (FMCE) was administered to one section each of calculus-based and algebra-based general physics students. Pretest and posttest responses are analyzed to determine the models that students use in answering questions about force and motion. Students are categorized as being in an expert state, a mixed state, a student state, or a null state. A comparison of pretest results is made to determine if students enter both levels of general physics with approximately the same or significantly different conceptions about force and motion. Pretest and posttest results are also analyzed to determine the relative gain of each group of students.

Presenter: **Jeremy Stromer (52)**
Advisor: Liubov Kreminska
Title: *The Polarizing Efficiency of Lyotropic Chromonic Liquid Crystals*

While in the liquid crystal phase, the unique molecular arrangements allow a material to exhibit properties that would not be demonstrated otherwise and we wish to exploit these properties to use lyotropic chromonic liquids as polarizers. It has been shown that the production of liquid crystal thin film polarizers can perform on a level similar to that of conventional polarizers. In particular, our research is concerned the near infrared dye IR-806, and determining its ability to function as a polarizer. Characterization of the dye was conducted by producing various solutions of differing concentrations (wt%) and measuring the absorbance spectra for each at different temperatures. Construction of the thin films was done by the shearing of the dye solutions on a glass substrate by either hand or pneumatic methods. The films were measured for their effectiveness by use of a polarizing microscope and also additional absorbance spectra were taken. Results have shown that IR-806 shows capability to act as a polarizer.

Professional Studies

Education

Presenter: **Lacy Batt (53)**
Advisor: Erin Holt, Paul Bishop
Title: *Para-educators' Perceived Readiness to Implement Structured Recess: Preliminary Results*

The readiness of the supervisor to teach organized games is an integral part of a successful structured recess program. The purpose of this study is to evaluate the perceived readiness of para-educators to lead structured recess prior to and following training. Trainings provided para-educators with information on teaching structured games prior to implementing structured recess. Pre- and post-training surveys evaluating the comfort level of teaching, supervising, leading and playing the organized games were administered. Paired t-tests were used to analyze the survey questions, showing no significance. Chi square goodness of fit test was calculated, presenting a deviation for the questions indicating para-educators' comfort for teaching the rules, but not for supervising, leading, and playing organized games. Verbal feedback indicated a favorable perception of the usefulness/effectiveness of the training based on the para-educators' pre-training concept of structured recess.

Presenter: **Bradley Peters (54)**
Advisor: Erin Holt
Title: *The Effect of Temperature on Elementary Recess Time*

One opportunity for children to achieve the recommended 60 min of PA a day is during their daily recess periods. However, various factors can influence recess time. Purpose: To examine how seasonal temperature changes effect recess time for elementary students. Methods: Ten schools (grades K-5; 74 classes) were evaluated for the time spent outside for recess using direct observation. Temperature at the time of recess was collected using data from the National Weather Service. An independent t-test was used to determine if a difference in scheduled time versus actual time spent at recess existed based on a cutoff temperature of 45oF. Results: Students were allowed significantly less time outside than scheduled during recess when temperatures were below 45oF compared to temperatures above 45oF (below 45oF =-3.74±3.55; above 45oF=-1.85±4.05; $p<0.05$). Conclusion: Temperatures less than 45oF may significantly impact outdoor recess time for elementary students in the Midwest.

Marketing

Presenter: **Elizabeth Manfull (55)**
Advisor: Janet Lear
Title: *Marketing in a Small Community: What works?*

My research project consists of interviews from three businesses in the Gibbon community. I compared and contrasted their marketing plans. I also compared their plans to the secondary research that I found about marketing plans for small businesses. There were many differences and a few similarities that I found between each marketing plan and my research. This was a great opportunity for me to learn more about marketing and I have really enjoyed the experience.

Graduate Studies

Biology

Presenter: **Stephanie Butler (56)**
Advisor: Wyatt Hoback
Title: *Trapping the American Burying Beetle, Nocrophorus americanus: A Test of Protocols*

The American burying beetle, Nicrophorus americanus was listed as endangered after disappearing from 90% of its historical range. The United States Fish and Wildlife Service allows two trapping protocols for surveys of this beetle. Results are reported as number of beetles captured per trap night (BPN) generated as the number of traps open times the number of days sampled. The "Nebraska" protocol uses a single 18.9 L bucket baited with a whole rat. The "Oklahoma" protocol uses a transect of eight 0.7 L Solo cups baited with chicken gizzards. In this study, we compared the two trap protocols and a modified transect of eight 18.9 L buckets for burying beetle captures. The Nebraska protocol traps captured significantly more beetles with a mean (+ 1 S.E.) of 143 (+ 30.8) BPN, while the Oklahoma cup traps caught 12 (+ 2.8) BPN. The bucket transect traps caught 37 (+ 9.8) BPN.

Presenter: **Sue A. Finstick (57)**
Advisor: Julie Shaffer
Title: *Genetic Analysis of Thermophilic Microorganisms Collected From Thermo Hot Springs, Beaver County, Utah*

Thermophilic microorganisms thrive at high temperatures and have been identified at hot springs throughout the world. They may be descendants of the earliest life on the planet and thus are important to evolution and genetic research. Since they survive under extreme environmental conditions, they are also important in ecology research. Some scientists are even looking for similar life forms in the extreme environments on other planets. In the present study, we characterized the microorganisms found in Thermo Hot Springs in Beaver County, Utah, as thermophilic (temperature between 60oC and 80oC) neutrophiles (pH between 5 and 7). We isolated and amplified DNA from mixed populations of the thermophilic microorganisms, and sequenced the nucleotide bases of the 16S DNA segments. We compared these to sequences published in GenBank and identified affiliations with Aquificales which are strict thermophiles as well as bacteria found in other types of extreme environments.

Presenter: **Michelle McPherron (58)**
Advisor: Wyatt Hoback
Title: *Effects of Smooth Brome Grass on the Behavior of Burying Beetles (Nicrophorus spp.)*

Burying beetles, Nicrophorus sp. exhibit biparental care where adults bury a carcass which they use to rear their offspring. Many of these species have declined including the American burying beetle, Nicrophorus americanus. One reason for decline includes habitat fragmentation. With widespread planting of smooth brome grass (SBG), Bromis inermis, a sod-forming grass, may restrict the ability of burying beetles to rapidly entomb carcasses. We investigated the effects of SBG on carcass burial in a series of laboratory studies.

