Research and Creativity Day
Thursday, April 27, 2017

Schedule of Presentations
and Abstracts

Sponsored by:

Research and Grants Center
Honors College
Undergraduate Research, Scholarship, and Creative
Activities Committee (URSCA)
2017 ORAL PRESENTATIONS
* Scholarly products of the 2016 ESU Summer Undergraduate Research Program (ESURP)

BLUE KEY ROOM—MEMORIAL UNION


9:45—Sampling of the Diversity of Skin Microbes on Tadpoles. Candace Cote, Biological Sciences.


10:15—Break

10:30—Developing Anticancer miRNA. *Christopher Alderman, Biological Sciences.

10:45—The History and Development of the Piccolo. Hannah Haefele, Music.

11:00—A Look at Corporations and Campaign Finance Laws and Evolution. Alexandra Ewy, School of Business.


GREEK ROOM—MEMORIAL UNION

9:00—Invisible: The Unabated Suppression of Women Composers. Alexis Lowder, Music.

9:15—Imaginary Worlds in Art Therapy: Active Imagination and Self-Representation in Fan-Art. Ashley Lawrence, Counselor Education.


10:00—MicroRNA-26a Inhibits the Growth and Invasiveness of Malignant Melanoma and Directly Targets on MITF Gene. Hui Qian and Yao Yan, Biological Sciences.

10:15—Break

10:30—An Environmental Examination for Fortune 500 Website. Wenchen Fan, School of Business.


(Continued on page 3)
XI PHI ROOM—MEMORIAL UNION

9:00—Consumers’ Perception on Organic Food Consumption. Hailin Chen, School of Business.


10:00—Nación y Literatura: Analizando a Horacio Quiroga Dentro de ‘La Gallina Degollada’. Luis Sanchez Arrocha, English, Modern Languages, and Journalism.

THREE MINUTE THESIS PRESENTATIONS—10:00 a.m.—11:00 a.m.

KANZA ROOM—Time slots will be chosen by a drawing at the time of the event


Wavelet-Based Acoustic Classification of Bird Species. Ryan Frier, Mathematics and Economics. Thesis Chair – Dr. Qiang Shi.


The Menninger Clinic and Diabetes. Tyler James Johnson, Social Sciences. Thesis Chair – Dr. Gregory Schneider.


Cost-Effective Alternatives to Casting Material for Large Scale Impressions. Michelle Mills, Biological Sciences. Thesis Chair – Dr. Melissa Bailey.


This research develops a better estimating method for state GDP growth rates, at higher frequency, and more timely than current data provided by the Bureau of Economic Analysis (BEA). While the data provided by the U.S. Department of Commerce is reliable, the release cycles for quarterly state GDP can be as lengthy as five months before being reported. This research provides estimates on state level GDP growth at monthly frequencies.
with release cycles as early as five weeks after the end of each month. The methodology relies on time series forecasting on data collected from the Bureau of Labor Statistics, BEA, and Zillow Research. An ARIMA regression model is applied on historical data as well as the last twenty-four periods to generate an estimate on growth for recent months. The research borrows insights from Okun’s Law as well as considers local housing market and trends in labor and gross domestic product to improve the accuracy of the model. Trends are observed by applying a Hodrick-Prescott filter on unemployment rates and state economic output. The research estimates GDP growth for the state of Kansas as well as nearby states: Arkansas, Colorado, Iowa, Missouri, Nebraska, and Oklahoma. The model estimates are on average within 0.15 percentage points of growth reported by the BEA. Therefore the model can be considered a reliable early measure of local GDP growth.

GR06 Utility of the rpoB Gene in the Identification of Staphylococcus epidermidis Isolates from Human Skin. Charles King and Dr. Scott Crupper. An increasing number of studies are examining the human microbiome and its’ applications in forensic science. Utilizing the 16S rRNA gene for bacterial identification has become the method of choice for most researchers. However, the 16S gene is present in multiple copies and sequence variation of different gene copies can sometimes complicate identification efforts. One viable alternative that is gaining popularity is the rpoB gene. Current research suggests that not only can this gene be used for species identification; it may also be used to discriminate molecular variation at the species level better than the 16S rRNA gene. In this study, we examined the ability of the rpoB gene to accurately identify Staphylococcus epidermidis isolated from human skin. Utilizing S. epidermidis rpoB gene specific primers, the polymerase chain reaction (PCR) was used to amplify the rpoB gene from 32 human S. epidermidis isolates. DNA sequencing and subsequent basic local alignment search tool (BLAST) analysis confirmed the identity of the organisms. Our data corresponded with data obtained from the 16S rRNA gene and demonstrated its’ viability as an alternative for S. epidermidis identification.

GR07 Imaginary Worlds in Art Therapy: Active Imagination and Self-Representation in Fan-Art. Ashley Lawrence. While there is literature supporting the use of superheroes in therapy in the psychology and counseling fields, there is not such documentation in art therapy. Using fictional characters in therapy can encourage participants to project, process, and resolve problems. I would like to use fictional characters and fictional worlds in an observational case-study for art therapy. For this study, I will accept depictions from any popular fictional genre that may entertain participants to support a wider range of interests beyond superheroes. I want to solicit representations of self in fan-art to explore the use of imaginative worlds to rationalize, conceptualize, and communicate experiences typically addressed in the therapeutic setting. By understanding use of imaginative worlds, I hope to develop art therapy interventions that can help conceptualization and communication. To study this, I have developed three prompted drawing activities to explore possible graphic indicators of interest among comic convention participants’ self-representations. The first prompt is “Draw a representation of a favorite fictional place from popular media.” The second prompt is, “Reflect on a time of difficulty; once you have, draw yourself from that moment in the fictional world previously illustrated.” The final prompt is “Draw an imaginative world of your own design.” After each drawing, there will be a series of questions about the artist’s interpretation of art and process.

GR08 Invisible: The Unabated Suppression of Women Composers. Alexis Lowder. Throughout the history of Western classical music, women's contributions have been restricted by exclusion from education/professional opportunities, prejudice of music publishers and critics, and societal attitudes that sought to confine them to the domestic sphere, among other factors. Despite gains made by women musicians in the 20th century (such as rescission of conservatory rules which limited what areas of music women could study) and women in general (suffrage and other legal gains) and the birth of feminist musicology in the 1970s, women composers still remain severely underrepresented in the classroom and concert hall. This presentation will examine the role gender has played in shaping the development of Western art music, as well as solutions to remedying the underrepresentation of women composers.

GR09 Ecological Innocence: It’s not for Everyone. Brandy Nance and Jon Leach. The discussion of environmental preservation has intensified as a result of shifting US and world political administrations, and scholars have, in kind, strengthened their engagement with questions of land use and access. While the examination of these topics is not new, long-standing presumptions related to these issues can still be seen in a variety of media. This joint presentation employs a variety of ecological perspectives, particularly eco-feminism, to explore images of land use and access is film and image that exploit the ideas of innocence and nature. Deconstruction images of children in popular media reveals implications including the imposition of “green ceiling” on children who are not included in the images as well as the obscuring of the privilege inherent to those children who are exposed to nature.
Symbolic Interactionism will be applied to social media while Exchange Theory is applied to texting and driving, and Addiction and Mobile Communication Technology. Each theory will be applied to a specific area of technology addiction.

With technology advancement occurring at an exponential rate, humans have assimilated many of these products into their daily lives. In many cases, the thought of daily life without certain types of technology would create uneasy feelings or even panic. By using three select contemporary sociological theories: Symbolic Interactionism (Dramaturgical Approach), Exchange Theory, and Organizational Theory (Mimetic Approach), I will attempt to explain why this technology is of great importance to the user. The two main forms of technology addiction analyzed are General Information Technology

**GR10 Art Therapy for Social Change.** Kimberly Nguyen

The theme of this group discussion is to understand art therapy’s role in social justice with regard to race, class, gender, sexuality, and other dimensions of inequality and identity. According to Pew Research Center (2012), American ethnic minority groups make up 30% of the U.S. population and will increase by the year 2050. Also, by the same year, the percentage of foreign-born Americans will increase from 11% to 19%. Additionally, researchers have estimated the percentage of individuals who identify as LGBTQ make up about 5% of the U.S. population. Minority groups make up a growing portion of the population yet continue to be marginalized. Despite minorities making up a significant part of the population, there is evidence of tensions that potentially erupt into violence. This group’s topic is organized in response to the urgency to obtain social justice for these groups. The goal of this discussion is to explore preventive measures and how art therapists can respond to social crises within the community.

**GR11 MicroRNA-26a Inhibits the Growth and Invasiveness of Malignant Melanoma and Directly Targets on MITF Gene.** Hui Qian and Yao Yan.

Metastatic melanoma is the most aggressive form of skin cancer and is refractory to therapy. MicroRNAs have been recently discovered as novel molecules that provide therapeutic benefits against melanoma. This work aimed to examine the effect of two microRNAs, miR-26a and let-7a, on growth and invasiveness of malignant melanoma in vitro and in vivo, and elucidate the mechanism of action by identifying the target gene of miR-26a. Both miR-26a and let-7a inhibited proliferation and invasiveness, and halted the cell cycle at the G1/G0 phase in SK-MEL-28 and WM1552C malignant melanoma cell lines. MiR-26a potently induced apoptosis. MiR-26a downregulated the expressions of MITF and MAP4K3 in both cell lines. The luciferase reporter assay demonstrated that miR-26a can suppress gene expression through the binding site in the 3’ UTR of MITF, suggesting that MITF is a bona-fide target of miR-26a. siRNA knockdown of the MITF gene confirmed that miR-26a reduced cell viability and induced apoptosis by regulating MITF. In vivo, miR-26a significantly retarded the growth of melanoma tumors in the mouse model. In conclusion, miR-26a and let-7a represents a novel therapeutic strategy against human malignant melanoma.

**GR12 Comparisons of Fossil Biotas of the Late Carboniferous Garnett and Hamilton Quarry Localities, Eastern Kansas.** Randol Wehrbein.

