Research and Creativity Day
Thursday, April 30, 2015

Promoting a Culture of Discovery

Sponsored by:

Research and Grants Center
Honors College
Undergraduate Research, Scholarship, and Creative Activities Committee (URSCA)
SCHEDULE OF ACTIVITIES

ORAL PRESENTATIONS
   Schedule—Pages 6-7
   Abstracts—Pages 8-12

POSTER SESSION—Webb Hall — 1:00 — 3:00 pm
   Abstracts—Pages 12-26

PERFORMANCE EXHIBITION—Webb Hall—2:00—2:30 pm

AWARD AND RECOGNITION CEREMONY—Colonial Ballroom —3:15 — 4:00 pm
   List of awardees—Pages 4-5

   Welcome—Kathy Ermler, Dean, Graduate School and Distance Education

   Phi Kappa Phi Awards —Manjula Shinge

   Poster Awards—Department representatives

   Boylan Scholar Awards—Kathy Ermler

   Graduate Teaching Assistant University Awards for Excellent Teaching—
   Kathy Ermler

   Harold Durst Graduate Research Award—Kathy Ermler

   Robert J. Grover Graduate Student Scholarships—Kathy Ermler

   Presidential Graduate Scholarships—Kathy Ermler

   Outstanding ESU Graduate Faculty Mentor Award—Kathy Ermler

   ESU Summer Undergraduate Research Program Awards (ESURP) —
   Tim Burnett

   Faculty Research and Creativity Awards—Kathy Ermler

   President’s Award for Research and Creativity—President Michael Shonrock

   Keynote Speaker — Dr. Michael Dennis, Communication and Theatre—”Publish
   AND Perish? Good Grief!”

   Concluding Remarks—Kathy Ermler

   Congratulations to all of the faculty and students who are being
   recognized and honored today!
LIST OF AWARDS

Boylan Scholar Awards
    Jordan Kenzie Templeton—English, Modern Languages, and Journalism
    Andrew Mendelsohn—English, Modern Languages, and Journalism

Graduate Teaching Assistant University Awards for Excellent Teaching
    Lydia Clark-Hargreaves—Psychology
    Jordan Kenzie Templeton—English, Modern Languages, and Journalism

Harold Durst Graduate Research Award
    Guang Yang—Biological Sciences

Robert J. Grover Graduate Student Scholarships
    Emily Lickteig—Counselor Education
    Rachel Petersen—Counselor Education

Presidential Graduate Fellowships
    Ashley Feist—Music
    Laura Patrick—Health, Physical Education and Recreation

Outstanding ESU Graduate Faculty Mentor Award
    Eric Yixin Yang—Biological Sciences

ESU Summer Undergraduate Research Program Awards (ESURP) —Names to be announced

Faculty Research and Creativity Awards

    **Blankenship, Chris.** English, Modern Languages and Journalism. Framing Essential Skills: Metaphors of Argumentation in First-Year Writing Instruction. $7,344.

    **Crupper, Scott.** Biological Sciences. Using a Genomic Approach to the Discovery of Novel Bacteriocins. $7,344.

    **Edds, David.** Biological Sciences. Himalayan Fishes: Biodiversity Change across Three Decades. $9,547.

    **Koerner, Brenda.** Biological Sciences. The Impact of Fuel Load, Burn Season, and Fire Frequency on the Control of an Invasive Legume, Sericea Lespedeza. $9,180.

(Continued on page 5)
Phelps, Connie. Elementary Education, Early Childhood and Special Education. Great Plains Center for Gifted Studies. $7,344.


Yang, Yixin Eric. Biological Sciences. Combination Therapy Overcomes the Drug Resistance of Malignant Melanoma Cells. $9,547.

Past Recipients of President’s Award for Research and Creativity

1996 – James Hoy, English
1997 – James Aber, Physical Sciences
1998 – Philip Kelly, Social Sciences
   Dan Kirchhefer, Art
1999 – Chris Phillips, Social Sciences
2000 – Larry Schwarm, Art
2001 – Martin Cuellar, Music
2002 – Philip Heldrich, English
2003 – David Edds, Biological Sciences
2004 – Greg Schneider, Social Sciences
2005 – Dave Saunders, Biological Sciences
2006 – Faye Smith, Business Administration and Education
2007 – Scott Crupper, Biological Sciences
2008 – Gary Holcomb, English
2009—Khaled Alshare, Accounting and Information Systems
2010—C. Matt Seimears, Early Childhood/Elementary Teacher Education
2011—Abdelilah Sehlaoui, English, Modern Languages, and Journalism
2012—Kevin Rabas, English, Modern Languages, and Journalism
2013—Kalyan Chakraborty, Accounting and Information Systems
2014—Charles Brown, Social Sciences
2015 ORAL PRESENTATIONS  
* Scholarly products of the 2014 ESU Summer Undergraduate Research Program (ESURP)

UNDERGRADUATE STUDENT PRESENTERS

GREEK ROOM—MEMORIAL UNION

9:00—Doing Business in Bolivia and Costa Rica. Camila Abril Ramos Ascarrunz, Joseline Terrazas, Jean Pierre Mora Casasola, and Dr. Joyce Zhou, School of Business.


9:30—Doing Business in Indonesia and Japan. De Alzaro Nir Inszapuysho, Akira Yamada, and Dr. Joyce Zhou, School of Business.

9:45—Doing Business in India. Muhammed Shanoob Puthen Theruvil and Dr. Joyce Zhou, School of Business.

10:00—Doing Business in China and Korea. Kaiyuan Wu and Yejin Cho, School of Business.

10:15—Break

BLUE KEY ROOM—MEMORIAL UNION

9:00—Autonomous Robot “Corky Robot.” Molham Kayali, School of Business.

9:15—A Study of Teacher Engagement Issues and Organizational Causes. Tiffany Smith, Courtney Davis, Kate Lander, and Carolyn Wallace, Elementary Education, Early Childhood, and Special Education.


10:00—Time Paradigm. Ashley Feist, Music.

10:15—Break

10:30—Marfan Syndrome. Candace Cote, Biological Sciences.


11:00—Global Warming Communication. Alexandra Ewy, School of Business.


(Continued on page 7)
GRADUATE STUDENT PRESENTERS
GREEK ROOM—MEMORIAL UNION

10:30—The Effect of Ultra-Violet Light on the Expression of P53 Downstream Genes. Chunmiao Yu, Jiyu Jiang, and Dr. Eric Yixin Yang, Biological Sciences.


11:00—Sor Juana Ines de la Cruz: Women and Religion in Early Colonial Mexico. Jon Leach and Sabina Huseynova, English, Modern Languages, and Journalism

11:15—Purification, Characterization and Identification of the Antimicrobial Agent Produced by Soil Bacterium Brevibacillus laterosporus. Younan Ma, Lin Wang, and Dr. Eric Yixin Yang, Biological Sciences.


THREE MINUTE THESIS PRESENTATIONS—1:00—2:00 p.m.
GREEK ROOM—Time slots will be chosen by a drawing at the time of the event

The Efficacy of Mindfulness-Based Art Therapy with Women who are Incarcerated. Brittany Carr, Counselor Education. Thesis Chair – Dr. Gaelynn Wolf Bordonaro.


The Men of the North: How the Union Constructed Masculinity during the Civil War. Spencer King, Social Sciences. Thesis Chair – Dr. Brian Miller.


Dynamic Dragons: An Explanation of Role Reversal in the Young Adult Adventure Cycle. Miranda Renfro, English, Modern Languages, and Journalism. Thesis Chair – Dr. Kevin Kienholz.

From the Highlands to the Plains: Discovering Scottish Heritage in the Midwestern United States. Thomas Richardson, Social Sciences. Thesis Chair – Dr. Joyce Thierer.


ABSTRACTS of Oral Presentations

Graduate Students

Researchers believe dogs to be the oldest domesticated animal bred intentionally for desired traits (Villa, 1997). Early members of the Canis species that learned to adapt to humans in their environment gained an advantage over those that did not (Csányi, 2001). Despite dogs sharing a rich social history with humans for thousands of years, there is little research on dogs that is not medical in nature (Hare and Tomasello, 1999). Recently, researchers have begun to study dogs scientifically and some research shows that domestic dogs appear to possess the ability to follow human social cues in various tasks including a standard-object choice task (Brauer, Kaminski, Riedel, Call & Tomasello, 2006; Hare, Call & Tomasello, 1988; Hare et al., 1999; Miklósi, Pongracz, Lakatos, Topál, & Csányi, 2005; Miklósi, Polgardi, Topál & Csányi, 1998; Soproni, Miklósi, Csányi & Topál, 2001). Here I present an overview of this research and discuss possible implications of the findings.

Sor Juana Inés de la Cruz: Women and Religion in Early Colonial Mexico. Jon Leach and Sabina Huseynova.
Beyond mere recitation and regurgitation of assigned texts, a transformative experience is sought by many instructors in their classrooms. Sadly, the majority of university students begin forgetting the material as soon as the exam is finished, the paper handed in. This model may be seamlessly implemented into nearly any literature-based course, and the participants, while focusing on themes arising in their own courses and experience, we will share how this is accomplished. The first part of the project based in the “Mexican Poetry” focus on the themes regarding the lives of women in early colonial Mexico: their claims to authority, subversion of that authority, and existential arguments for their participation in their lives, intellectually and religious. Many of the arguments presented in the essays are supported by the ideas found in Feminist Perspectives on Sor Juana Inés de la Cruz (1991) by Stephanie Merrim who shares many insights and critical views about Sor Juana among “What inner forces and drive motivated Sor Juana, catapulting her into prominence as the “Tenth Muse” and into the daringly incongruous position now understood as that of the “First Feminist of America”? Sor Juana, Or, The Traps of Faith (1998) by Octavio Paz who has studied the Mexican nun says, “Of the major poets of our hemisphere, a number are women, among them Juana Ines de la Cruz, Emily Dickinson, Gabriela Mistral, Marianne Moore, and Elizabeth Bishop”. While earlier studies have ignored Sor Juana’s keen awareness of gender, this project hopes to bring out her own emphasis and diction revealing a remarkable scholarship, subversiveness, and even humor in defense of her cause. Finally, it combines new research and perspectives on an inspired writer and thinker.

The antimicrobial agent produced by a bacterial strain ZYD4, which was isolated from the soil collected in Rocky Mountain National Park, was purified from supernatant of the culture grown in nutrient broth at room temperature. The compound has a significantly inhibitory activity against both Gram-positive and Gram-negative commonly disease-causing bacteria. Objective: Identify, purify and characterize the antimicrobial compound produced by D4. Methods: The species of the bacterium ZYD4 was identified by 16sRNA gene sequencing. The inhibitory activity of supernatant was measured by Alarma Blue assay. The supernatant was treated with acid, alkali and heat (100°C) to test the stability. Dialysis membrane with MWCO of 12000 to 16000Da was used to determine the range of molecular weight. The extraction was applied with ethyl acetate and n-butanol. Ethanol was also used to precipitate the compound from supernatant. Results: ZYD4 was identified as Brevibacillus laterosporus. The inhibitory activity of supernatant is acid- and alkali- resistant, and heat liable. The supernatant subject to dialysis lost its antimicrobial activity. The aqueous layer kept most of antimicrobial activity after extraction with ethyl acetate. Reagent n-butanol inactivated the antimicrobial activity of the compound. The precipitation of ethanol could recover 76% inhibitory activity. Conclusion: There might be two different active compounds that contribute to the antimicrobial activities, and a polypeptide/protein is responsible for the major antimicrobial effect.