Beetles were provided with containers of soil that were bare, SBG sod, or native little bluestem (LB), Schizachyrium scoparium. Beetles buried carcasses in 62%, 71%, and 77% of the bare soil, SBG, and LB trials respectively.

Presenter: **Chelsey Pasbrig (59)**
Advisor: Wyatt Hoback
Title: *Cold tolerance in populations of western mosquitofish, Gambusia affinis, from Nebraska, increase potential threat to northern states and plains topminnow, Fundulus sciadicus*

Western mosquitofish, Gambusia affinis, have been widely introduced in an attempt to control mosquito populations. Introductions of mosquitofish in to lower latitudes (30oN-37oN latitude) have led to the endangerment of multiple fish species through direct and indirect competition. In latitudes greater than 40oN, mosquitofish have fewer documented impacts, likely because they suffer high mortality from winter temperatures. However there is concern that cold tolerance capabilities have been increased through selection of this trait in Nebraska populations. The distribution of plains topminnow, indigenous to Nebraska, has been greatly reduced and is now considered a species of special concern in Loss of plains topminnow has been associated with the introduction of invasive species, including the western mosquitofish. We conducted a series of controlled laboratory experiments to investigate mortality in winter water temperatures for five populations of western mosquitofish and plains topminnow. Each population was maintained in environmental chambers with four tanks at room temperature and four tanks in chambers cooled to 4oC. Over a three month period, mortality at 17oC was less than 55% in mosquitofish trails and 67.5% in plains topminnow trials. Mortality at 4oC for Elkhorn, Platte, and Republican River drainage western mosquitofish was 100%. One hundred percent mortality occurred after 63, 57, and 45 days respectively in mosquitofish trials. Mortality in plains topminnow trials was 22.5%. The Platte River system is full of spring fed and groundwater influenced thermal refugia and currently mosquitofish are abundant throughout the river in Nebraska. These experiments suggest that mosquitofish are capable of overwintering in Nebraska and possibly seeking areas with thermal refugia. Tolerance of cold waters can lead to the establishment of over-wintering, permanent populations of mosquitofish capable of range expansion and potential negative impacts to native species in latitudes above 40o.

Presenter: **John Riens (60)**
Advisor: Kerri Farnsworth-Hoback
Title: *A GIS-Based Management Tool for Mapping Pollution Risk in Nebraska Rainwater Basin Wetlands*

The Rainwater Basin is one of the most endangered wetland ecosystems in North America. Despite reduction in area by more than 90%, this ecosystem is critical for many species, including millions of migratory waterfowl. Polluted runoff from agriculture and concentrated animal feeding operations may adversely affect the basin's health and biodiversity. I developed an inexpensive, repeatable management model that managers can use to more efficiently locate, analyze, and respond to pollution in the Rainwater Basin wetlands. The GIS-based model categorizes the infiltration of pollution produced by surrounding land-use in the Rainwater basin wetlands. Five wetlands were chosen for the study and common ecological factors (vegetation, vegetative buffer

width, soil, and watershed footprint) were used in the model. The combination of these variables provided a quantitative analysis of capacity to buffer pollution inputs compared to visual vegetation monitoring. Using this model, I was able to examine the success of management actions, rank multiple wetlands for their conservation needs, and determine specific locations where management is most needed.

Presenter: **Lindsay Vivian (61)**
Advisor: Wyatt Hoback
Title: *Assessing the Rate of Platte River Caddisfly Ironoquia plattensis, Case Degradation*

The Platte River caddisfly (PRCF), Ironoquia plattensis, was first described from a backwater slough along the Platte River in south central Nebraska in 1999. The PRCF is now known from 15 locations and is endemic to Nebraska. Adapted to the extreme environment of backwater sloughs, the PRCF appears to be in decline across its range, likely due to changes in hydrology and invasive species encroachment. During surveys for new sites in 2009, seven locations with discarded larval cases only and no larvae were observed. Persistent cases have also been found at all 15 sites as well. How long these cases persist in the environment is unknown. Cases remaining in a moist environment may persist for five years or more. For this study, 200 cases were collected and different simulations in the lab were used to elucidate how long cases persist. Cases in an airtight vial served as the control.

Geography

Presenter: **Christyne Leapley (62)**
CoPresenters **Stephanie Cunningham, Nick Volpe**
Advisor: Paul Burger
Title: *GIScience and Elementary School Planning: Incorporating Spatial Analysis Tools in the Decision Process*

Kearney Public Schools (KPS) passed a bond issue in September 2009 to build two new elementary schools to accommodate community growth and the associated changing spatial distribution of school-aged children. Currently the community is involved with selecting those two sites and delineating attendance zone boundaries for all elementary schools to be operational by the fall of 2012. GIScience provides the necessary tools for solving this type of spatial problem. Location-allocation is first employed to locate prospective sites given the existing elementary schools and distribution of K-5 graders. Multiple iterations are run using the three models of mindistance, maxcover and maxattend each of which solves for a slightly different objective. Following the site selection, a spatial allocation of students (demand) is performed to the respective schools (supply) using network analysis until a desired capacity for each school is reached. Attendance zones boundaries are then delineated based upon each school's network assignments. elementary schools to accommodate community growth and the associated changing spatial distribution of school-aged children. Currently the community is involved with selecting those two sites and delineating attendance zone boundaries for

all elementary schools to be operational by the fall of 2012. GIScience provides the necessary tools for solving this type of spatial problem. Location-allocation is first employed to locate prospective sites given the existing elementary schools and distribution of K-5 graders. Multiple iterations are run using the three models of mindistance, maxcover and maxattend each of which solves for a slightly different objective. Following the site selection, a spatial allocation of students (demand) is performed to the respective schools (supply) using network analysis until a desired capacity for each school is reached. Attendance zones boundaries are then delineated based upon each school's network assignments.

HPERLS

Presenter: **Cody Flower (63)**
Advisor: Kate Heelan
Title: *Prevalence of Adolescent Obesity in Rural Nebraska*

The purpose of the current investigation was to compare prevalence of obesity (OBS%) in a rural, primarily Caucasian, adolescent population with the NHANES 2003-2006 OBS% for Caucasian adolescents. 2,407 participants (grades 12; age: 13.19 ± 1.38 years; males n=1220, females n=1187) were measured for body mass and stature using a digital scale and standard stadiometer. BMI (kg/m2) was calculated and BMI percentiles were determined using CDC growth charts for age and gender. -OBS was defined as BMI ≥95th percentile for age and gender. Prevalence of obesity among rural Nebraska Caucasian adolescents and NHANES (2003-2006) data. Rural Nebraska NHANES Male 19.6% 17.3% Female 17.0% 14.5% Total 18.3% 15.9% Our data suggests that OBS% is approximately 13% higher among adolescents in a rural Nebraska community when compared to national averages. Determining confounding variables that influence obesity in smaller communities is warranted and should be further investigated.