Garnett and Hamilton Quarry fossil localities of eastern Kansas represent one of the most comprehensive windows to nearshore terrestrial paleoecosystems of the Late Carboniferous, approximately 299 to 306 million years ago. Both localities contain exceptionally preserved plants, invertebrates, and vertebrates. Although Garnett and Hamilton have been compared globally to other Carboniferous localities, rarely are they compared to each other. A goal of this project was to make direct comparisons of the localities based on the fossil taxa to gain a better understanding of how their biotas are similar and different. Representatives of the invertebrates bivalves, brachiopods, arachnids, cockroaches, and dragonflies were found at both Garnett and Hamilton. However, genera of these groups at the two localities were completely different with the exception of Neospirifer and Myalinella. Furthermore, only Hamilton has gastropods, shrimps and millipedes. Among vertebrates, fish are the most diverse at Hamilton. Only coelacanths and xenacanthid sharks were found at both localities. Batrachomorph amphibians are found at both, whereas reptilomorph amphibians are only found at Garnett. The earliest and most primitive diapsid reptile is from Garnett, and Hamilton has a closely related species. In contrast, Hamilton has the most basal eupleurocous synapsid, whereas Garnett has more derived species, even though the latter locality is older. At Garnett, seed ferns have the highest plant diversity and conifers the lowest, whereas at Hamilton it is the reverse. Overall, Garnett has a more terrestrial biota, whereas Hamilton Quarry has a more freshwater aquatic biota.

**GR13 Addictive Tech: Application of Sociological Theory to Technology Addiction.** Derek Wilson.

Turning the focus to images of film portrayed on screen, the apocalyptic rhetoric employed in much environmental discourse, which is propagated in Ridley Scott’s 1985 Legend, is reexamined as it applies to the innocence of key characters, problematizing surface-level interpretations of “good and evil” as the characters’ motivations are explored in relation to the land.

(Continued from page 5)
(Continued from page 6)

Organizational Theory to mobile gaming. Each theory will then be evaluated to see which, of the three, is most applicable to technology addiction in a general sense.

**Undergraduate Students**

*Scholarly products of the 2016 ESU Summer Undergraduate Research Program (ESURP)*

**UG01 Developing Anticancer miRNA.** *Christopher Alderman.*

MicroRNAs (miRNAs or miRs) are small noncoding RNA molecules that negatively regulate gene expression. MiRNAs can affect the behavior of tumor cells by modulating the expression of target genes that are involved in tumor growth, apoptosis, and invasiveness. The goal of this research is to examine the effects of miR-15a on the proliferation and invasiveness of malignant melanoma in vitro, as well as the therapeutic effect of miR-15a in a mouse melanoma model. Through experimentation, we found that miR-15a displayed inhibitory effects on proliferation and invasiveness of SKMEL-28 and CRL-2808 cell lines. Flow cytometry analysis of cells treated with miR-15a showed an arrest in the cell cycle at G1/G0 phase. Moreover, through use of the luciferase reporter assay, miR-15a was found to suppress gene expression through the binding site in the 3’ UTR of CDCA4, determining it as a bona fide target of miR-15a. Our current studies are looking at the advantages to using dCas9 for transcriptional control of miRNAs. We are working to use this technology to improve miRNA delivery options. Through miRNA targeted therapy and delivery, we will be able to establish new methods for precision medicine. Lastly, we have also started to look at ways to apply this knowledge to the local community by working out plans to partner with healthcare institutions in Kansas for research collaboration opportunities.

**UG02 Blockage of IL-2 Signaling at Birth Increases Bacterial Diversity of the Intestine.** *Ana Castro Munoz.*

The intestinal tract is perhaps the most immunologically relevant site because is heavily colonized by microbes. The initial colonization occurs at birth and the subsequent immune response could establish a balance between effector T-lymphocytes (immune response) and regulatory T-lymphocytes (tolerance). Interleukin-2 (IL-2), a cytokine signaling molecule, is important in the activation of T-lymphocytes. Therefore, the objective of this experiment is to assess if blocking IL-2 signaling during the perinatal period in mice affects the bacterial communities that reside within the small intestine. An antibody specific for the IL-2 receptor (anti-CD25) has been shown to block IL-2 signaling in mouse models. We collected matter from the intestinal lumens of mice injected with anti-CD25, or control antibody, before (via injection into pregnant mothers) and/or shortly after birth. DNA from these samples were subjected to a molecular technique called Ribosomal Intergenic Spacer Analysis (RISA). Because it is not critical for rRNA function, the region between rRNA subunits contains significant length variability between bacterial species. Therefore, bacterial communities can be compared by analyzing the length and intensity of the resulting bands in a polyacrylamide gel following electrophoresis of the PCR products. For further taxonomy studies, the samples were sent for sequencing analysis. The small intestine bacterial community varies greatly between animals. From the RISA gels, we can observe an increase bacterial diversity when IL-2 have been blocked from birth through day 20. Also, it is likely the first 3 days of birth are the most important. The results showed that RISA is specific for bacterial DNA and the technique is useful for a wide range of bacterial DNA concentration

**UG03 Sampling of the Diversity of Skin Microbes on Tadpoles.** Candace Cote.

Worldwide amphibian populations have dwindled as the result of pandemic chytrid infections. Recent studies have shown that the composition of amphibian skin microorganisms can determine how resistant individual populations may be to chytridiomycosis. Our research question ponders whether the skin microorganisms of the tadpoles is altered by the water and soil of its environment. We are sampling the skin microorganisms of tadpoles of Rana sphenocephalus (the Southern Leopard Frog) in order to characterize the diversity of skin microbes on this particular species of frog. The microbial 16S rDNA is being amplified by PCR and cloned in order to create a bacterial library that can be sampled by Sanger Sequencing to identify the bacterial species from skin microbiome. In a future study, we will compare the skin microbiome of adult frogs to the tadpole stage and environmental samples. These studies may allow identification of bacterial species that confer resistance to chytrid infections, and may lead to “seeding” of beneficial bacteria into environments that are prone to chytrid proliferation.

**UG04 A Look at Corporations and Campaign Finance Laws and Evolution.** Alexandra Ewy.

The concept of Free Speech is one that is integral to the United States and is often times cited as a cover for controversial statements and actions. Following the landmark Citizens United case, the Supreme Court, on a narrow margin, gave corporations and labor unions the same rights to free speech as people when it came to spending money on PACs and other campaign tools. While corporations and non-profits have had a role in the campaign finance arena for more than a few decades, this case certainly opened up the floodgates of involvement and controversy. This presentation highlights some of the current rules and key groups, how things have changed in recent decades, and the court cases and companies that have shaped our current federal landscape.
UG05  Heart Rate Recovery Analysis among Untrained, Recreationally-Trained, and Well-Trained College Students. Megan George.

The purpose of this study was to determine if there were significant differences amongst untrained individuals, trained individuals, and collegiate cross country athletes heart rate recovery time after moderate intensity exercise. Participants sat down and had their resting heart rates measured and recorded. They had a pulse oximeter measuring their heart rate throughout the test. Participants walked/jogged on a treadmill until they reached 70% of heart rate maximum. They maintained 70% of their heart rate maximum for 4 minutes. Once heart rate was maintained for 4 minutes, they ceased physical activity. Their heart rate was monitored and timed until their resting heart rate is reached. Among the three groups, there were significant differences. CONCLUSION: Athletically trained athletes have a faster heart rate recovery time than untrained and recreationally trained individuals. Recreationally trained individuals have a slower heart rate recovery time than athletically trained individuals but a faster heart rate recovery time than untrained individuals. The type of training an individual has will impact their cardiorespiratory fitness and alter their heart rate recovery time. Training status plays a role in heart rate recovery time which is a determiner of health status.

UG06  The History and Development of the Piccolo. Hannah Haefele.

The piccolo is the smallest member of the flute family, and it is also the most intriguing. Most flute players either love or hate the piccolo. People outside of the flute community don't really know what to think of the “small” flute. The one thing that flutists and other musicians should know is that the piccolo is its own instrument. It belongs to the flute family and shares many features with the concert flute, however there are multiple differences that one should be aware of. Throughout the past few centuries, the piccolo has seen much development and change. It has had a long history, from first being interchangeable with recorder to becoming an instrument in its own right. The piccolo is often misunderstood by flutists, other musicians and non musicians, but it does not have to be that way. Adding piccolo to a flutist’s arsenal allows for performance of more repertoire as well as increased marketability when it comes to finding jobs. The piccolo is much more than a member of the flute family, and it deserves as much respect as its larger sibling.

UG07  The Folly of Luis Solér y las Balsas: Eighteenth Century Spanish Racism. *Sarah Spoon and Dr. Rachel Spaulding.

In 1758, Don Luis Solér y las Balsas, a rich, white doctor of law at the University of Zaragoza, completed his artistic task of composing an "unauthorized" Vida of Sister Theresa Juliana de Santo Domingo, an African nun revered for her piety, also known as Sor Chicaba. Her official life story had first been published in 1752. In contrast to the reverential tone of Chicaba's official religious biography that praises her piety, Solér y las Balsas' handwritten manuscript, now archived in the Schomberg Center for Rare Manuscripts at the New York public library, in his esteem, praises her in a way that appears to conform to the conventions of the mock encomium. In this presentation, we closely read and analyze his epic poem so as to interpret it as a praise of her folly. In his distortion of the Catholic Church's authorized story, his four Cantos reveal his discontent with the official position to honor the African nun. His verses rhyme and include in text references that seem to mount a legal defense against the Church’s decision, as he contests her worthiness as a venerable subject. A close reading of Solér y las Balsas poem may reveal more about the evolving racially motivated attitudes of eighteenth century Spanish society than Chicaba herself.


The history of a musician's instrument is knowledge that is essential to the success of that musician as both a scholar and performer. The research presented within this poster explores the developmental history of the clarinet and the parallels between technical innovations of the instrument and the technical demands of many pieces of solo literature commissioned for the annual "Concours Clarinet Competition" held at the Paris Conservatory of Music during this time.

UG09  Individual Differences Between Two Anthropologists. Brittany Williams.