In this presentation, there were two pilot studies that we conducted to measure the effect of videos on mood. In the first pilot study, we were interested in testing the impact of two kinds of video, funny and boring, on moods. For the funny video, we used a 20-min Youtube video of “Jeff Dunham – Arguing with Myself – Walter”. For the boring video, we used a 20-min Youtube video of “Suffolk Fall 08 Math 165 Lecture 18: Boring Pre-Midterm Q&A”. Participants watched the

(Continued on page 9)
video and then completed a mood survey. The finding supported the prediction that participants who watched the funny video would rate their mood as more pleasant than participants who watched the boring video. In the second pilot study, we were interested in testing the impact of two kinds of video and two kinds of deceptions on moods. We used the same funny and boring video but added deception that participants would take a quiz after watching the video and completing the mood survey, although they did not have a quiz. The finding did not support the prediction that participants who would watch the funny video and think that they would not take a quiz would rate their mood as most pleasant, participants who would watch the boring video and think that they would take a quiz would rate their mood as the most unpleasant, and the other two groups would rate their mood in the middle.


Objective: The goal of this study is to examine the activation of P53 downstream genes in response to ultra-violet light (UV) irradiation in P53 mutant human malignant melanoma cell SK-Mel-28. We aim to understand the activation of P53 and its downstream genes in response to UV irradiation in the context of mutant P53 and deregulated P53 regulation network in SK-Mel-28 melanoma cells. Methods: Human melanoma SK-Mel-28 (p53 mutant) cells were irradiated by UV light, and then the total RNAs were extracted from cells that were exposed to the same dose of UV irradiation (50 mJ/cm²) and collected at four time points (0, 30, 60 and 120 minutes) after the UV irradiation. Real-time qPCR was employed to measure the expression of P53 and its downstream genes P53, BAX, and MDM2 at mRNA level. Results: After UV light irradiation, P53 and MDM2 gene expression levels were down-regulated, and BAX gene expression level was up-regulated. Conclusion: Despite of the mutant P53 in SK-Me-28 melanoma cells, the expression of p53 and its downstream genes were still altered in response to UV irradiation, suggesting that other regulation mechanism of P53 and its downstream genes exists in coping with UV challenge. The up-regulated BAX gene and the down-regulated MDM2 gene indicated that cells respond to UV by attempting to initiate apoptosis and promote DNA repair.

**Undergraduate Students**

* Scholarly products of the 2014 ESU Summer Undergraduate Research Program (ESURP)

**Doing Business in Bolivia and Costa Rica.** Camila Abril Ramos Ascarrunz, Joseline Terrazas, Jean Pierre Mora Cassasola, and Dr. Joyce Zhou.

This study describes the Bolivian and Costa Rican culture along with their business ways and techniques and also shows few ideas of government rules and regulations. The presentation will provide a clear idea about the different culture and programs of the respective countries and flow to the business field in both countries. National animals, tourism, tax rates, airlines, symbolic gestures of people, and many other aspects will be discussed. It will be defined with some basic concepts that explain the general situation of the country and some required information in order to do business there. The idea of this study is to provide the brief idea about the culture of the country which is a major factor to consider when planning for starting a business in the country. The details about business rules and regulations including tax and types of taxes are also provided as the political situation will be different from each country and so by comprehending this, the new entrepreneur gets a wide and clear idea about the government policies and various matters to be taken care for starting a business and also for ongoing of business. Brief details about a few famous business organizations are also provided in the presentation so as to encourage new business to the respective country.

**Marfan Syndrome.** Candace Cote.

Oral overview of the diagnosis, symptoms, and life complications of Marfan syndrome, which is a genetic disorder of the connective tissue mainly in blood vessels and extremities. As an autosomal dominant mutation, it is often seen in many generations. Some of the major symptoms include aortic dissection, skeleton abnormalities, and vision issues. Patients tend to be very tall and can appear normal making a proper diagnosis elusive. With new surgery techniques, many of the life threatening complications can be avoided raising the life expectancy dramatically over the last 25 years. Patients with this syndrome are advised not to play intense sports or be pregnant due to increased death. While no treatment or cure has been found, the symptoms can be treated or managed with beta blockers or surgery. The presentation will broaden awareness in the public by highlighting key ideas and actively engaging the audience.

**Societal Disregard for Veterans in America.** Nakita Elwood, Lauryn Mounts, Dorothy Dennison-Garza, Melissa Laws, and Travis Hendry.

Veterans sacrifice their lives every day protecting and fighting for freedom, which some people perceive our society takes for granted. When our soldiers return home, the American flag is waving proudly and society is quick to verbally thank...
veterans for their service. The United States has a broken Veteran's Affair system which perpetuates a pattern of neglect that is failing our troops and veterans. Changes need to be made regarding treatment of America's veterans. This study aimed to find out how the public's perception of war impacts the treatment of veterans. Using 2014 datasets from the Pew Research Center, this study evaluated American's opinions about United States participation in foreign wars. This information was compared to other research findings about the treatment of veterans. Overall, the findings of this research suggest that while Americans may be divided on their views of foreign war and verbal support of veterans, their behavior does not support these views.

Global Warming Communication. Alexandra Ewy.
My generation is worried about the future, and trying to ensure there is one. The question is not whether we should solve global warming, but how to create a unified front to do so. Surprisingly, the barriers that halt effective communication on the issue may not be what we have tended to think they were. This presentation will begin with an overview of what climate change is and three common assumptions about climate change denial: misleading terminology, a lack of scientific understanding, and lack of collective scientific agreement. The presentation will then explain how these assumptions may lie at the root of the communication issue. We think we know why people deny climate change, but not all of our assumptions may be accurate. Those who desire to inspire more collective action in reversing climate change may make more progress for the future by redefining how they communicate.

Time Paradigm. Ashley Feist.
In three movements titled: In The Beginning, Clocks, and Life: The Serious Cereal, I play a multi-percussion piece interwoven with spoken word poetry on the subject of time. Two woodblocks represent a clock, a triangle represents human life, and a gong is used for transitions and expressive sound. There are 24 clocks hung up behind me. We revolve around time because, as percussionists, we must keep the time and, as humans, we must be in certain places, eat certain food, and sleep at certain times or our life could turn to disorganized chaos. Time sets the boundaries of what can be accomplished. Because time grew to be so important, I thought of him as a person, Father Time. I filled a notebook, writing page after page of what time was to me. A few of these ideas turned into poems, but the words needed more meaning. I needed a visual element as well, so I added instruments and sounds to expand on my explanations of Time. This became Time Paradigm.

Doing Business in Indonesia and Japan. De Alzaro Nir Inszapuysho, Akira Yamada, and Dr. Joyce Zhou.
This study explains the Indonesian and Japanese culture along with the business ways and techniques and also shows a few ideas of government rules and regulations. The presentation will provide a clear idea about the different culture and programs of the respective countries and flow to the business field in both countries. National animals, tourism, tax rates, airlines, symbolic gestures of people, and many other aspects will be discussed. The idea of this study is to provide the brief idea about the culture of the country which is a major factor to consider when planning for starting a business in the country. The details about business rules and regulations including tax and types of taxes are also provided as the political situation will be different from each country and so by comprehending this, the new entrepreneur gets a wide and clear idea about the government policies and various matters to be taken care of for starting a business and also for ongoing of business. Brief details about a few famous business organizations are also provided in the presentation so as to encourage new business to the respective country.

The Ukrainian Shatterbelt: A New Cold War? Murad Jalilov and Dr. Phil Kelly.
The authors believe the present crisis in Ukraine fits the classical definition of a "shatterbelt," a concept that corresponds to the traditional geopolitical model. Here, we see two levels of conflict, the local as a near civil war in Ukraine and the strategic as rivalry for influencing these lands between Putin's Russia against the Western alliance. When groups and states align among themselves within this configuration, a "shatterbelt" arises, again, currently in Ukraine. We examine the ethnic, historic, physical, and political environments of the region and the contestants, gleanings aspects from these that have helped to form this structure of strife that could escalate into further and continued violence. We conclude by suggesting six different scenarios that we predict could happen, each alone or in combination with others, in the near future for the Ukraine crisis.

Corky robot is an autonomous electronic system which exists in the physical world, can sense its environment, and can act on it to achieve some goals. The research focuses on using autonomous robotic technology to interact with people and the environment around the robot. The robot can sense its environment using PIR sensors and ultrasonic sensors. Corky can
Low Oxygen Impairs Intestinal Response to Bacteria. Maria Castro Munoz.
The lumen of the small intestine is inhabited by a rich population of normal flora bacteria that interact with the epithelia cells. Interestingly, intestinal epithelial cells are tolerant of these bacteria whose presence elsewhere in the body would initiate a rapid immune response. We think the low oxygen environment in which intestinal epithelial cells exist contributes to their tolerance of normal flora bacteria. Therefore, the purpose of this experiment was to determine if low oxygen changes the ability of intestinal epithelial cells to recognize and/or respond to normal flora bacteria. To accomplish our objective, we used an intestinal epithelial cell line (MODE-K) subjected to heat-shocked, normal flora bacteria under normoxic (~20% O2) or hypoxic (1% O2) conditions. We extracted RNA and performed quantitative RT-PCR to measure changes in gene expression relative to control cultures that were not treated with bacteria. We measured relative gene expression a chemokine induced by TLR signaling (Rantes). We found either low oxygen or exposure to normal flora bacteria reduce Rantes expression suggesting attenuation of TLR signaling pathways. Therefore we assessed gene expression of epithelial Toll-Like Receptors (Tlr2 and Tlr4) and selected signaling molecules of the TLR pathway (Myd88 and Traf6). Addition of bacteria causes a decrease in expression Traf6 and possibly MyD88 and TLR2 only in normoxic conditions and not in hypoxic conditions. We conclude the attenuation of TLR signaling caused by normal flora bacteria does not occur in hypoxic conditions.

This presentation walks through the Pakistan culture along with the business ways and techniques and also shows up a few ideas of government rules and regulations. The presentation will provide a clear idea about the different culture and programs of the respective countries and flow to the business field in country. National animals, tourism, tax rates, airlines, symbolic gestures of people etc will be discussed. The idea of this presentation is to provide a brief idea about the culture of the country which is a major factor to consider when planning to start a business in the country. The details about business rules and regulations including tax and types of taxes are also provided as the political situation will be different from each country and so by comprehending this, the new entrepreneur gets a wide and clear idea about the government policies and various matters to be taken care of for starting a business and also for ongoing of business. Brief details about a few famous business organizations are also provided in the presentation so as to encourage new business to the respective country.

Democracy and School Finance. Morgan Riggs.
The current dispute over school finance in Kansas earns merit for research discussion when education is the largest item in the state budget. Unlike highways that typically receive funds from gasoline tax, public schools receive funding from general funds. Recently, school districts have challenged the state Legislature on the constitutionality of the funding. These disputes over our funding have invoked themes of constitutional democracy in our state. So what constitutes adequate funding? Is education a fundamental right? What are the benefits of investing in something like education?