Presenter: **Meghan Ruebel (64)**
Advisor: Kate Heelan
Title: *Outcomes of a 12-week Family Based Pediatric Obesity Program: Preliminary Findings*

The purpose of the current investigation is to determine the outcomes of a family based, 12-week nutrition, physical activity and behavioral modification weight loss program for obese children. Ten obese children (age: 9.63±1.31 yrs) volunteered to participate. Child and their parents (9 moms, 8 dads, 82% obese; BMI > 30 $kg \cdot m^{-2}$) were measured for body mass (BM), height and BMI at baseline (BASE) and 12 weeks (12w). Paired t-tests were used to determine differences between BASE and 12w. Multiple regression analysis was conducted to determine parental predictors of child body mass loss. Child lost an average of 4.55±4.46% of BM in 12w while parent lost 6.10±4.58% of BM. Mom's percent BM change accounted for 59% (R^2=.59, $p<0.05$) of the variance in predicting child BM loss (R^2=.59, $p<0.05$).

Counseling & School Psychology

Presenter: **Kristine Frerichs (65)**
Advisor: Robin Sobansky
Title: *Assessing the Knowledge and Awareness of Elementary Teachers on the (incomplete title—emailed PI)*

The purpose of this presentation is to examine the knowledge, awareness, and training elementary teachers in Nebraska have surrounding issues related to traumatic brain injury. A survey examined teacher preparation in serving students with acquired traumatic brain injury, and the need for training in issues surrounding traumatic brain injury. As a result, elementary teachers have the opportunity to understand how they rate their knowledge, awareness, and comfort level in working with students who have traumatic brain injury. Conference attendees will understand how elementary teachers rated their knowledge, awareness and comfort level in working with students who have traumatic brain injury.

Presenter: **Kelly Loeffler (66)**
Advisor: Robin Sobansky
Title: *Educators Perception of the Impacts on Children without Disabilities: A Parallel Study*

Little research has investigated the effects of inclusion of students without disabilities. Can inclusion of students with severe disabilities be beneficial? The results of one study suggest that parents generally perceive their child without a disability to have benefited from the inclusion experience (Peck, Staub, Gallucci & Schwartz, 2004). Survey responses from 180 educators across a mid-western state indicated that they perceived that students without disabilities to have benefited socially and emotionally from being in an inclusive setting. In addition, the data supports that when educators take the initiative to teach social skills to all students, students with severe disabilities are perceived to be accepted more. More findings showed that educator's attitude toward inclusion was positively correlated with the amount of resources available. Finally inclusion was not perceived to have an effect on the academic education of students without disabilities.

Presenter: **Annastashia Malcom (67)**
CoPresenter: **Kelsey VanDusen**
Advisor: Max McFarland
Title: *Comparing Achievement Tests Results: Gender Specific and Traditional Classrooms*

This poster presentation highlights the comparison of data from gender specific and traditional classrooms. Results from the data analysis are presented and topics regarding the use of gender specific classrooms to improve student achievement are discussed.

Presenter: **Lona K. Mason (68)**
Advisor: Max McFarland
Title: *Bullying Awareness of Administrators and Teachers*

The purpose of this study is to measure perceived awareness of direct and indirect bullying among elementary, middle school and high school administrators and teachers.
It will also measure administrator's and teacher's perceived awareness of direct and indirect bullying being a problem in the school. A comparison among teacher's and administrator's perception of awareness and those two types of bullying being a problem at each of the three levels will be completed as well as addressing the differences in perceived bullying behaviors.

It is hypothesized that the data will show significant differences when comparing perceptions of these different issues among elementary, middle school and high school teachers. It is also hypothesized that there will be a significant difference when comparing perceptions of these issues between teachers and administrators within the same school.

Presenter: **Lana Renzelman (69)**
Advisor: Tammi Ohmstede Beckman
Title: *Comparing Research Standards Among NASP Approved School Psychology Specialist Programs*

This presentation examines the extent to which the National Association of School Psychologists (NASP) approved specialist level programs are meeting standard 2.9 identified in the NASP Standards for Training and Field Placement Programs in School Psychology (NASP, 2000). The application of this standard is examined by determining how research training and education is implemented. Participants will learn about the quality and variety of research education in specialist level programs and will be made aware of the success programs have in meeting this standard. A comparison is made between various lengths of time programs have been approved by NASP and how research is being implemented into each program. The research methods programs use to prepare students are also examined, as is the type of research conducted. A ratio obtained identified the proportion of the entire program that involves research. Finally, each program's preferred method of student dissemination of research is determined.

Presenter: **Anne Marie Stott (70)**
Advisor: Tammi J. Ohmstede-Beckman
Title: *Assessing the Role of School Psychologists at the Primary and Secondary Levels of Education*

This study evaluated the extent of involvement and utilization of School Psychologists within the primary and secondary levels of education. This study was conducted by generating a survey from an email-based web program (Opinio) and by randomly selecting 1200 principals from Nebraska, Iowa, Kansas, Missouri, South Dakota and Wyoming. Data were collectively gathered and analyzed from 431 respondents. It was found that School Psychologists continue to be most often utilized within the special education services and that assessment practices continue to constitute the majority of School Psychologist's practice.