I will discuss two leading figures in cultural anthropology, Ruth Benedict and Margaret Mead, as well as compare and contrast the life works of both women in terms of their educational background, research techniques, pervasiveness in their field, and criticisms of their work. Benedict and Mead had remarkably similar techniques in their research methodologies; field studies led both women to become substantial figures in establishing the configuration approach of anthropology—an approach that studied whole cultures and the cultures’ effects on the individual. The women contrasted in their specific interests—Benedict took a broader path in exploring the larger effects of culture on personality which preceded Mead’s more detailed path of exploring sexuality and gender roles. No matter the contrast, both women working through the outlet of their configuration approach came to the everlasting anthropological truth that culture, rather than biology, has the greater influence in shaping the personalities of individuals who make up a society.
2017 POSTERS

* Scholarly products of the 2016 ESU Summer Undergraduate Research Program (ESURP)

COLLEGE OF LIBERAL ARTS AND SCIENCES

P01  Paws and Purrs Therapy and Certification.  Natalie Adams, undergraduate, Biological Sciences.
For thousands of years, animals have been kept as pets by people. Overtime, people have realized the benefits of having a pet as a companion. Increasingly, pets are being used in nonprofit organizations and other organizations for therapeutic needs for humans of all ages. In my research, I discuss the types of pet therapy offered and the certification requirements for anyone willing to register his/her pet as a therapy animal when working in a nonprofit setting. I will explain the definitions of pet therapy and service animals, as well as answer the question; is certification necessary for the protection of the people being serviced as well as the animal assisting? Many nonprofits work with animals in order to help people with mental and physical disabilities and ailments. Therefore, those organizations must know the proper policies and applicable laws for setting up a program that truly does benefit both parties.

P02  Chopin and the Piano.  Lori Ahuja, undergraduate, Music.
Born in the early stages of the romantic period, Chopin’s music was in tune with the artistic and intellectual movement of the 19th century. From a young age, it was clear that Chopin had incredible talent. With the help of his musical family and professors Chopin was able to further that talent to become the composer who contributed the most significant works to the piano’s repertoire (Libbey). Though there were many outstanding composers and performers during the romantic era of music, Chopin stands out because of his inventive performances and number of significant compositions. He illustrates the romantic period perfectly with his emotional pieces that tell a story and intrigue the audience. Some of his famous works such as “Prelude in E-Minor”, “Nocturne in E-Flat Major”, and “Sonata No. 2” have gotten the attention from other people because of how they leave the audience feeling which shows Chopin’s power as a composer.

P03  Energy-Dependent Attenuation of Beta Radiation from Strontium-90 and Thallium-204 by Brass Shielding.  Abdullah Aladim, graduate student, and Dr. Jorge Ballester, Physical Sciences.
The purpose of this experiment is to measure the difference between beta radiation (i.e. electrons) from Strontium-90 and Thallium-204 by passing the radiation through different thicknesses of brass shield. This makes it possible to calculate the mass attenuation coefficient and the half-value layer of brass. It is also possible to distinguish the beta radiations from each other according to their energies. Since beta particles carry negative charge and small mass, they are deflected by a magnetic field much more than larger particles. In addition, we study the effect of a magnetic field in changing the travel direction of beta particles. Particles with low energy are deflected by the magnetic field at a large angle into a Geiger tube. Moreover, particles with low energy are deflected at small angles. In the end, absorption coefficients and beta energy spectra of both Strontium-90 and Thallium-204 were obtained. Furthermore, some preliminary results for energy-dependent absorption were obtained.

P04  Developing Anticancer miRNA.  *Christopher Alderman, undergraduate, Biological Sciences.
See abstract on page 8.

P05  Feedback and Second Language Writing Students.  Saleem Almalky, graduate student, English, Modern Languages, and Journalism.
Feedback is one of the essential parts of the learning process for Second Language writing (L2). Many teachers and students do not concern about the feedback while it supports them. Feedback is considered an essential element that helps the second language writers to improve their ability of writing. This poster will represent the Emporia State University’s students and teachers' perspectives toward feedback. This process of getting their perspectives coming through the survey that is shown in the poster. This poster, by using the result of the survey, explains which kinds of feedback are workable and effective with the students and how much students rely on the teacher's feedback. Moreover, through the result of this survey, teachers will know their students' preferences by giving feedback, which enables them to minimize the gap of learning process by following their students' choices. In the same manner, by this survey, students can convey their messages (opinions) to their teachers about their methods of writing feedback. Finally, this poster reflects the result of that survey about feedback by analyzing it, then, coming up with effective outcomes; then, depending on this outcome, I can list many important suggestions to both teachers and students that may help them to be in a good shape.
P06 In Search of a Motorless Myosin in Mouse. Abdulkaareem AlShaheeb, graduate student, Biological Sciences. Myosin is an actin-based motor protein that is found in eukaryotic cells, and contributes to many processes involving intracellular movement. Class V myosins play a major role in transporting various cargoes in nerve cells. In Caenorhabditis elegans, an alternatively-spliced transcript of myosin V codes for a motor-less version of the protein. The function is uncharacterized, but we have shown that it interacts with a protein called Vig-1, an RNA binding protein. We would like to demonstrate that a similar version of this highly expressed motor-less C. elegans myosin V is also present in mammals. Plasminogen Activator Inhibitor RNA-Binding Protein (PAI-RBP) is a mammalian homologue to Vig-1, so we have used it as a bait in the yeast two hybrid system to see if it interacts with mouse myosin V. A PAI-RBP fragment was generated and cloned into the bait vector, transformed into yeast and mated to a yeast strain carrying the mouse brain transcriptome library. The mated cells were screened for activation of reporter genes, indicating a protein interaction with PAI-RBP. Sixty-five positive colonies were randomly selected for DNA sequencing of the prey plasmid. As expected, approximately two-thirds of the prey inserts were out-of-frame and did not code for proteins in the database; none of the prey plasmids contained a myosin sequence. However, alignment of the prey protein sequences revealed a consensus sequence with similarity to a peptide encoded in the mouse myosin Vb gene. Confirmation of the expression of this previously unidentified product are currently underway.

P07 Operation of Laser Diodes and Light Emitting Diodes from Semiconductor Junctions. Adeem Alshammari, graduate student, and Dr. Jorge Ballester, Physical Sciences. The purpose of this project is to explore one of the most common light source operation processes. The basic idea is to produce a wide range of light sources by using solid state materials known as semiconductors. Semiconductor junction structures are modified in order to produce light. Semiconductor junctions are able to produce two types of light, which are laser diodes (LD) and light emitting diodes (LED). This project presents some of the theoretical and experimental differences between LD and LED. Furthermore, there are some measurements of both LD and LED properties such as, spectrum, central wavelength, minimum voltage, and light output. In the experimental procedure, only one LD with one well-defined wavelength was used. However, several different LED’s with different colors and broad spectra were used. Using LED’s an experimental value of Planck’s constant was also obtained.

P08 The Population of International Students in Emporia State University. Ali Asiri, graduate student, English, Modern Languages, and Journalism. Emporia State University is one of the U.S. universities that has a considerable number of international students. Those international students represent a wide variety of countries from around the world, and they are considered an important source of economic benefits for the university. They also come from different backgrounds and cultures which are different from the U.S. culture. These differences require some investigations about those students' needs and perceptions about ESU to ensure they continue their contributions to the university's success and diversity. Therefore, I argue that ESU administrators need to be aware of those students' presence and to continuously investigate their needs. For this reason, I will present this poster that deals with the international students in two main parts; the first part introduces them in terms of numbers and where they come from. The second part of this poster focuses on showing those students' perceptions about ESU and what they need to be improved or changed in the university. These perceptions are derived from a survey that has been conducted and distributed among the international students. I hope that this poster sheds some light on this crucial part of ESU population in order to enable the officials and administrators of ESU to hear what those students want to say about their university.

P09 The History of the Flute. Lea Baysinger, undergraduate, Music. From the beat of the drum during a traditional Mayan ceremony, to waves of people spending vast amounts of time and money to see live musical performances in the modern age, music has undoubtedly become intertwined and essential to human life and activity. While there are countless instruments that are played and used for a variety of purposes, there is one particular instrument that has been fundamental to cultures and entertainment since even before Greek civilization: The flute. From whistles, to recorders, and to what is now known as the western-styled concert flute, the flute had evolved from being a basic wind conduit to becoming an instrument that has been ingrained in multiple cultures across the world, and even now is an instrument essential to orchestras and bands. The exact significance of the flute can be seen through its appearance throughout history and various cultures, its evolution to its current western-style form, and through the famous players that have mastered the instrument.

P10 The Positives and Negatives of Different Staffing Strategies in Hospitals. Eli Bozarth, undergraduate, Nursing. The purpose of this paper is to compare the positives and negatives that are associated with different kinds of staffing within hospitals. This includes self scheduling, also known as decentralized staffing, and centralized staffing. Nurse staffing is very complex and time consuming. There are many different kinds of scheduling or staffing that can take place

(Continued on page 11)
in a hospital including decentralized staffing; this is when the managers of each unit schedule their own staff. Another technique of staffing is centralized staffing; this is when a staffing office does the staffing for all the units within the hospital. Staffing in hospitals is a very important and controversial topic. It is proven by many studies that understaffing in hospitals had a direct relation with patient satisfaction and patient outcome. Each kind of staffing has positives and negatives, but in the end it depends on the kind of people that are working on the unit that determines which type is most appropriate.

This poster presents the clarinet and a short description of its history. It also includes types of clarinets, ensembles the instrument is involved in, influential composers, and known clarinet players.

The purpose of this poster is to illustrate the impact that a shared governance structure has on the nursing profession, the patients, and the organizations implementing the structure. Implementing a shared governance takes time, commitment, and teamwork. The nursing profession that works under such structure take control of their practice, are empowered, and develop their professional skills; the patients obtain high-quality care that is both competent and safe; and it helps organizations break barriers between disciplines, promote a positive work environment, and create a well-rounded organization.

Opera is one of the most creative art forms to exist. For over five hundred years it has developed from simple melodies and performances to the grandiose spectacles that we know today.

Colonization of bacteria begins in the small intestine shortly after birth as the newborn transitions from the sterile conditions in utero. The resulting microbiome-laden intestinal lumen drives the development of mucosal immunity and tolerance. The objective of this study is to determine if IL-2 signaling modulates the response to initial colonization. We manipulated mucosal response to colonization using an IL-2 receptor antagonist (anti-CD25) utilizing in vitro and in vivo models. Mouse fetal explant cultures established from small intestine were incubated with or without heat-shocked intestinal bacteria in the presence or absence of anti-CD25. The responses were compared by measuring the expression of Tnf, a gene associated with inflammation and Il10, which is attributed to anti-inflammation. In vivo experiments involved injecting dams and/or their offspring with anti-CD25 and determining effects on expression of the same genes in the small intestine of 4-week old offspring. The in vitro experiments revealed no difference among the treatments for either gene, indicating the fetal explant cultures did not respond to bacteria. However, blocking IL-2 signaling in vivo had an effect on the expression of immune genes in weanling mice. Expression of both Il10 and Tnf genes were decreased when dams were injected with anti-CD25 shortly before parturition. Postnatal injection was similar to control. These results indicate the initial response to microbial colonization occurs within 3 days of birth and can be impaired when anti-CD25 antibodies are delivered via placenta.