A Study of Teacher Engagement Issues and Organizational Causes. Tiffany Smith, Courtney Davis, Kate Lander, and Carolyn Wallace.
A majority of teachers experience a sense of disengagement with their profession and workplace, and therefore feel uninvolved and unenthusiastic, leaving them disinclined to achieve better outcomes and devote discretionary effort to their work. Primary Research Question: What are organizational and managerial policies and processes in schools and districts that cause feelings of teacher disengagement, and how can those policies and processes be improved? Subordinate Questions: What evidence justifies the assumption a majority of American teachers experience feelings of disengagement? What evidence justifies assumptions that feelings of disengagement result in the kinds of feelings and actions depicted in this study’s problem statement? What are official and universally applied organizational and managerial policies and processes in schools and districts that seem to erode feelings of engagement among teachers? What frequently occurring unwritten, unofficial or informally applied managerial behaviors and expectations retard opportunities for teachers to feel fully engaged in their profession or workplace? What external (community, state, national, professional) initiatives, expectations and demands cause teachers to lose enthusiasm for their work, therefore suggesting a need to disengage (escape) from their best professional performance? What school, district and governmental policies and processes can be created, deleted or modified that would help overcome feelings of teacher disengagement if implemented with fidelity?
**Doing Business in India.** Muhammed Shanoob Puthen Theruvil and Dr. Joyce Zhou.
This study walks through the Indian culture along with the business ways and techniques and also shows a few ideas of government rules and regulations. As the country is blessed with vast varieties of cultures and also many resources, the presentation will provide a clear idea about the different culture and programs of the respective country and flow to the business field in country. National animals, tourism, tax rates, airlines, symbolic gestures of people and many other aspects will be discussed. The idea of this study is to provide the brief idea about the culture of the country which is a major factor to consider when planning to start a business in the country. The details about business rules and regulations including tax and types of taxes are also provided as the political situation will be different from each country and so by comprehending this, the new entrepreneur gets a wide and clear idea about the government policies and various matters to be taken care for starting a business and also for ongoing of business. Brief details about a few famous business organizations are also provided in the presentation so as to encourage new business to respective country.

**Doing Business in China and Korea.** Kaiyuan Wu and Yejin Cho.
This study will discuss the business practices in China and Korea. The study will provide details about different cultures and business programs in China and Korea. National animals, tourism, tax rates, airlines, symbolic gestures of people, and many other aspects will also be presented.

**2015 POSTERS**

* Scholarly products of the 2014 ESU Summer Undergraduate Research Program (ESURP)

**COLLEGE OF LIBERAL ARTS AND SCIENCES**

**01 Ion Sorption as a Function of pH at Elevated Temperatures.** Dane Boring and Nickolas Mayes, undergraduates, Physical Sciences.
Nuclear waste is hot (t>100°C) due to the radioactive decay of isotopes present. When stored, materials are used to prevent heat dissipation. In general, temperature will be significantly higher than room temperature (~25°C), but most sorption data of metals is found at room temperature. The goal of this project is to better characterize the surface acidity and sorption behaviors near temperatures relevant to nuclear waste disposal. Nanoscale hematite was purchased and used as a representative mineral component. After weighing a known amount of hematite (0.0357g±0.0015g), 40 mL of either 0.001M or 0.01M NaCl solution were added. To this suspension, a known amount of acid, HCl, or base, NaOH, was added at varying concentrations. Then, the samples were placed on a shaker table at controlled temperatures of 25°C or 34°C. The samples were equilibrated overnight. After equilibration, the samples were tested using a pH probe. In addition, samples were centrifuged and pH was re-determined for comparison. Data transformations were completed in Excel where surface charge behavior as a function of pH was determined. Results showed the temperature does have an effect on the surface sorption that was not characterized by previous theoretical models. Specifically, the point of zero charge increases/decreases with increasing temperature and ionic strength. Further sampling at higher temperatures is to be done at a future time. Options for future testing include changing of metal from Fe2O3 to other heavy metal cations that are also present in radioactive waste.

**02 Purification of Rat Antibody Using Affinity Chromatography.** *Wesley Burdiek, undergraduate, Biological Sciences.
The high affinity IL-2 receptor has important roles in TREG-mediated immunological tolerance. In vivo administration of anti-CD25 antibody has been used by our laboratory and others to study the development of mucosal tolerance in the small intestine. However, these experiments have become cost-prohibitive due to the large mount of antibody necessary to block CD25 signaling in vivo. The objective of this project was to produce and purify anti-CD25 (clone PC61.5.3) from the rat hybridomacell line. I began this process by designing and optimizing a flow cytometer assay to determine anti-CD25 titer. Using this assay we determined culture conditions such as media type, incubation time and the use of bioreactor chambers had little effect on antibody production levels by these cells. We then scaled up the cultures in order to produce large quantities and purify with affinity chromatography. We compared the abilities of Protein G and Protein L to purify our antibody from cell culture supernatants and found Protein G to be far superior. We believe this is due to the hybridomaproducing an antibody with an unusual kappa light chain subtype. Despite using protein G columns and FBS in our cell culture media, bovine antibodies were undetectable in our purified fractions. To date we have produced 12mg of antibody, which has a retail value of over $5,000.
03 N-acetyl-L-cysteine Reduces the Incidence of Specific Malformations in CD-1 Mice. Marah Carney, Brittany Miller, Kyle Wells, Xuan Lam, Charles B. Wells, Caitlin Herguth, and Dr. Melissa M. Bailey, Biological Sciences, and Ronald Hood, Hood & Associates, Northport, Alabama.

Reactive oxygen species (ROS) are necessary for normal development; however, ROS may cause damage to a developing fetus if present in excessive amounts, as can be the case in maternal drug use or maternal disease states. Cyclophosphamide (CP) is a complex multifaceted teratogen with mechanisms of teratogenesis thought to include production of excessive ROS. N-acetyl-L-cysteine (NAC) is a powerful antioxidant shown to offer protection from the toxicity of certain anticancer drugs, e.g., doxorubicin and CP. No studies have explored the potential of NAC to attenuate CP-induced damage to the conceptus. The current study explored the effect of concurrent exposure to NAC and CP. Mated CD-1 mice were orally dosed with 150 mg/kg/d NAC, 150 mg/kg/d NAC + 20 mg/kg CP, CP only, or vehicle only. CP was administered by intraperitoneal injection on gestation day (GD) 10, and NAC was given by gavage on gestation days (GD) 6-13. Dams were sacrificed on GD 17, and their litters were examined for adverse effects. There was a significant reduction in the incidence of digit, limb, and tail defects, as well as anasarca and macroglossia in fetuses exposed to the combination of NAC and CP compared to fetuses exposed to CP only. NAC did not increase the incidence of any defects when compared to control. Similarly, NAC does not appear to cause an increase in skeletal variations or abnormalities compared to vehicle controls, but fetuses exposed to NAC and CP had a significantly reduced incidence of supernumerary or rudimentary ribs and fused or misshapen vertebral centra compared to fetuses exposed to CP alone. The data indicate that NAC is a well-tolerated, relatively inexpensive antioxidant that reduced the incidence of specific cyclophosphamide-induced malformations when administered prior to, concurrently with, and after exposure to CP.


Lithium salts have been prescribed as the gold-standard treatment for bipolar disorder for over fifty years, continuing to outperform newer, alternative mood stabilizers. Despite this, the pharmacological mode of action for lithium in treating bipolar disorder is still speculative. A lithium-specific fluorescent probe would aid researchers in fully understanding how lithium works, and help design more effective drugs for treatment. Calculations were performed using Gaussian as the computational engine and Density Functional Theory. These calculations were used to both identify potential probes and to complement experimental data with theoretical calculations. The ability of these proposed fluorescent sensors to selectively bind lithium was estimated by comparing absolute energies of the molecule with and without a metal ion present. Molecules that appeared to exclude competing ions (e.g. Mg2+, Na+, K+) and yield reasonable complexes with Li+ will be targeted for synthesis in the lab. Molecular orbitals were calculated for promising molecular sensors to describe the location of electrons in a compound, which helped to understand how the molecule interacted with lithium ions. A small-molecule fluorescent sensor operates by exhibiting a change in absorbance and/or emission upon binding of a specific ion. This decrease in emission intensity (turn-off sensor), or a shift in the emission wavelength that changes the color of the light emitted, is preferred because the colors are directly related to gaps in molecular orbital energies. This project is ongoing and results are only now forthcoming. As the semester progresses, theoretical predictions will be calculated to determine if the sensor will change color in the presence of lithium and to compute other viable molecules.


The purpose of this project was to convey our thoughts and feelings about the world around us with a listening audience by creating a work of art combining music and literature. We created a composition of music for clarinet choir and spoken word in three movements, ‘Isolation,’ ‘Hope,’ and ‘Survival’ respectively. Each movement tells a story - Isolation explores the consequences of social changes involving technology, Hope illuminates the good things that keep people going throughout their day-to-day lives, and Survival explores the changes that need to be made if humanity is going to overcome the challenges it has created. Through collaboration, we accomplished these three pieces over summer 2014 with the help of funding through the ESU Undergraduate Research Program. We feel as though we have been successful in accomplishing these goals through both the musical elements of harmony and thickness of texture and through language. This piece has been performed at the Emporia State University Woodwind Showcase. In the future, we plan to publish this project through Cimarron Press and have been selected for performance for the International Clarinet Association 2015 conference in Madrid, Spain. Another avenue of publication that will be pursued is an article submission to the Clarinet Magazine about this unique piece.


See abstract on page 10.
07 Synthesis of a 1-aza-9-crown-3-substituted Coumarin for Fluorescence Sensing of Metal Ions.  
*Charissa Forsythe, undergraduate, Xiaoyin Zhang, graduate student, and Dr. Diane Nutbrown, Physical Sciences. 
Fluorescent sensors that bind metal cations are important tools for tracking those ions in living cells. Specifically, a fluorescing probe for lithium ion would aid researchers in understanding how lithium salts treat bipolar disorder. A coumarin-based molecule was substituted, using a methylene bridge, with a 1-aza-9-crown ether at the 3-position for this purpose. Following published procedures, 8-hydroxyjulolidine-9-carboxaldehyde and diethylmalonate were reacted to form the coumarin ring system by a Knoevenagel condensation. The resulting ester was hydrolyzed from the 3-position by strong acid and replaced with an aldehyde via a Vilsmeier-Haack reaction. The final two steps of the five-step synthetic pathway to yield the target fluorescent sensor were adapted from the literature. A reductive amination using PEMB and ammonium acetate transforms the aldehyde to a primary amine. Subsequent reaction with 1,2-bis(2-iodoethoxy)ethane is expected to generate the 1-aza-9-crown-3 ring to complete the synthesis. The final product will be titrated with biologically relevant cations to determine binding constants.