Oral Presentations - Room 310

Psychology

1:30-1:45 Presenter: **Karen Albrecht**
Advisor: Richard Miller
Title: *Differences in Regret of Inaction, Action, and Missed Opportunities among American and Japanese*

1:45-2:00 Presenter: **Abigail Harris**
Advisor: Richard Miller
Title: *Does Level of Group Membership Affect Reaction to Ostracism?*

2:00-2:15 Presenter: **Krystine Hoefer**
Advisor: William Wozniak
Title: *Effects of Stockholm Syndrome*

2:15-2:30 Presenter: **Abigail Harris**
CoPresenter: **Brittany Schmidt**
Advisor: Richard Miller
Title: *Envy in Children Competing Against a Friend or Enemy*

2:30-2:45 Presenter: **Jessica Obermier**
Advisor: Richard Miller
Title: *The Effects of Ambient Temperature Change on Recall Tasks*

2:45-3:00 Presenter: **Abigail Harris**
Advisor: Richard Miller
Title: *Effects of Norm Violations on Physical Attractiveness—a Cross Cultural Study*

3:00-3:15 Presenter: **Brittany Schmidt**
Advisor: Krista Fritson
Title: *The Relationship Between Family Mealtimes and Students' Self-Efficacy*

3:15-3:30 Presenter**: Janeen Stuthman**
Advisor: Krista Fritson
Title: *Personality and Perception of Cell Phone Usage among College Students*

Oral Presentations - Room 312

Physics

1:30-1:45 Presenter: **Josh Beck**
Advisor: Michael Larsen
Title: *Direct Imaging of Raindrop Impacts*

1:45-2:00 Presenter: **Kyle McClary**
Advisor: Michael Larsen
Title: *Development of an acoustical raindrop disdrometer*

2:00-2:15 Presenter: **Grant Saltzgaber**
Advisor: Michael Larsen
Title: *Wavelet Inspired Analysis of Discrete Atmospheric Data*

Political Science

2:15-2:30 Presenter: **Karla Bertelsen**
Advisor: Christopher Stevens
Title: *Adult HIV/AIDS Prevalence Rates in Sub-Saharan Africa*

2:30-2:45 Presenter: **Mark Grimes**
Advisor: Dianne Duffin
Title: *"Cash for Clunkers": An Examination of the Effects of Increased Fuel Economy*

2:45-3:00 Presenter: **Josh Lacy**
Advisor: Joan Blauwkamp
Title: *Supreme Opinion: The Supreme Court and Public Opinion*

3:00-3:15 Presenter: **Jeff Shank**
Advisor: Claude Louishomme
Title: *Term Limits and Competitiveness In Elections*

3:15-3:30 Presenter**: Sharon Thindwa**
Advisor: William Aviles
Title: *The Role of Women in Latin American Politics*

Oral Presentations - Sandhills Room

History

11:00-11:15 Presenter: **Kelli Cavanah**
Advisor: Douglas Biggs
Title: *American View of the Holocaust*

Grad Studies History

11:15-11:30 Presenter: **Zeke Brummels**
Advisor: Mark Ellis
Title: *Che Guevara and Popular Culture*

11:30-11:45 Presenter: **Andrew Hermes**
Advisor: Carol Lilly
Title: Final Resolution: *The Soviet Invasion of Afghanistan*

11:45-12:00 Presenter: **Harold Smallcomb**
Advisor: Mark Ellis
Title: Benedict Arnold: *Justifiable Treachery?*

1:30-1:45 Presenter: **Aron Utecht**
Advisor: James Rohrer
Title: *Progressive Evangelist: Billy Sunday in Omaha in 1915*

History

1:45-2:00 Presenter: **Ruth Christensen**
Advisor: Roger Davis
Title: *Catherine of Aragon*

2:00-2:15 Presenter: **Lacey Mack**
Advisor: Roger Davis
Title: *The Matrimonial Politics of King Henry VII*

2:15-2:30 Presenter: **Shane Riley**
Advisor: Mark Ellis
Title: *The Massacre Canyon: The Last Buffalo Hunt*

2:30-2:45 Presenter: **Pamela Thindwa**
Advisor: James Rohrer
Title: *Missionary Influence on the Wyandot*

2:45-3:00 Presenter: **Jennifer Chaloupka**
Advisor: Roger Davis
Title: *Queen Elizabeth I: Marital Politics*

Music

3:00-3:15 Presenter: **DeAnn Sindt**
Advisor: Darleen Mitchell
Title: *Analysis of 20th Century Musical Masterpieces*

3:15-3:30 Presenter: **Michael Walworth**
Advisor: Darleen Mitchell
Title: *The Broken Piano*

Oral Presentations - Room NSU 238 C

Communication

1:30-1:45 Presenter: **Robert Friedman**
Advisor: Rachelle Kamrath
Title: *Taboo Topic in new light: The impact of podcasting on sex education*

1:45-2:00 Presenter: **Cassandra Larreau**
Advisor: Rachelle Kamrath
Title: *Accidental Martyrdom: How Neda Soltani became the Symbol to Unite Iran*

Accounting and Finance

2:45-3:00 Presenter: **Rahima Rahmonova**
Advisor: Laura Swinney
Title: *Voluntary Sarbanes-Oxley Act Compliance by Non-publicly Traded Health Care Organizations*

Social Work

3:00-3:15 Presenter: **Cheri Theesen**
Advisor: Sandy Cook-Fong
Title: *Aromatherapy and Agitation Reduction in Dementia Patients*

Biology

3:00-315 Presenter: **Brandon Mizner**
Advisor: Kim Carlson
Title: *Drosophila Melanogaster Nora Virus ORF-1 Protein: Antibody Characterization of Virus Replication in Vivo*

Chemistry

3:15-3:30 Presenter: **Bobbi Arnold**
Advisor: Frank Kovacs
Title: *Cloning and Expression of Partridge Pea Enolase*

Performance - Room NSU 238 D

Music

1:30-2:00 Presenter: **Jillian Parker, Amy Jensen, Jordan Peterson, Todd Thalken, Pianist**
Advisor: Anne Foradori
Title: *Regional NATS Conference*

2:00-2:15 Presenter: **Brooke Scripter, Marilyn Musick**
Advisor: Anne Foradori
Title: *MTNA Collegiate Artist Competition*

2:15-2:30 Presenter: **Robert Roth, Ayae Mori, Chihiro Sugano**
Advisor: Darleen Mitchell
Title: *Windy Whispers*

2:30-2:45 Presenter: **Christopher Gugel**
Advisor: David Nabb
Title: *A New View on Saxaphone Performance*

2:45-3:00 Presenter: **Gustavo Rodriguez**
Advisor: Gregory Sales
Title: *Gradual Development of the Technique for the Classical Guitar*

Oral Presentations

Accounting and Finance

Presenter: **Rahima Rahmonova**
Advisor: Laura Swinney
Title: *Voluntary Sarbanes-Oxley Act Compliance by Non-publicly Traded Health Care Organizations*

The Sarbanes Oxley Act of 2002 (SOX) was enacted as a response to frauds and scandals such as Enron and World-Com. The main purpose of SOX was to set higher standards for integrity for publicly traded companies. SOX provides guidelines to protect shareholders and employees' interests by making sure that the quality of financial reporting is adequately met. These measures include independent audits of internal controls, higher level of management accountability, and greater credibility of board members. Although the initial intentions of SOX were to increase accountability in publicly traded companies, some non-profit organizations began to adopt SOX measures to restore trust after scandals at the United Way and the American Red Cross eroded donations in the not-for-profit sector. The purpose of this survey research is to investigate the difference between donations received and financial performance of health care organizations that have voluntarily adopted SOX measures and those that have not adopted the measures. This study will attempt to identify if there is a correlation between SOX compliance and financial performance of health care organizations. The results of this research may provide some answers as to whether it is in the best interest of non-profit hospitals to comply with the Act.