P15 Blockage of IL-2 Signaling at Birth Increases Bacterial Diversity of the Intestine. *Ana Castro Munoz, undergraduate, Biological Sciences.
See abstract on page 8.

Colleges and universities connected with Universities Fighting World Hunger (UFWH) have illustrated the waste in dining halls in a variety of ways. This study is an attempt to illuminate a more sophisticated approach to measuring typical waste products (e.g., food, liquids, and paper/plastic) along with providing benchmark amounts for scholars to use in a cross-disciplinary approach. This collaboration involved the combination of students from Honors Economics and Economics Capstone in April 2017 at Emporia State University. The design and implementation involved students and their professors in economics and physics, where the cross-disciplinary collaboration of economics, physics, and other majors led to significant improvements. For example, we used highly-precise Force Plates for measuring relatively heavy objects (e.g., large trash barrels). Specifically, we simultaneously measured the separated weights of discarded food, liquid, and paper over the entire lunch serving cycle every day for a week. Using three force plates connected to a laptop and dedicated software allowed us obtain and record these three separate weights each minute. The analysis that follows reveals some

(Continued on page 12)
interesting insights. Like other universities that pioneered measuring waste, we knew changes were to be expected over the week. However, time of day and other variables revealed interesting differences that other scholars may find useful along with benchmark data that might allow them to use our results in determining the relative amount of food waste when separation is challenging for them or if they lack some of the rather expensive equipment we were able to use.

As Muslim women migrate to the United States, they are faced with many challenges to navigate American way of life. This study seeks to distinguish how well Muslim women are able to assimilate to modern American society. This assimilation could be achieved through involvement in the public sphere by seeking higher education or through pursuing employment outside the home. Muslim women could also assimilate in a more pluralistic form through continued involvement in their pre-existing culture and norms by raising their children in their beliefs, belonging to Muslim communities, and believing the government needs to be more involved in instilling morality in the United States. All of these variables impact Muslim women’s satisfaction in living in the United States and their ability to become contributing members of society.

The rise of the Communist Party in western Europe and Eastern Asia affected the arts during the mid-1900s. Music written by Dmitri Shostakovich, a Russian composer, showed the effects of the Communist Party on Soviet music. His musical works went from being experimental and modern to familiar and historic. Some argue that his works shift in style as Shostakovich became more supportive of the Communist party. Yet others believe that his music contains the untold, melancholy story of the Soviet Union under the control of Stalin and the Communist Party. Shostakovich's music continues to captivate audiences with its authoritative tones and subtle, historical accounts of life in the Soviet Union.

P19 Investigating Taste and Odor Issues in Burlington, KS Water. Colin Dallimore, Ashley Clifton, and Scott Romeiser, undergraduates, Dr. Qiyang Zhang, and Dr. Diane Nutbrown, Physical Sciences.
Water security is a growing issue in the midwest due to the depletion of the Ogallala Aquifer. To ensure Kansans have enough water for the future, the Army Corps of Engineers has established multiple reservoirs in the state, including the John Redmond Reservoir (est. 1963) which relieves flooding in surrounding areas and provides another source of water to south-eastern Kansas. The reservoir's water capacity steadily decreased in the last fifty years as sediment from the banks of rivers, including the Neosho River, accumulated in the reservoir. To address this issue, the reservoir was dredged in the summer of 2016. Recently, residents from the Burlington community, a small town with a population of approximately 2,500, reported that the water smelled like cucumbers and tasted “earthy” (Petterson, 2017). Staff from the Kansas Water Office (KWO) are concerned that the issue is a result of the dredging, and, they proposed that trans-2, cis-6-nonadienal, a product of the algae Synura petersenii, is the most likely cause of the odor and taste issue. We are helping the KWO determine the source of the cucumber smell in the water supply by measuring the concentration of trans-2, cis-6-nonadienal in water collected at nine sites between the reservoir and Burlington. The target analyte will be detected using gas chromatography-mass spectrometry. With our results, we hope to identify source and location of the taste and odor issue.

P20 A Brief History of Ralph Von Williams. Tyler Demaree, undergraduate, Music.
Ralph Von Williams is one of the most well known composers. His life is an inspiration to modern composers and music educators because of his continual strive for music education and continuing music in the world. The poster is part of my Music Appreciation class and the research topic is Ralph Von Williams' life.

Historical background provided for the cast and production team of "Sense and Sensibility". A quick look into life in Regency England that helped prepare the cast to exist realistically in that world.

P22 There's No Place Like Home: Connecting 3rd Graders and Primary Sources to Meet State Social Studies and Literacy Standards. Elly Dice, undergraduate, and Dr. Darla Mallein, Social Sciences.
According to the Kansas History/Government/Social Studies standards, third graders in the state of Kansas are expected to “recognize and evaluate the significant people and events that shaped their hometown.” To help meet this standard, students are required to identify and compare information from primary and secondary sources. However, according to a needs survey with third grade teachers in Emporia, teachers have difficulty accessing primary sources related to the history of Emporia because many have not been digitized or are not easily accessible by the public. Therefore, the purpose of this research project was to develop primary source activities that could be used to meet state standards. This involved conducting research at the Lyon County Historical Society Research Center and the Emporia State University Archives to (Continued on page 13)
find print and photo primary sources related to the history of Emporia. The research also focused on digitizing primary
source photographs and documents that were used to develop curriculum units that contained a variety of materials. Some
of the primary source activities included: Founding City of Veterans Day (Eisenhower photographs, letter correspondence
between Alvin King/Eisenhower); Then and Now Map Activity (Compare and Contrast 1886 Map to Current Map of
Emporia); Then and Now Street Scenes (Compare and Contrast photos of same downtown street view from 1886, 1926,
2016); Famous Landmarks (Red Rocks) and Places of Interest; Veterans Day Timeline.

P23 Colonialism's Masquerade. Katelyn Dold, undergraduate, English, Modern Languages, and Journalism.
Nigerian playwright Wole Soyinka’s Death and the King’s Horseman concentrates on the corrosive clash between native
Nigerian cultures and encroaching British colonialism in the mid-twentieth century. In my analysis of one specific scene, I
explore how Soyinka represents this nasty, jarring conflict through the colonists’ mindless desecration of the natives’
powerful, religious Egungun masks. However, while this scene—and the whole play—focus on the attempted eradication
of native customs, it also subtly divulges the presence of many striking similarities between colonialism and Nigerian
religious culture through the symbolic use of the influential Egungun costumes.

P24 Integrating Technology to Improve Teacher Feedback for L2 Writers. Derek Feilmeier, undergraduate,
English, Modern Languages, and Journalism.
Feedback is one of the most important parts of the learning process, but exactly which techniques are best for L2 (college-
level students whose first language is not English) learners is a highly debated topic among scholars. Furthermore, little
research has been done to explore how technology can be integrated into teacher feedback to provide a better learning
experience for L2 students. This project will use past research on which feedback techniques are most effective and explore
what kinds of technology can be used to augment those techniques. The types of technology applied in this project will be
online-oriented such as screencasting, Word comments, audio recording, and student-lead discussion boards.

P25 Multilocus Sequence Typing of Human Skin Staphylococcus Epidermidis Isolates: Applications in Microbial
Forensics. Yuan Feng, graduate student, and Dr. Scott Crupper, Biological Sciences.
Making human identification using skin microbial drew great interest recently. To investigate skin microbial of distinct
individuals, we identified 256 bacterial isolates from skin of three individuals and pinpointed one bacteria –
Staphylococcus epidermidis, which accounts for 50% of cultivable bacterial on human skin. We demonstrated phylogenetic
analysis using sequence data from multilocus sequence typing (MLST) scheme for 29 S. epidermidis from three individuals.
The study suggested that each individual’s cohort of S. epidermidis were unique enough to discriminate them from each
other even with limited sample sizes.

P26 Wavelet-Based Acoustic Classification of Bird Species. Ryan Frier, graduate student, Mathematics and
Economics.
Classifying birds based off their calls can be extremely useful in the realm of biology, specifically ecology. In this paper we
consider the calls of the Whip-poor-will, the Northern Bobwhite, the Barred Owl, the Eastern Kingbird, and the Common
Raven, and ways of using classifiers to separate the bird species based off these calls. In this study, we segment the bird
calls into syllables. Then we apply wavelet decomposition to decompose the recordings of the bird calls, and extract certain
parameters from the syllables. All of the instances and the parameters are placed in an Excel file, and uploaded into
WEKA, a software for classification. We used various different classifiers to classify the different syllables, but Random
Tree and Random Forest were the most successful in our study. Both of the classifiers achieved over 70% accuracy on the
data set that contained the various species of birds.

P27 Crazy Horse. Samantha Gamble, undergraduate, Social Sciences.
My poster will have the history of Crazy Horse's life. There will be significant events shown and his tragic death. There
will be a section of sculpture of Crazy Horse and the future for it.

The purpose of this project was to study in depth the life of Robert Schumann, a famous composer from the Romantic
period of music. Robert Schumann was an accomplished composer, critic, and figure during the Romantic period.
Schumann wrote many pieces of music that have impacted music following the Romantic period. He was also very
influential in discovering the talent of other composers and musicians during his lifetime.
P29 Stand with PP. Victoria Goetzinger, undergraduate, English, Modern Languages, and Journalism.
My composition II research provides the framework of Planned Parenthood’s mission along with historical context and why the nonprofit should be federally funded. A presentation based off the research will examine the significance of reproductive healthcare services and describe the access each socioeconomic group has to those medical resources. The overall stance of the research is to explain both sides of the argument and prove how defunding the organization would be detrimental economically and socially.