08 Effect of Anti-oxidants on the Cytotoxicity of PLX-4032 Against Human Malignant Melanoma Cells.  
Guangyi Gao, Guang Yang, graduate student, and Dr. Eric Yixin Yang, Biological Sciences. 
Objective: The aim is to examine the effect of beta-carotene on the proliferation and invasiveness of human melanoma cells and its effect on the cytotoxicity of PLX-4032, a BRAF inhibitor, against melanoma cells. This project will provide beneficial guidance to doctors when they decide whether to add beta-carotene and other antioxidants to the treatment regimen. Methods: The effects of B-carotene on the growth of melanoma cells and on the cytotoxicity induced by PLX-4032 were examined by MTT (a cell viability assay) and wounding healing assays. The invasiveness of cells were determined by Transwell migration assay. The apoptotic cell percentages were determined by flow cytometry. The activation of BRAF was examined by Western Blot using phosphor-BRAF antibody. Results: Beta-carotene significantly inhibited the growth of SK-Mel-28 melanoma cells at concentrations that were no lower than 0.1 uM. It enhanced the cytotoxic effects of PLX-4032 on proliferation and invasiveness of human malignant melanoma cells. Beta-carotene significantly increased the percentage of apoptotic cells induced by PLX-4032. Beta-carotene induced cell apoptosis through mitochondrial pathway. Beta-carotene reduced the activation of BRAF in melanoma cells. Conclusion: B-carotene enhances the cytotoxic effect of PLX-4032 against human melanoma cells.

09 Petal Size Analysis of Purple Stem-Hairy, Green Stem-Hairy, and Green Stem-Hairless Genotypes of the Brassica rapa Plant.  
Emerie Hall, undergraduate, Biological Sciences.  
Three Brassica rapa plant genotypes; Purple Stem-Hairy, Green Stem-Hairy, and Green Stem-Hairless were grown and the petals measured using ImageJ software to determine if variability in petal length and width could be associated with stem color or hairiness genotypes. Flower petals play a vital role to the continuation of a plant species, because the size and color of a plant's flower petals attract pollinators. Thirty seeds of each genotype were grown under standard conditions. Plants were sampled after development and first pollination by dissecting the petals, pressing them flat on a clean surface, and photographing the petals with a digital camera. ImageJ was used to analyze the images and statistics were performed with Excel. The results demonstrate that longer and wider petals are associated with the hairless genotype compared to that of the hairy genotype; the hairy genotypes had significantly shorter and thinner petals than the hairless genotype. Therefore it can be suggested that a gene for petal size is associated with the hairless gene of the different Brassica rapa genotypes either by linkage or pleiotropic effect.

10 John Philip Sousa Forever.  
Hannah Hewett, undergraduate, Social Sciences. 
This poster looks at the life, death, and works of John Philip Sousa. This poster looks at the musical period that heavily influenced Sousa's compositions: Nationalism. The Nationalism movement influenced some of Sousa's biggest works, most famous being Stars and Stripes Forever! Through Sousa's compositions and his service to America, a case is made that Sousa was the best American composer of his time.

11 LGBTQ Campus Support.  
Tyler Huddleston, undergraduate, Communication and Theatre. 
The study explored the communication components of members of LGBTQ student populations and the perceptions and stereotypes associated with this population. The research also was conducted to examine the intersections between these perceptions and stereotypes. Additionally, the study explored the policies and best practices of institutions of higher education in relation to LGBTQ students in both on-campus housing and lodging while on trips with student organizations. Literature on this topic indicates that LGBTQ college students “face discrimination and hostility in the very environments designed to support them and assist their transition to the university community” (Robison, 1998, p. 53). However, research also indicates best practices for how to advocate and work for these students, including offering programs “where LGBTQ students are provided a way to be matched with a LGBTQ-friendly roommate…or offer a LGBTQ/Ally living-learning community” (Rankin, Weber, Blumenfeld & Frazer, 2010, p.172). The purpose of this research study is to define communication stereotypes in order to provide best practices regarding the policies on housing and trips in regards LGBTQ students in relation to how Emporia State can look at becoming more inclusive.
One of the most diverse topics in today’s politics is if capital punishment should be legal or not. Capital punishment is for those defendants that have committed a horrible crime such as murder. A big argument made about capital punishment is that the jury often has a racial bias toward African Americans. Studies have shown that blacks are more susceptible on receiving the death penalty than other races and if the victim is white the chances of a defendant receiving the death penalty increases. This is because most jurors tend to be white and be more likely to feel more emotion for the victim if they share similar characteristics. In this paper we will use the data found by Espy and Smykla and compare racial characteristics of the defendant and the violation committed by the defendant of those who received the death penalty.

13 Insertion Sequence Hot Spots within a Gene Encoding Gas Vesicle Protein in Halobacterium sp. NRC-1. Tiffany Khounsonmbath, undergraduate, Biological Sciences.
The uniquely mobile genome of Halobacterium sp. NRC-1 was studied in our laboratory to better understand the behavior of highly mobile transposons and the effects they have on phenotype. Halobacterium sp. NRC-1 is an extreme halophilic archean able to survive in high salinity environments. Normal expression of the 14 gas vesicle protein (gvp) gene cluster allow the archean to adjust buoyancy and maximize energy utilization. The gene cluster responsible for the gvp occupies 8,951bp on a mini-chromosome. Mutations within gvp are often caused by the insertion of a ~1,300bp to ~800bp transposable DNA sequence called “insertion sequences” (IS). This gene disruption impairs gas vesicle formation, resulting in a red/transparent colony phenotype instead of the wildtype pink/opaque appearance. To estimate mutation frequency, liquid cultures established from a single, isolated wild-type colony were diluted to create spread plates. In this study, we determined a 1.4% mutant frequency and performed PCR on the mutant DNA in order to determine if it contained an IS. Since our primers amplified 1/5th of the gvp gene cluster we hypothesized that, if insertions were random, we would find an IS in 20% of the red/translucent mutants. Consistent with this hypothesis, 18.8% of mutants produced amplicons larger than 1,792bp. However sequencing studies of the mutant DNA revealed a specific region that IS would appear on the gvp amplicon. Collectively, these results suggest that the high mutation rate within gvp is caused by IS that target specific hot spots on the 14 gvp gene cluster.

14 Purification and Characterization of Antimicrobial Compounds Produced by a Soil Bacterium. Younan Ma and Lin Wang, graduate students, and Dr. Eric Yixin Yang, Biological Sciences.
See abstract on page 8.

15 Energy Allocation after Caudal Autotomy in the Great Plains Skink, Plestiodon obsoletus. Ashley Messner, graduate student, and Dr. Lynnette Siervert, Biological Sciences.
Caudal autotomy is a common anti-predatory defense among certain species of reptiles, amphibians, and mice. Studies have investigated the consequences of caudal autotomy in reference to locomotion and reproduction, but few studies have focused on how other factors may influence the regrowth of the tail. This study investigated caudal autotomy in the Great Plains skink, Plestiodon obsoletus, and how diet influenced energy allocation after caudal autotomy. Skinks were divided into size classes, three skinks per class with no greater than three mm difference in snout to vent length, and then divided into three treatment groups; fed crickets daily, fed crickets every other day, and a daily diet alternating between crickets and mealworm larvae. After the nine week study period, I found that diet and size class were not significant factors for tail regrowth, but diet and size class had a significant impact on the mass gained. A comparison of the three smallest and largest size classes for snout to vent length was significant for length gained, but could have been attributed to normal somatic growth. Mass was gained in every diet and size class, showing enough food was provided to exceed the amount needed to survive, however, the rate of tail regeneration may have been at its maximum. Energy was allocated differently among size classes and treatment after caudal autotomy.

16 Control of Sericea Lespedeza: Impact of Fuel Load and Burn Season on Plant Density. Milan Piva and Erin Lingenfelter, graduate students, Biological Sciences.
Sericea lespedeza, an invasive species of legume, has become wide spread throughout the Midwest with detrimental effects on the tallgrass prairie by out-competing native plant species and degrading rangelands. Sericea is costly for rangeland managers and landowners to control and existing methods have had little success. We are currently investigating a unique combination of control strategies that replicates fire behavior seen in pasture-scale burns. Treatments include changes in fire season (spring or fall) coupled with treatments of herbicide, mowing, and fuel load addition. We predict that the subplots receiving fuel load additions within the annual fall fire plots will have the greatest reduction on sericea abundance and density, without affecting the productivity of native tallgrass prairie plant species. The study site is located in the Marais des Cygnes National Wildlife Refuge, a 25-year-old tallgrass prairie restoration, operated by the U.S. Fish and Wildlife Service. During the 2014 growing season, we measured stem density prior to burning, but after application of herbicide and mowing treatments. Preliminary results show decreased stem density in response to herbicide treatments.
situation is that neither army command was aware of the geomorphic features of the area and were simply following the deposition banks of the creeks are low in elevation and the south banks (cut banks) are much steeper. The irony of the prairie spaces with trees along the creek. In Kansas the general trend in streams of various sizes is that the north banks alluvial deposits. The aerial photographs show that the area is now, as it was then, mainly covered in farmland and open physiographic region. The immediate area mostly contains Upper Pennsylvanian sedimentary rocks covered in Quaternary possible to determine the effect that terrain conditions had on the battle’s events. Mine Creek is in the Osage Cuestas in Linn County, Kansas. Using aerial photography, LIDAR (or topographical maps) and geological maps it may be On October 25, 1864 a retreating Confederate force was attacked by their Union pursuers at Mine Creek near Mound City Creek. 22 Using Aerial Photography to Aid in the Study of the Geomorphology of American Civil War Battlefields: Mine Creek. 21 Cloning and Production of a Fluorescent Thermostable Polymerase. Katy Schwinghamer, undergraduate, Physical Sciences. An understanding of the origin of the phosphate entering Midwestern rivers and streams is important to stream ecology and protection of drinking water resources. High groundwater phosphate concentrations (2.5-9.2 mg/L) have been observed in an alluvial aquifer near Emporia State University during the 10 years of monitoring. The sand and gravel aquifer is confined by 9 m. of silty clay that grades laterally into interbedded sand and clay at the nearby Neosho River. The highest concentrations occur in the deepest part of the aquifer. River water phosphate concentrations (0.01-0.32 mg/L) are near the EPA’s recommended limit for surface waters entering lakes. The accumulation of fertilizer phosphorus in the soil was examined as a potential phosphate source. A fluctuating water table and reversal of stream-aquifer exchange during drought were thought to contribute dissolved soil phosphate to the river. However, soil phosphate concentrations of 1.9-135 mg/kg on the floodplain are near natural levels observed in similar soils and thus, an unlikely source. Above normal phosphate concentrations (1.4-1.6 mg/L) were measured in a small campus lake that recently experienced an algal bloom. Additional investigation of the lake as a potential source of the groundwater phosphate, and its hydrologic connection to the aquifer, is part of this ongoing research. The origin of elevated groundwater phosphate in the alluvial aquifer at Emporia State University. Katy Schwinghamer, undergraduate, Physical Sciences. An understanding of the origin of the phosphate entering Midwestern rivers and streams is important to stream ecology and protection of drinking water resources. High groundwater phosphate concentrations (2.5-9.2 mg/L) have been observed in an alluvial aquifer near Emporia State University during the 10 years of monitoring. The sand and gravel aquifer is confined by 9 m. of silty clay that grades laterally into interbedded sand and clay at the nearby Neosho River. The highest concentrations occur in the deepest part of the aquifer. River water phosphate concentrations (0.01-0.32 mg/L) are near the EPA’s recommended limit for surface waters entering lakes. The accumulation of fertilizer phosphorus in the soil was examined as a potential phosphate source. A fluctuating water table and reversal of stream-aquifer exchange during drought were thought to contribute dissolved soil phosphate to the river. However, soil phosphate concentrations of 1.9-135 mg/kg on the floodplain are near natural levels observed in similar soils and thus, an unlikely source. Above normal phosphate concentrations (1.4-1.6 mg/L) were measured in a small campus lake that recently experienced an algal bloom. Additional investigation of the lake as a potential source of the groundwater phosphate, and its hydrologic connection to the aquifer, is part of this ongoing research.