Biology

Presenter: **Brandon Mizner**
Advisor: Kim Carlson
Title: *Drosophila Melanogaster Nora Virus ORF-1 Protein: Antibody Characterization of Virus Replication in Vivo*

Nora virus is a novel virus that infects Drosophila melanogaster and is implicated in affecting longevity in this organism. Preliminary studies using two populations of D. melanogaster show that a high viral titer exists in one population and the other population has a low viral titer. This suggests that D. melanogaster has the ability to clear the Nora virus or that the virus exhibits differential replication abilities in a strain-dependent manner. To begin to answer these two questions, protein studies employing a monospecific antiserum need to be initiated. The purpose of this study was to generate monospecific antisera to Nora virus by expressing ORF-1 in E. coli using the pTrcHis TOPO protein expression vector followed by purification of the His-tagged recombinant protein. The results of this project will provide a tool to characterize a novel D. melanogaster virus and eventually provide insight into its possible role in life span regulation.

Chemistry

Presenter: **Bobbi Arnold**
Advisor: Frank Kovacs
Title: *Cloning and Expression of Partridge Pea Enolase*

Partridge pea (Chamaecrista fasciculata (Michx.) Greene), is a native prairie legume. It has been used as a cover crop for wildlife habitats as well as for planting along roadsides and ditches. Not much is known about its particular biochemistry. The purpose of this research is to clone and express a gene from partridge pea which codes for the glycolysis enzyme, enolase, which catalyzes the conversion of 2-phosphoglycerate to phosphoenolpyruvate via a dehyrdration reaction. This reaction is the ninth reaction in glycolysis and has been well characterized in other organisms. The full length gene for this enzyme has been obtained from a cDNA library. We first sequenced the gene for submission to Genebank. Next we worked to clone the partridge pea enolase gene using polymerase chain reaction (PCR) to add restriction cut sites to the very ends of the gene. We then inserted the PCR'd gene into pTrcHis TOPO TA plasmid and). This new plasmid contains a purification tagatransformed into E. coli (DH5 (6xHis) that gets added to the enolase gene, which we have used for chromatographic purification. The gene was then expressed in E. coli and purified using Ni-NTA chromatography. The expressed recombinant enolase was then characterized for size and purity using SDS-PAGE and size exclusion chromatography. Concentration and yield were characterized using the BCA assay. The purified protein was further characterized for enzyme activity via enzyme assay and its activity compared to enolases from other organisms.

Communication

Presenter: **Robert Friedman**
Advisor: Rachelle Kamrath
Title: *Taboo topic in new light: The impact of podcasting on sex education*

Sex Education has found podcasting as the latest venue for distributing information. A group of amateur filmakers in Wisconsin have created a video podcast named, "The Midwest Teen Sex Show." The show is about 95% humor and 5% information. However, it answers the very taboo questions left unanswered by physicians, teachers, and parents. The project rhetorically analyzes the show using Marifan Mattson's model of Harm Reduction Theory.

Presenter: **Cassandra Larreau**
Advisor: Rachelle Kamrath
Title: *Accidental Martyrdom: How Neda Soltani became the symbol to unite Iran*

On June 20, 2009 Neda Solanti, a young protester in Tehran was shot from the back and killed. Her death was recorded by a bystander and uploaded as an internet video. Millions have watched her recorded death. Iranians continue to fight for democracy and use the phrase, "I am Neda" to symbolize a struggle that has continued for 31 years. This project uses John C. Hammerback's rhetorical model of "Accidental Martyrdom" to analyze how one protester's death embodied an entire generation of revolutionists.

History

Presenter: **Kelli Cavanah**
Advisor: Douglas Biggs
Title: *American View of the Holocaust*

Although the Holocaust occurred in Europe, it has been one of the predominant historical components of American culture. Through elements such as media, activism, and public history, the Holocaust has become integrated into American society through a process known as Americanization. Due to Americanization, the Holocaust is now being used as a prime tool to teach empathy and tolerance for others through the efforts of those who portray the Holocaust to the public. Ultimately, it is clear that America has adopted the Holocaust as a part of it's own culture through Americanization.

Presenter: **Jennifer Chaloupka**
Advisor: Roger Davis
Title: *Queen Elizabeth I: Marital Politics*

Queen Elizabeth I went down in history as the Virgin Queen who ruled England without a man by her side. Why she chose to remain single has been an age old matter of speculation. The most prominent guess is that her marriage would be of great importance and a wonderful diplomatic tool. As long as she stayed single she had the ultimate bargaining chip. There probably were other reasons as to why Elizabeth stayed single and to understand this one must know her past. Looking at her suitors is also important to understand her reasoning. For years she drove her ministers and members of Parliament insane with her indecisiveness about marriage. Discovering the reactions from Parliament, her subjects, and other monarchs is also key in knowing why she remained single. Giving herself in marriage would be the biggest and probably the worst decision Elizabeth had to make during her reign.

Presenter: **Ruth Christensen**
Advisor: Roger Davis
Title: *Catherine of Aragon*

The "Great Matter" is a complex time for King Henry VIII of England. He was unhappy with his wife, Catherine of Aragon, and wanted to annul their marriage. It is debatable what Henry VIII's true reasons were for the divorce but publicly he declared ecclesiastical issues. The "Great Matter" is constantly examined from the point of view of characters such as Henry VIII, Anne Boleyn, and various members of their faction. Yet, the view of Catherine of Aragon is often overlooked. This issue is researched and analyzed of how it affected Catherine of Aragon and her active response against the divorce. Despite her loyalty, piousness, international political and religious connections, and her best efforts to thwart plots against her, she was eventually dethroned. However, she persevered and never wavered in her belief that she was the rightful wife of Henry VIII and the true Queen of England.

Presenter: **Lacey Mack**
Advisor: Roger Davis
Title: *The Matrimonial Politics of King Henry VII*

King Henry VII of England is a monarch largely forgotten today, due partly to his being overshadowed by his son, King Henry VIII. Yet the elder Henry's foreign policy was remarkable and noteworthy.