P30 Characterization of Melatonin Signaling in Wild-Type and Mutant Strains of C. Elegans. *Antonia Harrell, undergraduate, and Dr. Stephen Fields, Biological Sciences.
Melatonin (MEL) is well-known for its role in circadian rhythms but may also regulate neuronal plasticity. The Caenorhabditis elegans genetic system would be a valuable tool in determining the impact of melatonin on the nervous system. Previous studies have suggested that: 1) MEL is associated with reduced locomotion in L4 and adult stage C. elegans; and 2) MEL upregulates acetylcholine signaling in annelid larvae. The purpose of this study is to determine the effects of melatonin on worm behavior and on neuronal growth and development in primary cell cultures. Embryonic C. elegans cells expressing a GFP transgene marking all neurons were grown on coverslips in L-15-10 medium with or without 1mM MEL. Cells were imaged after a seven-day incubation period. The effects of MEL on neuronal growth is currently being analyzed. Paralysis rates of wildtype (N2) C. elegans were measured using NGM plates containing 2 mM aldicarb (ALD) in the presence and absence of 1 mM MEL. In the presence of both ALD and MEL, N2 worms paralyzed significantly faster than on ALD alone. EMS mutagenesis progeny were screened using ALD+/MEL+ plates. Seven mutant strains paralyzed at significantly slower rates than wildtype. Further analysis of these mutants showed that crawling rate of at least 3 strains is not modulated by MEL, suggesting potential insensitivity to MEL. Identification of the mutated genes in these strains will aid in characterizing the C. elegans signaling pathway in neurons. The authors thank the K-INBRE program funded through the NIH under grant number P20GM103418.

P31 Communicative Language Teaching in Japan. Takuya Higuchi, undergraduate, English, Modern Languages, and Journalism.
The question of whether communicative language teaching (CLT) is beneficial for second language (L2) learners has been widely debated in the L2 writing field, with scholars as Ishihara (1996) and Casanave (2004), arguing the importance of the interaction between teachers and students. However, these works have not adequately addressed the issue of the specific L2 context, specifically when considering English language classes in other countries. My paper addresses the issue of the communicative writing method with special attention to English education in Japan. Specifically, I will investigate at the importance of interaction in the Japanese English context and will compare it with Japanese traditional grammar-based English education, in order to show best practices. I will also discuss L2 writing and its connection to transdisciplinary writing theories. In addition, I will argue that student-teacher interaction helps students develop their target language proficiencies. Moreover, I will address the issue of Japanese English education and suggest a more effective way to learn English in the context of Japan. In conclusion, by closely examining Japanese education, my project sheds new light on the rarely acknowledged issue of the English education in the Japanese context. I believe this research is helpful for the future teachers who want to teach English in Japan.

P32 Evaluation of Swab Wetting Agent Efficacy in Collecting Touch DNA. Samantha Hobson, graduate student, and Dr. Scott Crupper, Biological Sciences.
Touch DNA, while useful as forensic evidence, can be difficult to collect due to both quantity and quality of the sample. A typical forensic laboratory uses the double swab method with sterilized water when collecting touch DNA; however, research has shown that dilute detergent solutions may help solubilize the few cells present and yield greater DNA amounts. This study looks further into the use of detergents and solvents as swabbing solutions in order to add to the current data pool. Six wetting agents, comprised of either detergents or solvents, along with sterile water, were used to swab fingerprints deposited on sterile microscope slides: sodium dodecyl sulfate (SDS), Triton-X-100, Tween 20, nonidet-P40, dimethyl sulfoxide (DMSO), and N,N-dimethyl formamide. Each detergent type was further split into dilutions of 5, 1 and 0.1 percent to evaluate the effect of concentration on DNA yield. DNA was purified from swabs using Chelex 100 resin and quantified using qPCR. Averages of data obtained were compared between both solution concentration and type. Solutions of nonidet-P40 and N,N-dimethyl formamide recovered the most DNA; however, no one swabbing solution recovered significantly more DNA than water. Although the obtained results do not support a change in forensic laboratory procedure, the experiment developed during this research could be used as a teaching tool for DNA recovery in biological forensic science classes.
P33  History of Madrigal. Stephen Holbert, undergraduate, Music.
For my music appreciation project I chose to present on the history of Madrigal singing. I had experience with this a capella type music in high school and I wanted to learn more about the history and basic structure of the music. I learned a lot about the effect of the music and how they bridged the gap between secular and sacred music in the renaissance.

Four parts complete this essay: first, a brief outline of methodology that will enlist two international-relations models, geopolitics and realism; second, a critique of Halford Mackinder's original Eurasian heartland thesis; third, an assertion by the authors that North America represents a more suitable fit for Mackinder’s heartland premise; and fourth, several conclusions will follow relative to this updating of the heartland portrayal. The authors will conclude that: (1) Mackinder's Eurasian heartland simply does not pass the test of logic and history. Its central and isolated position has not brought wealth and security; its resources are not sufficient to dominate the World Island; potentially hostile nations encircle it; and most of its rimlands are controlled either by the United States or by American allies and trading partners. Nothing remarkable affixes to the Russian core; its importance roughly equals that of the other Great Powers of the continent's periphery. (2) North America provides the only suitable fit for Mackinder's thesis. (3) Two strategic regions, the North American heartland plus the entire Eurasian World Island, are together pertinent to global stability and prosperity. (4) The whole Eurasian continent will continue being a platform for strategic relationships, with the United States intervening yet still aloof as an offshore balancer.

P35  Utility of the rpoB Gene in the Identification of Staphylococcus Epidermidis Isolates from Human Skin. Charles King, graduate student, and Dr. Scott Crupper, Biological Sciences. See abstract on page 6.

Impressionism began around the 1870s, whereas expressionism began to show up in the early 20th century, around 1905. They each had many different composers who were sorted into each category. Impressionism is defined by the Merriam-Webster Dictionary as “a style of musical composition designed to create subtle moods and impressions.” Expressionism, on the other hand, is described by Dictionary.com as “a phase in the development of early 20th century music marked by the use of atonality and complex, unconventional rhythm, melody, and form, intended to express the composer's psychological and emotional life.”


This is my original lighting design for “The 39 Steps.” It was entered in the Kennedy Center American College Theatre Festival Region 5 and received an horrible mention.

A detailed analysis of some of Mozart's greatest works for the piano. These would include Piano Concerto No. 21 in C Major, Piano Concerto No. 20 in D Minor, Piano Concerto No. 23 in A Major, and Piano Sonata No. 1. Purpose is to broaden the viewers perspective of the piano in the classical era and how influential Mozart was in establishing the instrument.

P40  The Determination of Nicotine Concentration in Soil on the Emporia State University Campus. Nicklaus Mathias and Bradley Corbett, undergraduates, Physical Sciences, and Hannah Johnson, undergraduate, Biological Sciences.
Cigarette butt litter from smoking is a common problem across the nation—cigarette butts are thrown onto the ground, and the chemical components potentially permeate the ground and add nicotine to the dirt and nearby areas of water. This can lead to larger than normal concentrations of nicotine in nearby bodies of water and can negatively impact plant growth adjacent to the area and increase the health risks for people on campus. We wanted to determine if the level of nicotine in the soil near areas with high smoker traffic on campus is significantly different than uncommon smoking areas. To accomplish this goal, we collected dirt from areas with high smoker traffic on campus, including the first terrace east of the Towers Complex, Cram Science Hall plaza, and the area surrounding the benches west of Wooster, and evaluated their nicotine content relative to soil from the soccer fields, which served as our control. Nicotine was extracted from the unknown samples collected via centrifugation. These solutions were then injected into a high-performance liquid chromatography (HPLC) to separate nicotine from other solutes and measure its concentration using a UV detector (260 nanometers). (Continued on page 16)
P41 Conservation of Sea Turtles in Texas and Cuba. Alison Meeth, undergraduate, Biological Sciences.
Conservation is an important aspect in today’s fragile ecosystem. There are seven species of sea turtles, six of which are found in the United States and all are labeled as threatened or endangered. There is plenty of work being done with sea turtle conservation but there is always a need for more. These past three years I have been able to participate in volunteer work with sea turtle conservation in South Padre Island, Texas at Sea Turtle Inc. (STI) and in Guanahacabibes, Cuba. Jeff George is the Executive Director at Sea Turtle Inc. and their focus is to rescue, rehabilitate, and release sick and injured sea turtles as well as to educate the public. I have volunteered at STI three times and have had the pleasure of helping medicate, feed, and weigh the sea turtles along with doing any manual labor needed around the facility. The main project at STI is building a corral for Kemp’s Ridley sea turtle nests in order to have a higher success rate of hatchlings and I have helped with this each time. In the summer of 2016, I volunteered on a Sea Turtle Expedition in Cuba led by Brad Nahill where we worked with Dr. Julia Azanza, the turtle biologist, on finding and marking sea turtle nests and collecting any data necessary. These opportunities have strengthened my passion for marine biology and conservation and I intend to spread awareness and help others get involved.

P42 Playing to the Heart. Lawrence Meier, undergraduate, Music.
My poster display will be going over how the usage of music in various ways allows the creator to evoke various forms of emotions from it’s audience as well as create stories or descriptions of places and characters all through manipulations of various musical tools.

P43 Fear of Sexual Assault. Zach Melvin, undergraduate, Sociology, Anthropology, and Crime and Delinquency Studies.
Among the trends of victimization rates, the idea that some individuals feel fear more than other individuals has been understudied. Given that certain demographics experience victimization at different rates, there should logically be differences in the levels of fear that those demographics feel. By surveying nearly 200 undergraduate students in various classes at ESU, the levels of fear were addressed for the academic purpose of comparison. Race, gender, sex, grade, at-risk behavior, and social organizations were used as the possible demographics in which differences would be found. Grade levels, sex, and fraternity/sorority involvement all had significant differences in the expected values of fear. The most significant difference was found between sex: women surveyed significantly higher than men and non-binary individuals (p=0.000). Contrary to victimization rates, people of color did not survey significantly different than Caucasian individuals.