20 The Origin of Elevated Groundwater Phosphate in the Alluvial Aquifer at Emporia State University. Katy Schwinghamer, undergraduate, Physical Sciences. An understanding of the origin of the phosphate entering Midwestern rivers and streams is important to stream ecology and protection of drinking water resources. High groundwater phosphate concentrations (2.5-9.2 mg/L) have been observed in an alluvial aquifer near Emporia State University during the 10 years of monitoring. The sand and gravel aquifer is confined by 9 m. of silty clay that grades laterally into interbedded sand and clay at the nearby Neosho River. The highest concentrations occur in the deepest part of the aquifer. River water phosphate concentrations (0.01-0.32 mg/L) are near the EPA’s recommended limit for surface waters entering lakes. The accumulation of fertilizer phosphorus in the soil was examined as a potential phosphate source. A fluctuating water table and reversal of stream-aquifer exchange during drought were thought to contribute dissolved soil phosphate to the river. However, soil phosphate concentrations of 1.9-135 mg/kg on the floodplain are near natural levels observed in similar soils and thus, an unlikely source. Above normal phosphate concentrations (1.4-1.6 mg/L) were measured in a small campus lake that recently experienced an algal bloom. Additional investigation of the lake as a potential source of the groundwater phosphate, and its hydrologic connection to the aquifer, is part of this ongoing research.

21 Cloning and Production of a Fluorescent Thermostable Polymerase. Jacob Snyder, undergraduate, Physical Sciences. Polymerase Chain Reaction (PCR) is a common scientific method used to amplify DNA. PCR uses a thermostable DNA polymerase when copying DNA strands. A fusion was made between the polymerase and the fluorescent protein tdTomato, which allows for the setup of PCR to be more easily visualized. To produce this fusion, a plasmid containing the pfu-Tom gene was put into E. coli expression cells using a cell transformation. These cells were grown, and gene of interest was expressed. The cells were lysed, and centrifugation was used to isolate the polymerase protein fusion. The fluorescence of this solution was tested using a spectrofluorometer. The solution’s emission and excitation wavelengths were compared to the expected values for tdTomato, with the results matching closely. This verifies successful production of the pfu-Tom fusion.

22 Using Aerial Photography to Aid in the Study of the Geomorphology of American Civil War Battlefields: Mine Creek. Megan Sprague, graduate student, and Dr. James Aber, Physical Sciences. On October 25, 1864 a retreating Confederate force was attacked by their Union pursuers at Mine Creek near Mound City in Linn County, Kansas. Using aerial photography, LIDAR (or topographical maps) and geological maps it may be possible to determine the effect that terrain conditions had on the battle’s events. Mine Creek is in the Osage Cuestas physiographic region. The immediate area mostly contains Upper Pennsylvanian sedimentary rocks covered in Quaternary alluvial deposits. The aerial photographs show that the area is now, as it was then, mainly covered in farmland and open prairie spaces with trees along the creek. In Kansas the general trend in streams of various sizes is that the north banks (deposition banks) of the creeks are low in elevation and the south banks (cut banks) are much steeper. The irony of the situation is that neither army command was aware of the geomorphic features of the area and were simply following the (Continued on page 17)
Ft. Scott Road. The tentative conclusion is that the fording of the creek by the Confederates would have allowed the Union pursuers to catch up anyway, but the refusal to abandon their stolen goods was what led to the vastly different casualty and capture rates and Union victory.

23 Allelopathy of Sericia Lespedeza in Restored and Native Prairie. Wenji Wang, graduate student, and Dr. Brenda Koerner, Biological Sciences. Sericia lespedeza (Lespedeza cuneata), an invasive plant, displaces the native grasses. Allelopathy is a key mechanism of sericia lespedeza invasion. Mutualism between sericia and rhizobia contributes to the nutrient status of sericia, and plants in restored prairie sites have higher rhizobia densities, which may influence a plant's ability to produce allelopathic compounds. Therefore we hypothesize that the sericia at the restored site will release higher level of allelopathic chemicals into the soils. The allelopathic effects of sericia lespedeza were tested by tomato germination tests. Soil samples were collected from under and 1 m away from a sericia plants at restored and native sites. Soil extractions were added and tomato germination rate and hypocotyl lengths were measured to evaluate the strength of allelopathy in soils from each site. Soils under sericia rhizosphere inhibited tomato germination, and soil from restored sites showed more allelopathic effects. These results suggest that sericia in restored prairie has the capacity to produce more allelopathic compounds than in native prairie.

24 2D Electrophoresis Analysis of Cell Cycle Proteins. Tingting Wei, graduate student, Physical Sciences. The cell cycle is series of events whereby a cell grows and divides into two daughter cells. There is an overexpression of Cdk2 and cyclins (cyclin D1, cyclin B1, cyclin E) in some human tumor cells. It has been shown that Cdc14p inhibits the activity of Cdns and degrades cyclins at the end of mitosis. Cdc14p involves FEAR and MEN pathways which are regulated by many proteins. The purpose of our research is to explore the relationship between these kinases and cyclins which could provide a clue to curing tumors. To achieve this goal, we are tagging genes in vivo, both in wild-type yeast and mutants of yeast (cdc14-1, cdc15-2, and cdc5-1). Two-dimensional electrophoresis and western blot analysis will be used to explore the connection among these proteins. To date, we have tagged several proteins in wild-type yeast. We are trying to get the tagged proteins in mutant yeast and beginning to study the proteins using 2D gels. This technique will show phosphorylation states of proteins changes and ultimately the relationship among the proteins.

25 Maternal Restraint Effects on Cyclophosphamide Teratogenesis. *Charles Wells and Marah Carney, graduate students, Doug Kepko, undergraduate, and Xuan Lam, graduate student, Biological Sciences. Psychological stress can cause a variety of adverse effects on fertility and pregnancy. Physical restraint can be used to induce consistent psychological stress during the gestational period and has been shown in specific instances to cause cleft palate and complications during organogenesis. Cyclophosphamide (CP) is an anticancer agent and model pro-teratogen that can cause limb, digit, and cranial defects. This study focuses on determining the effects of psychological stress induced by repeated restraint on CP teratogenesis. Mated CD-1 mice were randomly assigned to one of four treatment groups: control (saline only), restraint only, 20mg/kg CP, or a combined 20mg/kg CP + restraint group. Mice were restrained in plastic cones for three one-hour sessions per day, from GD 8-13. CP and saline were given via intraperitoneal injection on GD 10. Dams were sacrificed on GD 17, and their litters were examined for gross defects. Fetal weights, maternal weight, and the numbers of dead, live, or resorbed fetuses were measured. Maternal weight gain was significantly negatively affected by restraint in both the control and CP-exposed dams (p<0.05). Fetal weight was adversely affected by restraint in the control dams (p<0.05), but not in the CP-exposed dams. The incidences of limb, digit, tail, body, cephalic, and eye defects were significantly reduced in the restraint + CP group compared to CP alone. Stress induced by maternal restraint could reduce the incidence of cyclophosphamide-induced malformations, but further study is needed to clarify possible underlying mechanisms. This research was supported by NIH grant number P20 GM103418.

26 Habitat Use by Secretive Marsh Birds in Moist-Soil Managed Wetlands in Eastern Kansas. Eric Wilson, graduate student, Dr. William Jensen, Biological Sciences, and Richard Schultheis, Ks. Department of Wildlife, Parks and Tourism. Moist-soil management is a common form of wetland management for waterfowl, where wetlands are dewatered in spring to enhance summer vegetative production, and flooded in the fall to accommodate waterfowl. The use of moist-soil wetlands by other marsh birds has received little study. Our objective was to determine variation in abundance of the American Bittern (Botaurus lentiginosus), Least Bittern (Ixobrychus exilis), King Rail (Rallus elegans), Virginia Rail (Rallus limicola), and Sora (Porzana carolina) in relation to habitat structure within and among moist-soil wetlands in Eastern Kansas. We used call-playback surveys (spring, summer) and flush counts (fall) to survey marsh bird abundance. Study sites included Flint Hills National Wildlife Refuge, Marais des Cygnes National Wildlife Refuge and State Wildlife Area, and McPherson Valley Wetlands State Wildlife Area. Surveys were performed during the spring and fall migration and summer breeding seasons. Only six birds of three species (Least Bittern, American Bittern, and Sora) were detected in
three of 31 wetlands surveyed during spring and summer of 2014. During the fall of 2014, a total of 57 Sora, 24 American Bittern and 4 Least Bittern were detected in 16 out of 24 wetlands surveyed. There were no significant patterns in abundance of these species with marsh-wide habitat characteristics. However, Sora were detected in areas within marshes with lower vegetation coverage than American Bittern locations or systematic sampling points. American Bitterns were detected in areas with higher cattail (Typha) coverage than Sora locations or systematic sampling points. Surveys in 2015 are ongoing.

27 Ion Adsorption to Hematite at Elevated Temperatures. Gang Yang, graduate student, and Dr. Andrew Miller, Physical Sciences.
Radioactive waste disposal is a big issue for the nuclear industry. Geological disposal of nuclear waste is the accepted approach to decrease the risk associated with nuclear waste storage. Radioactive waste is thermally hot, and upon disposal it will heat the surrounding minerals to temperatures as high as ~120°C. Adsorption is a critical process in controlling the mobility of ions from a waste disposal location, and it is known that temperature is a major factor influencing the extent of adsorption. However, available references on ion adsorption generally perform experiments at room temperature. Quantifying adsorption at higher temperatures is rarely done. This project will determine surface adsorption ability at a range of temperatures (10-90°C) and for various metal ions. To date, surface titrations have been completed to determine proton adsorption to hematite (Fe2O3). Acid and base were added to a hematite suspension at various ionic strengths. The data was analyzed with a mathematical model, by which protonation reactions can be fit with log K values. The experiments showed that the temperature influences the surface adsorption of protons. While temperature is not the only factor for affecting adsorption, the model can be built by considering each process individually. Using a model that includes sorption behavior as a function of temperature, better strategies can be designed for nuclear waste disposal.