By the end of his reign, England was more prestigious and powerful than it had been prior to Henry's reign; England had not experienced the level of international power Henry gave it since King Henry V had united the thrones of England and France. European monarchs had come to respect Henry's financial capabilities, his knowledge of foreign affairs, his diplomatic skill, and his shrewd judgment and reliability. This paper focuses on the matrimonial politics of King Henry VII and how he negotiated to marry off his children, Arthur, Margaret, Henry, and Mary. Henry's matrimonial politics played a huge role in his success, because his negotiations to marry his children into prominent royal houses of Europe not only gave England powerful allies and relatives, but it proved how successful and esteemed the nation was becoming. The willingness of Spain, as well as the states that would eventually become the Holy Roman Empire, and, to a lesser extent, Scotland, to negotiate a marriage alliance with England is a testament to Henry's strengthening English power.

Presenter: **Shane Riley**
Advisor: Mark Ellis
Title: *The Massacre Canyon: The Last Buffalo Hunt*

The Massacre Canyon was the last major intertribal Native American Battle in the United States. It occurred near present day Trenton, Nebraska. The battle was fought by the Pawnee By using microfilm of Bureau of Indian Affairs and memoirs, I have concluded this battle was completely preventable by the sub-agents. Not only has this event gone unnoticed, it is a major deciding factor for the Pawnee to move to Oklahoma. There is a monument commemorating this event, and it was erected in 1930. Shortly after this, the community of Trenton held a Pow-wow to honor those how had fallen in this battle.

Presenter: **Pamela Thindwa**
Advisor: James Rohrer
Title: *Missionary Influence on the Wyandot*

My research involves Christian Missions (primarily Presbyterian and Methodist Missions) to a tribe of Native Americans known as the Wyandot. The Wyandot settled in Ohio after the American Revolution, and were strongly opposed to United States expansion. The Wyandot were once a powerful group of Native Americans, and were recognized by the United States Government as politically at the head of an Indian federation of tribes. My research this past semester, focused on obtaining information from periodicals that would enable me to assess missionary influence on the indigenous people. The Methodist Magazine which is now stored on microfilms provided enormous details on reverends, such as Rev B. Finley, that worked among the Wyandot. I also studied books that were written by authors who questioned the motives of Christian missionaries. The focal point of my research is to examine the response of oppressed groups to Missionary authority.

Music

Presenter: **DeAnn Sindt**
CoPresenters: **Michael Walworth, Amy Walworth, Robert Roth, and Jordan Costello**.
Advisor: Darleen Mitchell
Title: *Analysis of 20th Century Musical Masterpieces*

The Chicago Symphony Orchestra performed three major masterworks of the 20th century in January: Stravinsky's "The Rite of Spring", Olivier Messiaen's "Les Offrandes Oubliees", and Alban Berg's "Violin Concerto". A group of UNK music students, all with composition or

music analysis interest, had the privilege of traveling to Chicago to hear this once-in-a-lifetime concert. The students listened to recordings and studied music scores before attending the concert. The students will discuss their analysis of each of the pieces especially in light of the experience of a live concert. The students were also able to experience 20th century art of the same era (cubist, abstract) by attending The Art Institute of Chicago. They will discuss Stravinsky's use of orchestration, instrumental techiniques, and rhythmic drive; Messiaen's use of harmony, texture, and rhythmic freedom; and Alban Berg's writing for solo violin, the role of the orchestra in a concerto, and his use of serialism.

Presenter: **Michael Walworth**

Advisor: Darleen Mitchell
Title: *The Broken Piano*

The Broken Piano Research project started out as a sound experiment using prepared piano as the medium. This project has evolved into a larger intellectual and academic journey encompassing music, physics, sound, existence and metaphysics. As a result, a substantial research journal has emerged detailing productivity and lack thereof as well as the many projects and lines of inquiry that have splintered off the main trunk. The paper being presented discusses the current state of this research as well as my experience with the Undergraduate Fellowship so far while also acting as a working introduction to the larger document.

Physics

Presenter: **Grant Saltzgaber**
Advisor: Michael Larsen
Title: *Wavelet Inspired Analysis of Discrete Atmospheric Data*

Mathematical decompositions have been widely used throughout the scientific community to study atmospheric processes. One such decomposition is the wavelet transform. Wavelet decomposition allows for the temporal localization of spectral changes in a signal. Here, a Haar discrete wavelet decomposition is used to study the underlying statistical structure in several atmospheric variables. Some of this statistical structure is not evident from visual examination of the raw time series but becomes more evident when using wavelet analysis techniques. In this study, tipping-bucket rain gauges and a sonic anemometer were used for data collection. Tipping-bucket rain gauges are discrete instruments that indicate when a specified volumetric accumulation interval (here 0.01 inch) has been surpassed. The time of this accumulation ('tip') is then recorded. The rain gauges were placed in a five by six array with approximately 1.5 meter spacing. Additionally, a sonic anemometer – collecting wind velocity and temperature data at 32 Hz – was used. Data collected showed the expected diurnal signal in temperature data. Multiple interesting physical signatures are identified from the wavelet decomposition of this data.

Presenter: **Kyle McClary**
Advisor: Michael Larsen
Title: *Development of an acoustical raindrop disdrometer*

We are creating an acoustical disdrometer that is sensitive to raindrops 1-5 mm in diameter. Using a dedicated circuit and custom built "cup" devices, we take sound and convert the acoustical signal into a measurable voltage reading. Our ultimate goal is to build a dependable and accurate disdrometer that can be used to analyze ground-truth radar measurements, test rainfall size distributions, and investigate the statistics of the time series

Similar but more expensive solutions to this problem exist commercially. Our current device costs approximately $30-40 to build, compared to about $15,000 for the most similar commercial instrument (the Joss-Waldvogel disdrometer). Our goal is to calibrate this device to compete with commercial disdrometers in areas such as cost efficiency, variable size detection, and ease of data acquisition. Results so far indicate that the circuit is able to detect simulated drops from 0.5 – 5.0 mm in diameter. Through further calibration, we hope to have a working prototype by fall 2010.