P44 Cost-Effective Alternatives to Casting Material for Large Impressions. Michelle Mills, graduate student, Biological Sciences.
Large-scale impressions are important evidence in crime scene investigations. Impressions come from many sources and may occur on any impressionable surface. Examples of large-scale impressions include tire treads, road scars, foot wear impressions, or even an impression of a depression from an exploded IED or shallow grave. Impressions can be made on a small scale from tool mark impressions and palm prints. The thorough documentation of impression evidence becomes difficult and costly when the impression is large. Research into cost-effective and timesaving methods of impression casting is needed so this valuable source of evidence in an investigation is not under documented. This study investigated the development of an alternative casting material for large-scale impressions from low-cost materials. Spray foam was tested individually and with releasing agents. Test formulations included various caulkling compounds, fiberglass resin, acrylic, Mold Builder Liquid Latex™ and Monster Liquid Latex™. A mixture of a latex-based caulkling compound and liquid latex resulted in a pourable and thick casting material without the need of an additional releasing agent. The addition of calcium nitrate tetrahydrate in both solid and solution forms improved curing time, but the shortened curing time prevented an impression being made. Creating a compound to document large-scale impression evidence from low-cost, commercially available materials is possible, although further research is needed to solve the problem of long curing times.

P45 The Challenges of Multilingual Writers from Arab Countries at Emporia State University. Ahlam Mobarki, graduate student, English, Modern Languages, and Journalism.
This study will investigate the challenges of multilingual writers from Arab countries. In that connection, the paper will apply content analysis to those students from different levels starting from IEP, undergrad, and grade-level at Emporia State University. To investigate the study I set up a survey in spring semester 2017 to examine the difficulties that L2 writers from Middle Eastern countries experience at ESU. In order to identify their problems, a survey was conducted in which Middle Eastern L2 writers from ESU were approached and had participants from various educational backgrounds.

(Continued on page 17)
The survey founding was a considerable amount of participants, despite extensive period served to learn English, were still struggling with the right vocabulary, grammar, and sentence formation. As a result of these difficulties, most of the participants chose to seek help from the writing centers on their university campus. The basic motive of a large group of participants behind learning English was to fit in and to be able to keep up with the international standards of education. Whereas, the rest of the participants’ purpose of learning English was to get a degree and complete their academic course. I will argue that technical writing or a WAC program should be embedded across the curriculum.

P46 The Story Behind the Concierto de Aranjuez. Gabriel Molina Maruda, undergraduate, Music.
The poster is about Joaquin Rodrigo's Concierto de Aranjuez which reflects many deep emotions and heritage. The poster highlights key words.

P47 The First Duckbilled Dinosaur Footprint Found in the Hell Creek Formation of Montana. Dr. Michael Morales, Physical Sciences.
In eastern Montana, the Hell Creek Formation (66 million years) is rich in dinosaur bones and teeth, but it has a near absence of dinosaur footprints. Only one dinosaur track, a probable tyrannosaur, has been described from the rock unit. Until now, no duckbilled dinosaur (hadrosaur) track had ever been reported from the formation, but it is not for lack of prospecting. The Hell Creek is one of the most intensively studied rock units in Montana. The scarcity of footprints is most likely the result of a depositional environment not conducive to print preservation and of rapid weathering and erosion of exposed sandstone deposits. The hadrosaur track was found in a fine-grained, cross-bedded river channel sandstone. The tridactyl footprint has bluntly terminated toes and approximately equal width (22.5 cm) and length (24.0 cm) measurements. The track is in positive relief and is thus an infilling of the footprint’s original mold, which had eroded away. The St. Louis Science Center has a full-size skeletal model of a juvenile hadrosaur. By coincidence, the back foot of the model matches almost perfectly the size of the collected footprint, thus indicating that the footprint was made by a juvenile individual. The dramatic size difference between an adult and juvenile hadrosaur is demonstrated by comparing the terminal toe bone of a juvenile with that of an adult. The track was discovered on land administered by the Bureau of Land Management and will be reposited in the Johnston Geology Museum at ESU.

This poster will briefly depict Tchaikovsky's life and some major points that were in it and include knowledge about some of his more famous works.

P49 A Problem of Perception: Is the Writing Center the Last Resort for Second Language (L2) Writers? Michael Pelletier and Hannah Thomas, graduate students, English, Modern Languages, and Journalism.
We, as graduate writing center tutors, looked at the impact the increasing utilization of services by second language (L2) writers, in particular international students, is having on ESU Writing Center operations. Many faculty members seem unsure of how to adequately assist L2 students, therefore these students come or are sent to the writing center for additional instruction. The two main topics of interest in our research are: 1) how writing centers have been perceived by various stakeholders over time, including how those perceptions have changed and 2) ideas about the writing center as offering 'remedial services.' Demographic data regarding writing center utilization were examined, a relevant mixture of both writing center and L2-specific scholarly articles were reviewed, and an annotated bibliography was created. As many teachers now export their L2 students to the writing center for consultation, there is an obvious need for both faculty and tutors to receive adequate training to help these students and to overcome a potentially problematic institutional 'division of labor.'

P50 Toward the Synthesis of a Li-Specific Fluorescent Sensor. *Andy Renteria, Kelly Schwinghamer, and *Josué Mejia, undergraduates, Physical Sciences.
Bipolar disorder is an illness characterized by depression and mania. A variety of treatment options exist, and the most effective prescription medication continues to be lithium salts. However, the mechanism by which lithium functions to treat bipolar disorder is speculative. The foundation of several hypotheses is the possibility that the lithium ion may compete with magnesium for specific enzymes, which play a role in several biological processes. In order to truly understand these mechanisms, a lithium-specific sensor capable of detection in cellular environments at therapeutic concentrations must be developed, and that is the purpose of this study. Many lithium sensors have been developed over the years, but none are capable of functioning in cellular environments for biological studies while also being selective to lithium. In order to synthesize the fluorescent sensor, first a Knoevenagel condensation is conducted using 8-hydroxyjulolidine-9-carboxaldehyde and diethyl malonate to form the fluorophore, a coumarin ring. Hydrolysis removes an ester group and is followed by a Vilsmeier-Haack reaction with dimethylformamide and phosphorus (V) oxychloride to add an aldehyde group. Then, a reductive amination of the aldehyde is performed using benzylamine and sodium triacetoxyborohydride.

(Continued on page 18)
Future studies should adjust reaction and purification conditions for the reductive amination in order to increase yields. New methods for deprotection of a secondary amine group should be investigated to yield a primary amine, which could then be reacted with 1,2-Bis(2-iodoethoxy)ethane in order to produce the target molecule. Then, titration and fluorescence studies can be conducted to evaluate the sensor’s selectivity toward lithium.

The violin is a wonderful instrument and has taken many years to craft and develop to become the instrument that it is today. The history of the violin goes back farther than even the first violin that was made. The violin was carefully developed over time from the design of the instrument and how it is made and how music was written for the violin. The violin is one of the later versions of stringed instruments. There were also great craftsmen that have loved to perfect the design of the violin. There were also many great composers that loved to write music for the violin because of its great tone quality. The violin has a great and rich history.

The research and creative process of designing hair and makeup for our recent homecoming musical “Big River: The Adventures of Huckleberry Finn”.

P53 Theoretical and Experimental Investigation of Electron Spin Resonance. Palash Roy, graduate student, and Dr. Jorge Ballester, Physical Sciences.
Electron spin resonance (ESR), is a physical method of observing resonance absorption of microwave power by unpaired electron spins in an applied external magnetic field. ESR is also known as electron paramagnetic resonance (EPR) or electron magnetic resonance (EMR). The Russian physicist Zavoisky invented ESR in 1944. ESR has some similarities with nuclear magnetic imaging. Both methods involve the interaction between electromagnetic radiation and magnetic moments, but for ESR, the magnetic moment stems from an electron rather than a nucleus. We investigated ESR using a sample of Diphenyl Picryl Hydrazyl (DPPH). DPPH is known to have one unpaired electron spin which results in paramagnetism. When an external magnetic field is applied to an atomic or molecular system with a single unpaired electron, the energy levels split into two energy levels (Zeeman effect). In this project, ESR was used to determine the g-value for the single unpaired electron in DPPH. Microwave resonance peaks indicate the occurrence of spin flip transitions due to photon absorption. The g-value was determined by plotting resonance frequency vs. resonance magnetic field intensity. The accepted g-value for a single unpaired electron spin is 2.0023. In this project, the measured g-value is 1.57.

P54 Listening to Testimonies: Cultures Shaping a College Experience in Second Language Students. Luis Sanchez-Arrocha and Yiwei Wei, graduate students, English, Modern Languages, and Journalism.
Whether or not the first language (L1) of a student affects his/her learning process has been analyzed by many scholars in the field of second language writing. Robert Kaplan coined the term “contrastive rhetoric” and he argues that “the rhetorical aspects of a language are unique to each language and culture.” However, not many studies fully cover the influence of student-college-experience on the process of learning a second language (L2). Our paper will address the question on the ways that students’ culture shapes their view of the process of learning a second language with emphasis on student testimonies through interviews. In our project, we will hear the voices of L2 learners in order to show that their personal narrations of their learning journey are directed by how the idea of the language/culture was previously framed. We will consider the negotiations that student make in finding their place in the new space where they can basically re-start who they are. All of this by juxtaposing their first language logic (as in Kaplan’s Contrastive rhetoric) with their second language input from English. We argue that a student’s cultural background, i.e. language and traditions, take part in the construction of their experience as a L2 learner at ESU. In conclusion, this project examines the relationship of students’ L1 with their L2. Also, it provides information on the description of all the aspects that are involved in the process of learning English as a second Language at ESU.

P55 Lemur Use of Mouth vs. Hands. Caite Schoeck, undergraduate, and Dr. David Edds, Biological Sciences.
Lemurs have previously been shown to be left-handed, but few studies have compared use of mouth vs. hands, or possible differences between genders. To test hypotheses of lemur handedness and use of mouth vs. hands, we observed individuals of three species of lemur at the David Traylor Zoo of Emporia: ring-tailed lemur (Lemur catta), black-and-white ruffed lemur (Varecia variegata), and collared brown lemur (Eulemur collaris). For a male and female of each species, plus twin female offspring of the ring-tailed lemurs, we made 100 observations per individual, recording mouth vs. hand use every 30 seconds as individuals performed daily activities. Overall, results showed that hands were used more often than mouth; a single hand was used more often than both hands; and the left hand was used more frequently than the right. However, analysis of mouth vs. hand use for specific activities showed that grooming was mouth-oriented whereas foraging activities...
were mainly hand-oriented. For all activities, males used their hands more than did females, and were more left-handed. Although we observed only eight individuals for a limited period of time, results suggest that use of mouth vs. hands by these lemur species depends on type of activity, and that handedness can vary by gender, findings that could be useful in the study of evolution of handedness in primates.