28 Effect of Vitamin C on the Cytotoxicity of Vemurafenib (PLX4032) Against Human Malignant Melanoma Cells. Guang Yang, Guangyi Gao, graduate students, and Dr. Eric Yixin Yang, Biological Sciences.
Vitamin C is a potent antioxidant that has been widely used as a dietary supplement. Vitamin C has been used in cancer treatment to alleviate the side effect of chemotherapy and radiotherapy. However, using vitamin C in cancer treatment is controversial since its antioxidant property may provide growth advantage to the cancer cells. The goal of this study is to examine the effect of vitamin C on the growth and invasiveness of human malignant melanoma cells, and its effect on the cytotoxicity of Vemurafenib, a FDA-approved anti-melanoma drug, against human malignant melanoma cells. The effects were examined by cell viability assay, wounding healing assays, and Transwell migration assay to measure the effects on cell proliferation, migration, and invasion, respectively. The apoptosis induced by vitamin C and/or Vemurafenib was determined by flow cytometry. Vitamin C significantly inhibited the proliferation of melanoma cells SK-MEL-28 starting at concentration of 100 uM, however, it did not inhibit the cell migration and invasiveness. Vitamin C induced the apoptosis of melanoma cells through mitochondrial pathway. Vitamin C enhanced the cytotoxic effects of Vemurafenib on proliferation against human malignant melanoma cells. Vitamin C significantly increased the percentage of apoptotic cells induced by Vemurafenib, and Vitamin C and Vemurafenib synergistically arrested the cell cycle at G0/G1 phase. Vitamin C alone had no significant effect on cell migration and cell invasiveness. Vitamin C does not seem to provide growth advantage for human malignant melanoma cells. Instead, it inhibited the cell growth at concentrations that are hundred times lower than maximum serum achievable concentration. Vitamin C showed the dual roles in the cytotoxicity induced by Vemurafenib against malignant melanoma cells. Vitamin C enhanced the cytotoxic effect of Vemurafenib on cell viability by promoting apoptosis and cell cycle arrest. However, vitamin C reduced the cytotoxic effect of Vemurafenib on malignant melanoma cells migration and invasiveness.

29 Engineering a Fluorescent DNA Polymerase. Taihao Yang, graduate student, Physical Sciences.
PCR (polymerase chain reaction), which is used to amplify DNA molecule, plays a significant role in the field of biochemistry and molecular biology. The basis of PCR is a thermostable DNA polymerase, Taq polymerase. Taq polymerase keeps its activity in high temperature needed for PCR, thus, can be used to copy DNA in PCR. Fluorescent protein absorbs UV light and emits visible light. Some of the fluorescent protein will refold after heating and cooling. The goal is to fuse Taq polymerase into fluorescent protein, to generate a fluorescent DNA polymerase. We have engineered two constructs, Taq-ZsGreen and Taq-mTFP. Now we are trying to express these constructs and study the proteins.

30 The Effect of Ultra-Violet Light on the Expression of P53 Downstream Genes. Chunmiao Yu, Jiuyu Jiang, graduate students, and Dr. Eric Yixin Yang, Biological Sciences.
See abstract on page 9.
31 **Marketing Strategies of Multinational Corporations in China.** Xinli Du, visiting scholar, and Dr. Jun Yu. With 1.3 billion people, China is a huge fast-growing market. The success of multinational corporations in China is determined, to a large extent, by their knowledge of the Chinese culture. This research aims to understand the Chinese consumer better and suggests relevant marketing strategies.

32 **Advertising Evolution in China and the Future Opportunities.** Xiaomeng Guo, graduate student, Dr. Joyce Zhou, and Dr. Jun Yu. Advertising has become part of our lives. Advertising can be found in many different media, such as television, radio, magazine, newspaper, and internet and so on. The advertising evolution is a reflection of a country’s evolution. This study examines advertising evolution in China. Advertising strategies and lessons learned by global companies will be discussed as well as the future opportunities.

33 **Autonomous Robot "Corky Robot."** Molham Kayali, undergraduate. See abstract on page 10.

34 **Emporia Community Foundation Research.** Yixuan Liu, Spencer Bauman, Gihun Lee, and Ameen Alfaraj, undergraduates. This research was conducted for the purpose of finding out different methods on how to help the Emporia community become more aware of the Emporia Community Foundation. ECF is a relatively unknown organization in the Emporia community even though they have many funds and scholarships to help out Emporia and Lyon County. Helping people become aware and get a better understanding of this organization would help create new opportunities for ECF to help improve the community. The results will help suggest different strategies to help promote the organization and improve the community.

35 **Customer Satisfaction Study for Emporia Fitness.** Kyle Pfizenmaier, Yong Suk Choi, Brenda Novelo Arnold, and Ju Young Jo, undergraduates. Our group has been working with Emporia Fitness to figure out what they do strongly as a company, what they could improve on, and how the use of social media affects the communication between Emporia Fitness and their members. We have conducted a survey from a sample of their members with the purpose of providing Emporia Fitness with actionable information. With detailed data analysis, we will suggest strategies to Emporia Fitness to further improve their quality of service.

36 **Marketing Research for Breckenridge Hotel.** Elizabeth Ravenstein, Minhee Sim, Minhee Ha, and Macey Wells, undergraduates. We have conducted market research for the Historic Breckenridge Hotel and Convention Center, which is being constructed in Emporia, KS. The scope of the research includes competitors, important amenities, and pricing. We gathered information from a sample of organizations in surrounding areas such as: Emporia, Wichita, Lawrence, Topeka, Kansas City and Manhattan. To gather the data we created a questionnaire using Google Forms. Through analyzing the data the hotel will have useful information for future marketing planning.

37 **Research on Emporia Business Recycling.** Raymond Solis, Anastasia Rausch, Mengyi Li, and Hyein Lee, undergraduates. Students will present information about a marketing research project regarding Emporia businesses and their recycling habits. Research was conducted on behalf of Green Door Recycling. Data collected was analyzed and interpreted to assist Green Door Recycling in making future business decisions.

38 **Role of Human Capital in US and India.** Muhammed Shanoob Puthen Theruvil, undergraduate, and Dr. Joyce Zhou. This research examines what role human capital plays when it comes to the management field and recruitment. Six major factors which have impact on human capital will be discussed: literacy rate, population rate, school enrollment rates, average years of schooling, employment rates, and Foreign Direct Investment (FDI). This study will help business managers make decisions regarding their investment and international recruitment.
39 Marketing Research for H&R Block. Karson Wilson, Rui Yang, Jiyoung Moon, and Yejin Cho, undergraduates.
Throughout the semester, our group has teamed up with H&R Block to discover which target markets in the Emporia community use their services. We have also attempted to find why certain populations do not use their services. Through a series of interviews, surveys and data analysis, this project will propose various promotional methods for the H&R Block staff and for the purpose of marketing their services to the Emporia and nearby communities.

SCHOOL OF LIBRARY AND INFORMATION MANAGEMENT

40 Picture the Common Good: Using Photovoice Method to Identify and Represent Social Justice in the University Community. Jenay Solomon, graduate student.
This research uses the photovoice method (Wang and Burris, 1994, 1997) to investigate higher education as an aspect of a socially-just society. Images on the Emporia State University campus include physical buildings and community spaces used by students as examples of social justice. This poster created by a graduate student in library and information management, with the assistance of a professor in the School of Library and Information Management, provides an initial outline for advancing a research agenda focused on education for social justice. The photovoice technique is built on Wang’s (1999) concepts with primary focus on higher education: 1) a visual image is a site of learning that may influence one’s daily learning experience; 2) pictures can influence education practices and policy; 3) community people including students should participate in creating and defining the images that shape university policy; 4) planning is needed that will result in targeting at the outset people who can be mobilized for change; and 5) photovoice integrates a citizen approach to documentary photography, the production of knowledge, and social action. This poster also functions to encourage and promote dialog for advancing the common good on the University’s campus.

41 Academic Predictors of Success in a Midwest University's Nursing Program. Ashley Todd-Diaz, Carrie Boettcher, Lynnette Schreiner, and Sarah Velasquez, graduate students.
Student success is a focus within any academic program; however, a precursor to aiding students with their success is the decision of admission to an academic program. A challenge for all programs, including nursing, is what predictors to pay attention to when determining which prospective students will become distinguished scholars during and successful professionals upon completion of the program. The purpose of this study is to determine if the Test of Essential Academic Skills (TEAS) subset scores of science, math, reading, and English significantly predict scores on the Assessment Technologies Institute (ATI) Fundamentals for Nursing Practice assessment (FUN) taken early in the nursing program, the ATI Adult Medical-Surgical Nursing assessment (AMS) taken mid-way through the nursing program, and the ATI Comprehensive Predictor assessment (COMP) taken at the end of the nursing program by conducting three multiple regressions. Results indicated that certain TEAS subset scores were better predictors of the AMS and COMP rather than the FUN.

TEACHERS COLLEGE

42 Art Therapy Utilizing Calligraphy to Decrease Depression for International Students with Homesickness. Songshan Bai, graduate student, Counselor Education.
I will investigate whether art therapy utilizing calligraphy could help international students work through feelings of depression related to homesickness. Up to 20 international students from a small Midwestern University will participate in an experiment providing them a chance to practice calligraphy. Students will complete the Beck Depression Inventory, and participate in calligraphy, they can write anything down in calligraphy style. After that, they will take the Beck Depression Inventory again. I expect to find that participants who practice calligraphy will have a lower depression rate than others who do not practice calligraphy. This study will be an example of how art therapy can be used as a treatment for depression and how art therapy can use calligraphy to help international students release their feelings of aloneness and express their emotions.

43 Reward/No Reward and College Students' Gaming Performance. Katie Barnhart and Dillon Riley, undergraduates, Psychology.
This study focused on people’s motivation when a reward is involved. Previous research showed that peak performance due to added pressure can result when offered a reward (Eisenberger, Aselage, 2009). Forty college students enrolled in undergraduate psychology courses in the spring of 2015 at Emporia State University were our participants. When participants signed up for this experiment, we randomly assigned them to either Video Game Reward Group or Video
Game No Reward Group. We gave and read the informed consent form to participants as they read along. Participants then played Mario Kart 64 on the Nintendo 64. Next, we instructed participants on completing the Got Game survey. We expected to find that candy would motivate the college students in their performance. We performed a t-test for independent samples to compare the group means and will discuss our results at the presentation. This could be useful with finding ways to motivate students or workers in performance.

44 Thinking Outside the Box. Rodger Belyea and Warrick Rodgers, undergraduates, Psychology.

“Thinking outside the box” is a buzzword phrase that is popular in commercials, television shows and by businesses. The question is how is one supposed to accomplish this feat? The heart of this question lies in the idea of being creative, of engaging in divergent thinking. Divergent thinking is a mental process where a person generates new ideas (Colzato, Ozturk, & Hommel, 2012). Research links divergent thinking to mind wandering and its efficacy for overcoming functional fixedness (Barron, Greer, & Smallwood, 2011). One possible solution to overcoming functional fixedness is using a mindfulness practice to create divergent thinking. One problem we noticed in the research is that there are different kinds of mindfulness activities creating different mindsets. We sought to understand the use of Open Monitoring (OM) style meditation on divergent thinking. We assigned forty college students to either a control group or a group who engaged in 10 min of Open Monitoring style meditation. Participants completed a Remote Associates Test with the experimental group first completing the OM sequence. We expected the experimental group to score higher on the test than the control group. We performed a t-test to analyze the data set and will discuss the results later. Our findings may be useful for training employees useful in alternative solutions.