Presenter: **Josh Beck**
Advisor: Michael Larsen
Title: *Direct Imaging of Raindrop Impacts*

One of the greatest challenges of drop-by-drop rain characterization is automated localization. In the past, it was necessary for researchers to engage in the strenuous task of manually identifying and reading, one at a time, positions of drop arrivals on a specially prepared surface. This would take much of time to accomplish and would yield a relatively small amount of data to be processed. In an effort to make the process easier, faster, and increase the amount of data gained, we used MATLAB, software included with our high speed camera, and various programming techniques to successfully develop an algorithm for edge detection on a compound image. This algorithm has been used on various images. It can successfully infer the relative position of raindrop arrivals for a drop-by-drop detection area. The algorithm can be used on images of raindrops to identify the position of drop arrivals to ultimately gain a better understanding of rain microphysics.

Political Science

Presenter: **Karla Bertelsen**
Advisor: Christopher Stevens
Title: *Adult HIV/AIDS Prevalence Rates in Sub-Saharan Africa*

Examining Mozambique, Namibia, Zambia, and Zimbabwe, this paper explains why similar countries have experienced dissimilar results in the campaign to arrest and reduce the spread of HIV/AIDS among adults. The four sub-Saharan African countries possess a similar type of political system, level of political stability, and rate of urbanization, but they differ in their rates of HIV/AIDS prevalence among adults. I demonstrate that the level of state an social capacity to spread information about HIV/AIDS, and the ability to effectively utilize state and international resources in the fight against HIV/ AIDS explains the various levels of success achieved by the aforementioned countries.

Presenter: **Mark Grimes**
Advisor: Diane Duffin
Title: *"Cash for Clunkers": An Examination of the Effects of Increased Fuel Economy*

The Car Allowance Rebate System (CARS), colloquially known as "Cash for Clunkers", was a nearly $3 billion rebate program run by the United States federal government during the summer of 2009. Participants exchanged older vehicles for new, more fuel-efficient vehicles and received a rebate for the purchase of the new vehicle that varied in amount according the difference in miles per gallon (MPG) between the old and new vehicles. The author examines how the CARS program will affect fuel consumption and related externalities for a three year period following the program's conclusion.

Although the CARS program will decrease fuel consumption, this decrease will be relatively small and the CARS program will result in a net increase of negative externalities associated with gasoline consumption.

Presenter: **Josh Lacy**
Advisor: Joan Blauwkamp
Title: *Supreme Opinion: The Supreme Court and Public Opinion*

The Supreme Court decides many important issues every year. Previous research on the Supreme Court has looked at the relationship between the Court and public opinion. Through this research I attempt to explain the relationship between the Supreme Court and its affect on public opinion. There have been a number of previous research projects that have produced mixed results. This research will join the debate on whether the Supreme Court's decisions affect the opinions on the issues of regular citizens.

Presenter: **Jeff Shank**
Advisor: Claude Louishomme
Title: *Term Limits and competitiveness in elections*

Term limits are relatively recent phenomena in political science. The first term limits were enacted in 1990. Today 15 states have term limits. Term limits have never been rejected by voters. One common reason given to support term limits is they make elections more competitive. The main reason given for this is incumbents have a limit on the number of terms they can serve. My research examined election results from five states. Those states were Florida, California, Montana, Missouri, and Arkansas. Election results were taken from 1986-1996 in State House elections.

Competitiveness was measured in two ways. The first was a candidate's margin of victory. The second was whether a candidate ran unopposed. I hypothesized term limits would make elections more competitive. The reality was term limits had no significant affect on competitiveness. One factor that seemed more important to competiveness was the size of a state's population. Smaller states seemed to be more competitive than larger ones.

Presenter: **Sharon Thindwa**
Advisor: William Aviles
Title: *The role of women in Latin American politics*

The role of women in Latin American politics has seen a significant change. In the past 10 years, women's involvement in Latin American politics has increased considerably. The participation includes the running, and winning of national electoral campaigns. For example: the elections of the first women presidents in Argentina, Chile, and more recently Costa Rica. My research is a comparative analysis on which I have obtained information on the role women take politically in two Central American countries: El Salvador and Costa Rica. The information will contain some of the key factors that have led to the increase in political participation. I will look the differences in descriptive representation, laws or regulations that have aided women's contribution in affairs of the state, and other factors.

Psychology

Presenter: **Karen Albrecht**
Advisor: Richard Miller
Title: *Differences in Regret of Inaction, Action, and Missed Opportunities among American and Japanese*

This study examined individual's regret for actions, inaction and missed opportunities and the relationship between regret and the consequences of the regretted behavior. Japanese and American students enrolled at a Midwestern comprehensive university completed the Singelis Self-Construal Scale and a scale that measured the degree of regret experienced as a result of past actions, inaction or missed opportunities. Both Japanese and American students indicated the greatest regret for past actions followed by inaction and then missed opportunities. The degree of regret was correlated with the severity of the consequences of the action, inaction or missed opportunity. Collectivists indicated more regret for actions than did individualists. There were no differences in regret between individualists and collectivists for inaction or missed opportunities.

Presenter: **Abigail Harris**
Advisor: Richard Miller
Title: *Does Level of Group Membership Affect Reaction to Ostracism*

Social ostracism is any act or acts of ignoring or excluding an individual or group by another individual or group. The effects of being ostracized range from lowered self-esteem, negative mood state, introversion, and acts of rage and violence. Social ostracism has been extensively studied using a variety of subject populations. One area that has not been looked at is how ostracism's effect depends on identity fusion, or how much a person's self-concept comes to agree with the characteristics expected from a prototypical group member. The purpose of this research is to investigate whether or not high group membership, and corresponding high identity-fusion, heightens the effects of being ostracized by another member of their group. It is my hypothesis that participants with high identity fusion and group membership will feel the effects of ostracism more than participants who do not identify as strongly with their group.

Presenter: **Abigail Harris**
CoPresenter: **Brittany Schmidt**
Advisor: Richard Miller
Title: *Envy in Children Competing Against a Friend or an Enemy*

The present study examined the effects of competition with a friend or an enemy on envy in children. Children participated in a competitive task and lost to either a friend or an enemy, according to self-reports. Children were then asked to assign materials to their opponent which would help or hinder them in the second round of competition. Results indicate that children are more likely to undercut their enemies than their friends.

Presenter: **Abigail Harris**
Advisor: Richard Miller
Title: *Effects of Norm Violations on Physical Attractiveness—A Cross-Cultural Study*

The current study examined the effects of breaking or maintaining a gender-based norm stereotype on judgments of physical attractiveness by American and Japanese students. It was hypothesized that Japanese students would rate a person who violated a traditional gender norm as less physically and socially attractive. It was also hypothesized that men, across cultures, would be rated as less physically and socially attractive when violating a gender norm. Physical attractiveness decreased when the Japanese male maintained a gender norm and when the American male violated the gender norm. Social desirability decreased for Japanese actors across conditions.