P56 Creating an Involved Biology Graduate Program. Leora Seiler, Ana Perez-Lebron, and Alex Rickard, undergraduates, Biological Sciences.

It has been identified that many Emporia State Biology graduate students lack information, opportunities, and especially the time necessary to be actively involved students. Our claim is that biology graduates are out of the loop on campus events besides those events that take place in the science building. The purpose of our program is to design, advertise, and eventually embed into graduate curriculum accessible, time-efficient, and worthwhile events and activities. These events and activities will be relevant to Biology Graduate students and will involve them in the larger campus community. This program will develop biology graduate student involvement on campus and in the community, enriching their experience and deepening their content knowledge. This program has three distinct aims: Aim 1- Decrease stress levels within the Biology graduate program by the implementation of stress management courses and strategies into the program as a requirement. Aim 2- Increase enrollment and graduation rate within the Biology graduate program by attracting students to an innovative program that includes a variety of activities/events and giving them support to finish their graduate degree. Aim 3- Help Emporia State University’s Biology graduate program be recognized as a distinctive, unique, and innovative program that offers its students the opportunities, experiences and knowledge they will need in the future. This program is distinctive in that will implement service learning experiences into graduate curricula. The program also considers the unique needs of Biology graduate students instead of grouping them with Emporia State’s undergraduate students.

P57 Inspired by Math - A New Math Enrichment Program for Middle Schoolers. Dr. Qiang Shi, Laura Albertson, Emporia Middle School, Josh Tuttle, Emporia Middle School, Kandace Miller, undergraduate, and Ryan Frier, graduate student, Mathematics and Economics.

Inspired By Math is a new math enrichment program in Emporia, Kansas. The program attracts motivated and talented middle school students in the Emporia area. The year-long program began with a four-day summer camp, in which students worked on the AMC 8 problems and attended math expository talks. The fall and spring program is further enhancing and enriching these topics covered in the summer camp. This presentation will give an overview of the program objectives and structure, introduce the math activities we have been doing, and discuss the early impact and assessment of the program. The Inspired By Math program is funded by Dolciani Mathematics Enrichment Grant, Novice Math Circle Grant, Emporia State University, and Emporia Middle School.


Atonal music, its characteristics, types and composers that use this method in the expressionism.


Humanities Nebraska executive director Chris Sommerich has a dilemma. National Endowment for the Humanities-funded Chautauqua programs are identified in HN’s strategic plan as the organization’s most popular offering. Nebraskans enjoy engaging with historic figures, and then being able to ask questions of the scholar behind the figure. Nebraskans enjoy having the scholarly troupe in their community for most of a week challenging their perceptions and bringing new ideas. Sommerich has, however, found it increasingly difficult to find scholars willing to bring to Nebraska such historic figures as Jane Addams and Woodrow Wilson, much less Standing Bear and George Washington Carver. Therefore, the purpose for this research project was to explore the possibilities of creating a community of young scholars who look forward to sharing knowledge with performance. Simon interviewed the five scholars hired by Humanities Nebraska for the current three-summer Chautauqua about World War I as well as Humanities Nebraska executive director Chris Sommerich. As a participant observer, she also traveled with the troupe and observes: “Chautauqua is a wonderful experience for anyone to learn about people of the past in a professional monologue.” More of her findings are based on if Chautauqua is worth a young person’s efforts to do the research, learn the stories, practice sharing the stories, negotiate contracts, and travel to various venues.
Since the early 2000s, a host of restrictive new voting laws have passed in the states, mostly states with Republican-majority legislatures. These include Photo ID and proof-of-citizenship requirements, limits on third-party voter registration drives and early voting, and other laws. Did the laws that took effect between 2012 and 2016 affect the election outcome? Utilizing both GIS mapping and regression analyses, this study reaches some surprising conclusions.

P61  Comparison of tuf and 16S rRNA Gene Sequences for the Identification of Staphylococcus Species.  Jake Snyder and Yuan Feng, graduate students, and Dr. Scott Crupper, Biological Sciences.  
An essential component of microbial forensics is the analysis of DNA to identify an organism in question. While the identity of bacterial samples can be determined using a variety of DNA techniques, polymerase chain reaction (PCR) based procedures have emerged as the most commonly employed methodology. Combined with DNA sequencing and basic local alignment search tool (BLAST) analysis, unknown bacterial samples can be identified with a high level of confidence. The most widespread target employed in PCR is the 16S rRNA gene. The conserved nature of this gene along with its slow evolution rate make it an attractive target for identification. However, it is often unable to discriminate between closely related species in some genera. This fact has prompted many investigators to examine other conserved genes. One such gene is tuf, which encodes the elongation factor Tu (EF-Tu). In this study, we investigated coagulase negative staphylococci that comprise the normal skin flora of humans. Fifty-two different staphylococci were isolated and identified using 16S rRNA gene sequences. For comparison, the tuf gene was also amplified in each organism to determine if the data obtained corresponded with the 16S rRNA gene data in terms of species identification. A strong correlation was shown between both gene sequences.

P62  The Need for the Inclusion of Transgender People in NPOs.  Kaitlin Stewart, undergraduate, Social Sciences.  
Based on a Composition II research paper, the presentation takes a look at the exclusion or lack of representation of transgender people in non profit organizations, LGBT+ or women specific ones. The stance is to encourage understanding of the plight of transgender people and why they should be included in nonprofit organizations. Research takes into account the historical trend of the exclusion of transgender people. In addition, it offers cases where nonprofit organizations are seeking to improve their inclusion of transgender members.

P63  The Oldest Occurrence of the Dinosaurs Tyrannosaurus, Triceratops, and Torosaurus?  *Derrick Stockton, undergraduate, and Dr. Michael Morales, Physical Sciences.  
In 2006, a girl living on a ranch in eastern Montana collected bones from the Hell Creek Formation (66 million years). Carl Campbell, then from the St. Louis Science Center, identified the bones and collected additional fossils from the site. Later, he guided a field crew from the University of Kansas Museum of Natural History to the locality for small-scale excavations. In 2013, a KU crew opened a long-term quarry at the site, which necessitated the removal of a large amount of overlying rock to fully access the bone bed. The locality has yielded fossil bones of the dinosaurs Tyrannosaurus, Triceratops, and Torosaurus, and fern spores and dicot plant pollen. These Hell Creek deposits seem to have been laid down on the floodplain of a river during a time of flooding. In 2016, the authors measured a stratigraphic section in the quarry area, from the bottom of the underlying Fox Hills Formation to the top of the Hell Creek exposed at the site. In Montana, the Hell Creek Formation is generally 90-100 meters thick overall, but at the quarry only the lowest 19 meters of the rock unit are preserved. The quarry itself is located merely 9 meters above the Fox Hills-Hell Creek contact. Therefore, the bone bed is stratigraphically so low in the Hell Creek Formation that the dinosaur fossils collected from it probably represent the oldest known occurrences of Tyrannosaurus, Triceratops, and Torosaurus. The ultimate veracity of this likelihood will be determined during the summer of 2017.

P64  Differential Activation of P53 Downstream Genes in Melanoma Cells with Different Genetic Context.  Huiyun Sun, graduate student, Biological Sciences.  
We aim to understand the differential activation of P53 and its downstream genes in response to UV irradiation in the context of mutated and wild type P53 in melanoma cells. Human melanoma A2058 (mutated P53) and A375 (wild type P53) cells were irradiated by UV light (50 J/m2), and then the total RNAs were extracted from cells that were collected at 6 time points (0, 0.5, 1, 2, 3 and 4 hours) after the UV irradiation. Real-time PCR was employed to measure the expression of p53 gene and its downstream genes mdm2, p21, p16, bcl2 and bax at mRNA level. For A2058, after UV light irradiation, expression levels of p53 and its downstream genes, mdm2, p21 and p16 were up-regulated, but ratio of bax/bcl2 was decreased. The reduced bax/bcl2 and the up-regulated p21 and p16 indicated that cells respond to UV by attempting to repair DNA instead of promoting apoptosis. The induced expression of p53 and its downstream genes suggests that other regulation mechanism of p53 and its downstream genes exists in coping with UV challenge. For A375, the gene expression levels for mdm2, p16 and bax/bcl2 ratio were elevated in response to the UV irradiation, but the expressions of p53 and p21 were reduced, indicating that cells still attempted to halt cell cycle progression, repair DNA damages and induce apoptosis without P53 protein. The differential activation patterns in cancer cells with different genetic context will shed light on the possible novel drug targets of genes that can restore the function of P53.
P65  Initial Efforts to Create Local Libraries of Alcoholic Beverages Using Raman and Attenuated Total Reflectance/Mid-Infrared (ATR/Mid-IR) Spectroscopy. Hui Tian, graduate student, and Dr. Carlos Peroza, Physical Sciences.

Vibrational spectroscopy techniques are widely used in forensic science to identify the chemical evidences. Alcohol is commonly found in crime scenes, especially the public-order crime. Therefore, the type or brand of alcoholic beverages may provide some clues. The ideal method is to create alcoholic beverages libraries with all the molecule information, which can be used as a classification technique. In this work, five different type of alcoholic beverages, such as Vodka, Rum, Whiskey, Liqueur and Tequila, were detected by the Raman and Attenuated Total Reflection Infrared spectroscopy (ATR-IR). All data was analyzed by three different statistic techniques across pretreatment techniques and spectral regions. The results were initially proved that vibrational spectroscopy techniques in conjunction with classification techniques such as PCA, HCA and PLS-DA have the potential to classify alcoholic samples despite the similarities in their spectra.


Synthetic routes to the novel 3a2-benzyl-1,5,9-trinitro-3a2H-4,8,12 trioxadibenzo [cd,mn]pyrene, tris-julolidine sesquixanthydrol, and tris-4,4’,4”-(diphenylamo) sesquixanthydrol have been developed. Substituted triangulenium with oxygen bridges can stabilize carbocations by resonance. When three benzene rings are attached to a positively charged carbon, as in triphenylmethane, it is not possible for the three rings to maintain co-planarity because of steric interference between adjacent ortho hydrogens. Pyridine hydrochloride was used as a closure agent for the ring. Tris-julolidine sesquixanthydrol, and tris-4,4’,4”-(diphenylamino) sesquixanthydrol were highly fluorescent. Also, we developed a method of nitrating sesquixanthene by using a benzyl protecting group.