45 College Students' Ability to Follow Directions With or Without Instructions. Hannah Bohrn and Cheyenne England, undergraduates, Psychology.

Students hear directions everyday from their teachers, but how accurately do they truly follow the directions? Our study looked at how accurately participants believed they could follow directions based on if we told them to read the instructions or did not mention anything about reading the instructions before administering a test. The participants consisted of two groups with 12 Emporia State undergraduate students per group. Each student completed the General Knowledge test with specific directions, followed by a survey evaluating their opinion on how accurately they followed the directions. We expected to find that the group that we instructed to carefully follow the directions would score higher on the Likert-scale item that indicates they followed the directions accurately compared to the group who was not instructed anything. We performed an independent sample t-test. We will discuss our findings at research and creativity day. This study could be useful for classroom procedures in terms of it indicating if students’ listening ability positively correlates with their ability to follow directions.

46 Students Bullying University Professors. Amanda Brabec, Jacoda Barger, Nick Frizell, undergraduates, and Henry Wijata, graduate student, Psychology.

Think university professors can't be bullied by their students? The truth is that student to faculty bullying occurs more often than reported. Our study surveyed university faculty and found evidence to support the idea that bullying is an issue in post-secondary education. It receives little attention and causes emotional fallout.

47 Finding Your Totem. Samantha Brandt, Leslie Woodruff, and Nicole Book, graduate students, Counselor Education.

Finding your totem was an interactive art therapy internship completed in collaboration with Riverside Elementary school counselor, Katie Matthews, to increase student awareness and understanding of what courage and confidence means to them. The 3rd, 4th, and 5th grade classes at Riverside Elementary increased their understanding of the meaning of totems and gained awareness of cultures that employ totems. The art directive, creating a personal totem based on the animal(s) that embodied courage and confidence for each student, allowed for creative problem solving, and the use of abstract thinking by connecting courage and confidence to animals. The students will display their artwork and share with family, friends, and peers what courage and confidence means to them.

48 Art Therapy in the Digital Age. Mark Brenneman, graduate student, Counselor Education.

Studies have shown that the majority of art therapists practicing today do not utilize digital media to a significant degree. It is much more common to use it for power points and other visual presentations than actual art making. There is some resistance among art therapists to utilize the digital media to make art. Some reasons are that the
equipment is expensive, at least in the beginning, and that there is still great therapeutic value in getting your hands dirty. There is also a lack of education among art therapists on the many ways digital media can be utilized. This presentation gives an overview of some of the research that has been done, and lays out my own proposal to research the therapeutic value of digital art making compared to making art in the traditional fashion. Ways in which the digital medium may be utilized to make art in a therapeutic manner not possible with traditional medium, such as motion comics to do graphic narrative, are also given.

49  Art Therapy and Dementia. Katie Brewer and Raven Milam, graduate students, Counselor Education. Dementia devastates control over mental and physical abilities and makes independence difficult. Older adults have lived most of their lives as independent people; it can be hard to cope with losing not only basic functioning, but also the feeling of freedom. Art therapy allows clients the ability to regain and hold on to some of what they've lost. Judith Wald wrote that "the primary goal [of art therapy] is to help offset these losses by providing activities within a framework in which the client can succeed," (Wald, 1989). As older adults gradually lose their basic functioning skills due to dementia, art therapists are able to assist in stimulating three areas of their clients’ lives, physical, cognitive, and social. This poster presentation will provide information about using art therapy to help people with dementia. Because dementia in later life is a degenerative condition, the role of art therapy is not curative; instead, the goals are supportive. Art therapy provides people with dementia an opportunity to remember past events, connect with others, and maintain control of their minds and bodies. Art activities help clients regulate their feelings and cope with the confusion and frustration that dementia often causes. Art therapy can help people with dementia live a more fulfilling and a happier life.

50  Video Games and College Students’ Problem Solving Ability. Becca Bush and Felicia Strahm, undergraduates, Psychology. In a 2013 study by Adachi and Willoughby, strategic video game usage increased self-reported problem solving abilities. This study investigated the effect of video games on problem solving ability. Forty Emporia State University undergraduate psychology students participated in this study. In this two-group design quasi-experiment, both groups first completed a survey about their experience with video games. One group played video games before completing the problem solving test and the other group just took the problem solving test. We expected that the group that played the video game would do better on the problem-solving test than those who did not play the video game. We performed a t-test for independent samples. We will discuss our findings at the presentation. This study may be useful for teachers as an instrument to prime students for learning. Parents could also use the information from this study to help their children progress in school.

51  The Effect of Deceased/Griever Relationship and Story Detail on College Students’ Sympathy. Jessica Danford, undergraduate, Psychology. Sympathy is a "give and take" system, and research suggests that this system unevenly distributes sympathy in just about any situation (Clark, 1987). This study looked into the amount of sympathy that college students showed for someone grieving for a loved one. Seventy-seven Emporia State University students and one faculty member read one of four versions of a grief-recollection story and then completed a Grief Survey. In this completely randomized factorial experiment, participants read a detailed or brief account about someone who lost their sister or their friend. I predicted that college students who read a detailed account of a grieving person who has lost a sister would report the greatest sympathy toward the griever, and those who read a vague account of a grieving person who has lost a friend would report the least sympathy. The relationship titles and the story types made no difference in the sympathy students expressed.

52  The Effect of a Persuasive Video on College Students’ Willingness to be a Social Ally. Jessica Danford, undergraduate, Psychology. According to Harro (2013), socialization into a society with oppressionary norms is a process that is always happening; we are born into it without our permission and we grow up in environments that enforce them all of our lives. People become complacent, scared, or just don’t know how to do anything about the issues that arise because of fear, confusion, or ignorance. The first step for many people in becoming a social ally is realizing that issues that affect targeted, “other”, groups are prevalent in their daily lives as well. Learning about diversity is also critical to becoming a social ally (Munin & Speight, 2010). The purpose of the study was to determine whether the viewing of a video about a modern social issue, racism or transgender oppression, would affect a student’s desire to become an ally toward ending said social issue. I expected to find that students would be more willing to be allies against racism than transgender oppression, whether they watched a video about racism, transgender oppression, or no video at all.
53 Johannes Brahms. Amanda Dixon, undergraduate, Psychology.
Johannes Brahms was one of the leading composers of the Romantic Era. Brahms is considered the great master of symphonic and sonata style. As a composer he wrote symphonies, concerti, chamber music, piano works and choral works. According to the Los Angeles Philharmonic: “An extraordinary melding of musical heritage and progressive outlook made Brahms an overwhelming presence in the latter half of the 19th century, and beyond.” Brahms was very influential on composers of the time and even composers in today’s society. His pieces have been performed for about a hundred and fifty years, and are still being performed today.

54 Relationship Between Hypercompetitiveness and Workplace Ethics Among Women in Power Positions. Dana Evans, graduate student, Psychology, and Dr. Donna Stuber, Friends University.
Competition promotes increased efforts to succeed, develops positive interpersonal relationships and greater psychological well-being. However, if individuals develop the need to indiscriminately compete and win to avoid losing at any cost, their behavior can become hypercompetitive to the point of becoming pathological. Generally associated with poor ethics and negative personal development, hypercompetitives see nothing wrong with self-interested gain at the expense of others and lean toward control and domination while engaging in manipulative strategies. Winning at all costs is an important component of hypercompetitiveness, therefore ethical behavior comes into question. If the tendency is for hyper-competitive individuals to succeed at any cost, it seems reasonable to assume these individuals would demonstrate amoral behavior across a variety of settings, including the work environment, especially if they are in positions of power. The purpose of this study was to investigate the relationship between hypercompetitiveness and ethical behavior among women who manage or supervise others in the workplace. It was hypothesized that hypercompetitiveness is negatively associated with ethical behavior. Online participants completed the Hypercompetitive Attitude Scale (HCA) and Workplace Supervisor Ethics Survey (WSES). The higher the HCA and WSES scores, the greater the hypercompetitiveness and ethical behaviors, respectively. Outcomes concluded a significant relationship does exist between hypercompetitiveness and ethical behaviors and thus the hypothesis was supported. Hypercompetitive women in this investigation showed themselves to be less ethical than their non-competitive counterparts. Many study participants found nothing wrong with self-interested gain at another’s expense and often times manipulated and exploited to achieve that advantage.

55 Homosexual Parenting and College Students’ Attitudes Toward Children. Melissa Falk and Samantha Jacob, undergraduates, Psychology.
Averete et al. (2009) found that there is no statistically significant correlation between homosexual parenting and the outcome of how the family functions. In this study, we investigated whether the participants believed the child would become homosexual if the parents were homosexual versus non-specified. Twenty-four ESU undergraduate students participated by reading either a vignette with the adopted parents being lesbian, gay or with a straight couple, and then completing a survey. We expected to find that students would rate the child of the homosexual parents more likely to become homosexual than the child raised by the straight couple. We performed a one-way ANOVA with independent groups. We will discuss our findings for this presentation. With the results of this experiment, we attempted to determine if stereotypes that come with being homosexual and homosexual parenting still exist among college students at ESU.

This study investigated the effect of visual limitations on college students’ balance. Forty Emporia State University undergraduate students participated in a timed balance test. First, the participants completed a Wellness Survey that covered several health questions. In this two-group design quasi experiment, we took each participant into a hallway and timed them on the balancing tasks. The first group stood on one leg with both their eyes closed, then stood on the same leg with both of their eyes closed, and finally they stood on the same leg with their right eye closed. The second group stood on one leg with both of their eyes opened, then stood on the same leg with both of their eyes closed, and finally they stood on the same leg with their left eye closed. After each task an experimenter wrote down the participant’s scores on the bottom of their Wellness Surveys. After both groups finished the balance test, all participants listened and read along to the debriefing statement read by the experimenters. We expected to find that participants who stood on one leg with their right or left eyes closed would be able to balance longer than those participants who stood on one leg with either their eyes open or with both eyes closed. We will discuss our findings for this presentation.

57 An Energy Drink and College Students’ Visual and Auditory Reaction Times. Jeffrey Heitzman and Samantha Aleman, undergraduates, Psychology.
This study looked at college students’ belief that consuming energy drinks would improve performance on auditory and visual reaction time tests. In this factorial mixed design quasi-experiment, forty Emporia State University undergraduate students first completed baseline reaction tests (both auditory and visual), then consumed either an energy drink or placebo drink, completed the reaction time tests again, then completed a brief survey about the tests and feelings toward energy

(Continued on page 24)
drinks. We expected to find that the participants who drank the energy drink would record in their survey that the drink they consumed improved their performance during the reaction time test. In addition, we expected to find differences in reaction times between the groups. We performed t-tests for independent samples to compare the group means for each dependent variable. We will discuss the findings during the presentation. The findings from this study could help college students understand the effects of caffeine and energy drinks on not only their physical, but cognitive performance.