Presenter: **Krystine Hoefer**
Advisor: William Wozniak
Title: *Effects of Stockholm Syndrome*

I investigated whether knowledge of the Stockholm Syndrome would affect participants' judgments of a hostage scenario. A total of 282 students read a hostage scenario followed by a questionnaire, which included either a definition of Stockholm Syndrome or a control narrative. Judgments of guilt were not affected by the knowledge. This research has applicability to court cases and the testimony of expert witnesses in that knowledge of Stockholm Syndrome only created significant differences in a few cases. This could be due to the fact that many students who were not provided a definition had previous knowledge of Stockholm Syndrome. In fact, several stated that when asked if the situation sounded familiar. Future research should consider the use of a scenario depicting a female hostage-taker.

Presenter: **Jessica Obermier**
Advisor: Richard Miller
Title: *The Effects of Ambient Temperature Change on Recall Tasks*

The ambient temperature of a room and its effects on human concentration and memory is an important area of study. Previous research has indicated an ideal temperature for concentration Mackworth, 1950 and even how complex tasks can be accomplished in extreme temperatures (Carlson, 1961). This research strives to understand more about how a change in temperature can affect an individual's recall on a memory task. Participants were given a set of words or pictures to remember in one extreme temperature room (hot or cold) and asked to recall that information in the opposite temperature room. Females overall performed better on the word recall task regardless of what condition they were placed in. Females moving from a cold to warm environment recalled word lists most effectively.

Presenter: **Brittany Schmidt**
Advisor: Krista Fritson
Title: *The Relationship Between Family Mealtimes and Students' Self-Efficacy*

The present study examined the relationship between family mealtimes and students' self-efficacy. Students completed a demographic sheet and questionnaires regarding their general and academic self-efficacy, and family mealtimes to explore the quality and frequency of family mealtimes at home. It was hypothesized that students reporting high quality mealtimes would have higher academic and general self-efficacy scores when compared to peers who reported low quality family mealtimes and that higher frequency of family mealtimes would result in higher academic and general self-efficacy scores. Results indicated that students reporting high quality and frequency of family mealtimes had significantly higher academic self-efficacy compared to students reporting lower quality mealtimes. A significant relationship was also found between the quality of family mealtimes and general self-efficacy. Other familial factors were also examined.

Presenter: **Janeen Stuthman**
Advisor: Krista Fritson
Title: *Personality and Perception of Cell Phone Usage among College Students*

The relationship between personality and cell phone usage was investigated. Participants completed surveys of the Big Five Personality traits, locus of control, and cell phone use and were then asked to return their previous two months cell phone bills.

It was hypothesized that individuals who report higher levels of monthly cell phone minutes and text messages would have high scores on extroversion and neuroticism, individuals who report higher numbers of sent text messages would score high on internal locus of control, individuals who report higher numbers of received text messages would score high on external locus of control. A significant correlation was found between perception of cell phone minutes and both extroversion and agreeableness.

Social Work

Presenter: **Cheri Theesen**
Advisor: Sandy Cook-Fong
Title: *Aromatherapy and Agitation Reduction in Dementia Patients*

This research examined the effects of lavender aromatherapy on agitation levels of dementia patients. An increasing prevalence of dementia patients calls for effective treatments for the agitation many dementia patients experience. This study included 26 participants who were recruited from central Nebraska nursing home dementia special care units. The Cohen-Mansfield Agitation Inventory-Short Form, an internationally recognized agitation inventory identifying 14 behavior categories, scored by frequency was used to obtain baseline agitation levels. Lavender essential oil was placed on a felt magnetic lapel pin that was worn from daily from 2 p.m. until 10 p.m. for two weeks. An agitation inventory was completed again after the treatment period ended. Three categories were found to have a significant level of reduction after the treatment, which were aggressive behaviors/self-abuse, general restlessness/ repetitious mannerisms, and constant requests for attention or help. Thirteen of the fourteen behaviors frequency was lower with the use of lavender aromatherapy.

Graduate Studies Oral Presentations

History

Presenter**: Zeke Brummels**
Advisor: Mark Ellis
Title: *Che Guevara and Popular Culture*

This research will examine the influence that Che Guevara has had on American culture, via the permeation of his name and face if not his ideas in literature, merchandise, ideology, film, music etc. With the contradictory themes of a man who did everything he could to bring down the United States, and a segment of the American public who worshiped him for it, there is a cultural intersection worth studying. Guevara is one of the few icons to break into the American psyche, and this represents a mirror which Americans need to see themselves more clearly. This paper will examine the possibility that the American public may have understood Che's social and political critique more clearly than both the Cuban and United States governments did.

Presenter: **Andrew Hermes**
Advisor: Carol Lilly
Title: *Final Resolution: The Soviet Invasion of Afghanistan*

This paper examines the Soviet decision to invade Afghanistan, paying particular attention tohow the domestic situation in its client state influenced the Politburo to order the invasion with the intent of squashing the ever growing .

Presenter: **Harold Smallcomb**
Advisor: Mark Ellis
Title: *Benedict Arnold: Justifiable Treachery?*

Benedict Arnold as one of the most popular generals during the American Revolution, yet throughout American history his name has been synonymous with traitor. Some say he was destined to be a traitor since childhood. Others blame his disillusionment with the politicians already present in the young country's Republic. Yet others believe that it was his second wife, Peggy Shippen, that turned Arnold to the Loyalist cause. Whatever the reason, it still begs the question was a once great general justified in committing treason?

Presenter: **Aron Utecht**
Advisor: James Rohrer
Title: *Progressive Evangelist: Billy Sunday in Omaha in 1915*

Billy Sunday was the most popular evangelist of the early twentieth century. In his heyday, he preached to packed houses of over 10,000 people several times a day. Sunday always insisted the focus of his campaigns was spiritual, to save souls. Yet much of what he preached on overlapped with the progressive social agenda of the day, and some who recruited Sunday to preach in various cities often did so with mixed motives. When Sunday arrived in Omaha, with his characteristic flare, he issued the Devil an open challenge. Over his fifty days in Omaha, however, Sunday's many statements on booze, dancing, politics and even the school board indicate he had much more on his mind than getting people to heaven.

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