58 Telling the Story of Trauma: Implementing the Animal Attribution Story-Telling Technique in the Creation of Graphic Novel Narratives. Keslie Humburg, graduate student, Counselor Education. Graphic novels combine visual, representational elements with the written word to create visually based narratives. The therapeutic factors of storytelling and art-making and the potential of the graphic novel format as a therapeutic tool lend well to the treatment of symptoms common in those individuals affected by trauma. Providing survivors with the graphic novel framework lead to therapeutic memory recall, a deeper understanding of the trauma itself, and the personal thoughts and emotions attached to that trauma. In the art therapy intervention I created, the participants were asked to create an animal avatar for themselves, place that animal in a difficult situation, find a solution to that difficult situation, and then think of what would happen next, including how the animal had changed, how the animal felt after solving the problem, what the animal learned about him/herself through the struggle, etc. Using animals in the trauma narrative process allowed participants of all developmental levels to participate and promoted spontaneous creativity and story-telling, regardless of diagnoses and trauma history. This method also encouraged solution-based problem solving skills, positive thinking, self-awareness, and empowerment.

59 College Students' Consumption of Delivered or Self-Obtained Cookies. Alex Klema and Sydney Main, undergraduates, Psychology. Situations and environmental surroundings affect individuals' behavior, and eating is no exception. This experiment had 40 participants enrolled in psychology classes at Emporia State University. There were two independent groups: the group that received cookies and the group that retrieved cookies. First, participants completed a survey about being hungry. Next, an episode of a TV show played, during which the participants consumed their desired amount of cookies. Both groups completed another survey after watching the episode and eating cookies. We expected that the receiving group would consume more than the retrieving group. Our test was a t-test for independent samples. We will discuss our results at Research and Creativity Day. This may provide a better understanding of the decisions about eating college students make with peers present.

60 Corner House of Hope. Kari Ludes, Cassie Holt, and Elizabeth Ash, undergraduates, Counselor Education. For our Research and Creativity Day Service Learning Project, our group created a large painting for Corner House Inc., a home that assists individuals in developing an alcohol and drug free lifestyle. Our service was creating a large mural type painting with the goal of inspiring hope in the residents to assist in their treatment. We used creative processes to expand our understanding of the battles some people face with substance abuse, and learning what one would deem reasonable to make that first step.

61 "No Talking" and College Students' Anxiety during Group Collaboration. James Mickley and Kevin Geller, undergraduates, Psychology. A 1999 study by Braddshaw, and Stasson looked at the effects on productivity and perceptions of performance. In our study, we wanted to investigate the effects of instructing participants to be silent on college student's anxiety in a group setting. Forty Emporia State University undergraduate students participated in a discussion of their personal opinion of movie titles. In this two-group design experiment, we told one group to remain silent before beginning their group discussion, and allowed the other group to talk and communicate before putting them into groups. They began discussing the movies and we had them rate the movies. All participants completed a brief anxiety survey. We expected to find that the group of participants told to remain silent before being put into groups would rate themselves as more nervous than the students being allowed to communicate before teachers separate them into groups in a classroom setting.

62 The Adaptive Instructor: Faculty Attitudes and Practices in a 1:1 Mobile Technology Initiative. Kate Nave, graduate student, Dr. Lori Mann, Dr. Elizabeth Dobler, and Dr. Nancy Smith, Elementary Education, Early Childhood, and Special Education. Data collected for this study stem from faculty participating in a 1:1 mobile technology initiative within the Elementary Education program at Emporia State University. Faculty participants teach various content methods courses and mathematics courses for students in Elementary Education. Pre- and post-surveys were administered. Faculty reported their perceived skill and confidence as technology users and as adopters of technology. They also reported how technology, specifically iPads, were integrated into their instruction. A group of faculty were issued iPads for professional use in Spring
2013 and a set of iPads was available to use with classes. No professional development was provided for faculty and no expectation was communicated regarding iPad integration into instruction. A pre-assessment survey was administered in January 2014 to fourteen faculty participants. These data describe faculty attitudes about technology and their technology integration prior to participation in intensive faculty training with the use of devices and technology integration pedagogy. One year of targeted professional development opportunities were provided to faculty, as well as one semester of teaching in the 1:1 initiative with all students bringing iPads to class. A post-assessment survey was administered in November 2014. Preliminary analysis show faculty perceived skill and confidence as technology users and adopters of technology shifted in a positive direction. Current integration of the iPads in their teaching also shifted, with use increasing in various categories of instructional activities.

63 College Students’ Recall in Certain Smells or Music. Nao Nishioka, undergraduate, Psychology. This study was about scent and sound stimuli’s effect on recall of college students. Forty one Emporia State University undergraduate students took simple words recalling test to see how the number of recalled words was different depending on the different stimulus. There were three groups in this study: the scent stimulus, musical stimulus, and no stimulus group. All three groups saw the exact same words list for 15 minutes, then they had 15 minutes to recall those words on the list. The scent group used the paper that smelled like lavender, and the musical group heard classical music during the test. I expected to find that the scent group recalled more words than the other two groups. I used a one-way ANOVA for independent groups to analyze my results. My findings may tell people, especially the students, how they need to memorize many words or phrases. My findings may also be an example for people who need to improve their recall performance, and which stimulus will be more effective.

64 A Neuropsychoeducational Therapeutic Approach to Understanding and Managing Negative Emotions. Rachel Petersen, Amanda Halling, and Bronna Leach, graduate students, Counselor Education. Anger, trauma, and stress affect our psychological and physiological health. A psychoeducational therapeutic approach to understand how the brain processes emotions and to learn mind-body interventions for coping will help in recognizing and processing negative emotions. The neurophysiological processing of negative emotions includes a shorter subcortical path or a longer cortical path. The subcortical path, in skipping the cortex, causes the Amygdala to instantly react without conscious control, and initiates the fight or flight response. If the longer cortical path is initiated, then the Amygdala has more contextual information and allows for conscious decision-making. The intention of mind-body interventions is to allow for a cortical, conscious experience of the moment in time while redirecting negative emotions toward a positive outcome. Researchers will introduce coping skills that reflect physical, interpersonal, and relaxation methods and will utilize a directive that reconstructs the experience of anger into a positive result.

65 Bohemian Muse: Motivating Adolescents in the Realm of Literacy. *Sydney Prickett, undergraduate, Elementary Education, Early Childhood, and Special Education. Secondary teachers can play an important role in creating autonomy and motivation in adolescent literacy. This teacher action-research study follows the ten-day journey of a university faculty mentor, her secondary English pre-service teacher, and fourteen adolescent learners as they explore non-traditional literacy learning environments and real-world literacy activities. Fostering student buy-in for reading and writing comes from balancing teacher-mandated topics with giving students choices of interest in literacy assignments. What impact does the creation of these environments and activities have on student attitude and motivation? Outcomes, including survey data and examples of writing, will be presented from the experience.

66 Deep Relaxation Techniques with a Woman’s or Man’s Voice and College Students Mood. Brandon Schrader and Emily Schoenfeld, undergraduates, Psychology. This study explored how the gender of a voice during progressive muscle relaxation effects participants’ stress reduction and ability to feel more emotionally in control. In the two-group quasi design experiment, 23 Emporia State undergraduate students completed a pre-session survey, followed by a session of progressive muscle relaxation, and a post survey. Each group completed a short survey about their ability to relax, and prior experiences with Complementary and Alternative Medicine–meditation, yoga, or other relaxation techniques. After the 20-25 min session of progressive muscle relaxation, the participants also finished a brief survey on the effectiveness in stress reduction and emotional control. We expected to find participants who heard a woman’s voice to report feeling more relaxed, less stressed, and more able to control their emotions. We performed an independent samples t-test. We will discuss our findings at the presentation. This study may provide information that could be useful for professionals to perform therapy that is more effective. Additionally, results may provide guidance on how to serve the preferences of individuals who are seeking psychological help.
67 A Criminal’s Race and College Students’ Recommended Sentencing. Kenneth Sellers and Lisa Harder, undergraduates, Psychology.
Throughout history there have been issues with defendant’s races and the length of sentencing for a crime. There have been several studies that have investigated this phenomenon (e.g., Brennan, & Spohn, 2009). The majority of these studies agree that there is a link between defendant’s race and length of sentence. This study investigated the effect that race had on the length of prison sentencing. Eighty Emporia State University psychology undergraduate students read a brief scenario involving a defendant accused of committing a crime and then completed a survey to determine the length of prison sentence. In our multiple independent groups design experiment, we randomly distributed scenarios that contained different defendant races and then participants completed a survey. We expected to find that participants would give the Black defendants a longer prison sentence than any of the other races. We performed a one-way ANOVA for independent groups and we will discuss our results at Research and Creativity Day. This study could be useful when questioning potential jurors before a trial and recommending changes in sentencing guidelines.

68 The Suitability of Alpacas as Therapy Animals. Katherine Slayton, undergraduate, Psychology.
Animals have therapeutic properties, and interacting with them can assist in healing emotional wounds. The current study investigated the use of alpacas for animal-assisted therapy (AAT). I tested nine untrained alpacas from a local alpaca farm. I conducted 17 exercises from Pet Partners’ Team Evaluation for camelids, modified slightly for safety, number of assistants, and space restrictions. Two unbiased raters scored the testing videos using a modified Pet Partners scoring rubric. The Pearson R correlation was highly significant and strong (r = .80, p < .0001). Overall, results indicated that the alpacas passed the evaluations, suggesting that alpacas are suitable as therapy-animals, provided the handler trains and certifies them. Within the study, I discuss limitations, implications, and recommend ideas and alterations for future research.

69 Observational Animals During Testing College Level Classroom. Kelly Wiechman, undergraduate, Psychology.
Most people today have usual interactions with animals. Animals have become companions and are almost another child in the family in most households. Animals assist people in many ways such as through service work, in mental health treatments, and in educational settings. In many schools, animals are in classrooms and benefit students. Teachers use animals as demonstration tools, icebreakers between teachers and students, and social tools to help students with interactions between each other and with stressful situations. I was interested in determining if animals in a college classroom might similarly affect college students. In my study, students either had or did not have observational animals in the classroom during the experiment. My participants were undergraduate students enrolled in psychology courses at Emporia State University. Participants first completed a mathematics test, then a memory test, and then a reading test. After the testing portion, the participants completed a survey to measure anxiety over the testing and situation of either animal exposure or no animal exposure. I expected to find the group with the observational animals would have higher scores on all three tests and lower anxiety scores. For this poster presentation, I will discuss my findings and the implications.

70 Are College Students Able to Recall Better Using Visual or Auditory Information? Chie Zenno and Katherine Bean, undergraduates, Psychology.
Learning happens in many different ways from when people are babies until they are elderly. Many psychologists in the world have studied the different methods of learning (Ormrod, 1999). They have yet to come up with a concise answer on how best humans learn though. We wanted to see if it was possible to find out if humans learn best orally or visually. Our participants were 40 undergraduates at Emporia State University. One group of participants viewed a Power Point with a list of 20 words on it and for the other group we read the same list of words. We expected that the group who learned the list visually would be able to recall more words from the list than the group who learned them orally. We performed a t-test for independent samples to compare our groups. We will discuss our results at research and creativity day. Teachers could possibly find the results of this study helpful because if they knew how best their students learn, they could better teach them the information.
From
The Research and Grants Center,
Honors College,
and the
Undergraduate Research, Scholarship,
and Creative Activities Committee

Thank you to all of the students and faculty who gave their time and talent to make this day a success!

Save the date!
Research and Creativity Day 2016
April 28, 2016