P68  An Investigation of Three Test Impressions Methods to Accurately Reproduce Randomly Acquired Characteristics in Footwear Outsoles. Lindsy Whitlow, graduate student, Dr. Melissa Bailey, Biological Sciences, Troy Mohror, Johnson County Sheriff’s Office Criminalistics Laboratory, and Dr. Larry Scott, Mathematics and Economics.

The Scientific Working Group for Shoeprint and Tire Tread Evidence has published standard procedures for making test impressions using various methods; however, there is little published research on documenting randomly acquired characteristics (RACs) and there are no published studies comparing methods of documenting RACs. The purpose of this research is to calculate the statistical accuracy of various test impression methods of capturing randomly acquired characteristics, (such as nicks, scuffs, and cuts). This research focuses on making 2D impressions of worn boots, sneakers, and fashion shoes with the Identicatore® inkless shoe print system, and with printing powder and Handiprint® lifting material. Examination-quality photography was included as a comparable method of test impression in addition to documenting the footwear. This project is being conducted in three phases. The first consists of documenting the shoe, and identifying randomly acquired characteristics on the outsole of the shoe. The second phase includes making the test impressions of the shoes, and documenting the RACs that were successfully transferred. The third, and final phase, will be interpretation of the results and determining if one method is superior to another through the use of statistical analysis of the data gathered. Ultimately, the results of this research will add to the body of literature that is currently lacking on the topic and will provide scientific evidence of the efficacy of these methods, which will aid agencies reviewing their current methods of footwear documentation.


The question of whether or not feedback and error correction should be presented in a certain way to students to improve their writing skills has been a controversial subject in the second language (L2) writing field among scholars including Dana Ferris and John Hedgcock. The research given by these scholars still has students and faculty questioning what kind of feedback is the most effective for students; direct or indirect, focused on surface errors or structure, and many more elements. Scholars have researched what methods of feedback are desirable on a larger scale, but have not focused on a smaller or individual demographic. I believe it is important to focus on a certain demographic rather than make generalizations about what will benefit students and their writing. I address these controversies of feedback using data I have collected from a survey of 100 ESU students, both L2 and native language speakers, on what methods of feedback they would find most helpful to receive from their writing professors. Along with this, I will be comparing the students’ input to the controversies presented by the scholars on how feedback should be presented to students.
**P70 Beethoven and the Piano.** Ellee Wolfe, undergraduate, Music.

Beethoven is known for being one of the most influential composers of his time, and was the main composer that transitioned from the classical to the Romantic period of music. He made many strides in all different forms of music. One of the most popular being his many compositions for the piano. Throughout his lifetime, Beethoven had many different lifestyle changes and social changes that influenced how he wrote and played piano music.

**P71 Adapting an Inquiry-Based Approach to an Instrumental Methods Laboratory Experiment for Upper-Level Forensic Science Students: Creating Spectral Libraries to Address the Classification Problem in Forensic Labs.** Yufan Wu, graduate student, Physical Sciences.

The purpose of this research to implement the inquiry-based approach in Instrumental Analysis laboratories and document the critical thinking process, as well as the chemical based structured knowledge used to solve a given comparison problem in the area of forensic science. Two questions are related to this research. The first one is the way that using inquiry-based learning approach promote students’ learning and skills in argumentation, problem solving, and data analysis in a forensic lab. The second question is determining the aspects of the evaluation of the evidential value of physicochemical data students learned in the process. This research uses mixed method, which combines quantitative and qualitative approaches, to collect and analyze data. The mixed method is not only paying attention to what will students learn but also how will they learn, so mixed method is more reliable and credible. Tentatively, 18 students are enrolled in the class CH777 Instrumental Analysis, a high-level chemistry class, in Fall 2017. Pre and post interviews, which can compare students’ course knowledge, will be used to collect data. In addition, I will record and analyze students’ exams and quizzes in each chapter to check if they have improved. At the end of the semester, I will record and analyze students’ feedback, which can help teachers to improve future classes. I hope through this project to offer implications to science education in science areas such as forensic science and chemical education.

**SCHOOL OF BUSINESS**

**P72 An Examination of the Federalization of Education in the US.** *Piper Brooks, undergraduate.

The federalization of many things in the United States can often be seen as the government overstepping their boundaries. This idea can especially be seen in the education system in America, with the main conflict residing in public K-12 education. One side of the argument is states should have the right to determine what is important for their curriculum based on their area and whether or not the students would be able to relate to the subject matter. However, in order to understand both sides of this issue, it is important to also look at the role the Federal government plays in education. While some fear the size of the Federal government, others are in favor of the help that comes with Federal government intervention. On the pro-federalization side of the debate, people believe the Federal government should play a large role in educational regulations for the betterment of society, particularly in order to give smaller states and rural towns the same quality of education as bigger, highly populated areas. Looking at both sides, as well as exploring other variables that can affect a student's education, allows for insight into the problems America's education system is facing today.

**P73 The Influence of Social Factors on the Satisfaction and Retention of Accountants.** Shane Garrison, undergraduate.

Accounting firms search for underlying social factors that contribute to company retention. Some of these social factors may include college involvement or other social activities. What accountants are involved in outside of their career may be indicators of how they will be able to manage their work life balance and have happy feelings towards their job. The profession is known to have a large number of nonsocial workers, but accountants are also incredibly vital to the compliance and success of a company. Maintaining a work-life balance is a struggle during the busy season because they can work up to 70 hours a week. Having a high stress job can lead to devastating outcomes for their employees, such as depression and anxiety, a high suicide rate, and work family conflict. Those negative factors lead an increase in mistakes, low workplace morale, lack of continued learning on different subjects, and a decrease in efficiency. Maintaining satisfied employees is very important for companies. The amount of different jobs available for accountants also make it very competitive for the employer. A common issue public accounting firms face is that their clients recruit their employees to come work for them in the private side of accounting. Through our research, we have been able to identify certain areas that lead help alleviate burnout and turnover in accountants in Kansas.

**P74 Estimating State-Level Monthly Economic Growth.** Thomas Houk, graduate student.

*See abstract on page 5.*
Objective Factors that Lead English Advertisements to Become Popular on YouTube. Zhao Liu, graduate student.
The author examined over 100 advertisement videos on Youtube. Each video’s content was recorded for analysis of its main features. Eventually eight factors were deemed “important determinants” for the objective factors that lead English advertisements to become popular on Youtube. They are "title length," "run time (in seconds)," "like number," "dislike number," "subscribers number," "music," "Incentive," and "credibility". This research is trying to understand which of these objective factors will influence popularity of English advertisements on Youtube. Likewise, understanding the prevalent factors within popular English advertisements on Youtube will allow for the prediction of which ads on Youtube will become popular.

This presentation examines the effectiveness and limitations of municipal government regulation in disaster and tragedy prevention and critically evaluates the role of society’s responsibility. An in-depth analysis of the circumstances surrounding the December warehouse fire in Oakland, California, serves as the foundation for investigating whether personal awareness and civic leadership could have the greatest impact on disaster prevention and be the key to saving lives in the future. Additional cases are examined to support this thesis and evaluate an advisable alternative to increased government regulation.

Libraries in Juvenile Detention Facilities. Eden Bloom, graduate student.
This poster uses research-based evidence and information from library and information science sources to address the problem of inadequate library services and information literacy programming for adolescents incarcerated within the juvenile justice system. Juvenile offenders incarcerated in detention facilities are an underserved population in the library community that needs to be addressed. A lack of appropriate information literacy skills can lead to a lack of employability skills once released thus leaving the juvenile few options but to re-offend. Evidence provides support for the inception of new programs and services as well as support for the continuation of existing programs and services. In-house or outreach programs of this type could be considered innovative and build on the traditional concept of an academic library. It also provides an opportunity for collaborative efforts with an external organization, the juvenile detention facility, to create and offer new services. Expanded library services and interactive information literacy programming to incarcerated youths conducted by a competent academic librarian could mean the difference between recidivism and leading a productive life in society. It could mean the difference between a life of poverty and crime or one of safety and security. A six-step action plan is suggested that would create better library services and information literacy programming for adolescents housed in juvenile detention facilities.

Competencies for Electronic Resource Librarians: 2016. Rachel Collinge, graduate student, and Dr. Sarah Sutton.
In 2013, NASIG, an independent professional “organization working to advance and transform the management of information resources” (NASIG, 2017b), published Core Competencies for Electronic Resources Librarians (CCERL), which describe the specialized knowledge, skills, and abilities required of a professional electronic resources librarian (NASIG, 2013). The intent of the CCERLs was to provide librarian educators with a basis for developing curriculum with a specialized focus and employers with a basis for describing and evaluating such positions (NASIG, 2017a). In an effort to discover how the competencies for electronic resources librarian positions have changed in the intervening years, we asked what competencies (abilities, skills, knowledge, and experience) employers are looking for when hiring electronic resource librarians in 2016. We collected and analyzed job advertisements for open job positions that required the acquiring, licensing, organizing, and/or troubleshooting of databases, ebooks, and ejournals. The ads were from the year 2016. Once a job ad was collected, we identified where it had been posted (i.e. ERIL, NASIG, LibJobs.), what type of library the position existed in, the size of that library, and what was required and expected of the applicants. Using qualitative data analysis, we carefully coded individual qualifications in distinct categories, allowing us to determine which type qualifications were the most requested. This poster will convey the initial results of our analysis.

Wagner and Bayreuth between Weimar and the Third Reich. Dr. Brendan Fay and Emily Alexander, graduate student.
Perhaps no German cultural icon has been more closely associated with Nazism than the nineteenth-century opera composer Richard Wagner. This association, rooted in perceived parallels between Nazism and the composer’s nationalism and anti-Semitism, has been amplified by the notorious twentieth-century circle of supporters known as the
Bayreuth Circle who openly admired Hitler and the Nazi movement. Yet by focusing on this infamous group, historians and musicologists have often neglected the wider circle of Wagnerians whose political sympathies were wide-ranging and whose estimation of Wagner’s place in German society differed markedly from the nationalist Right with whom Wagner has become so closely identified. Drawing attention to Wagnerians from across the political spectrum, this paper reassesses conservative attitudes toward the composer and reexamines the relationship between Wagner and Bayreuth during Weimar and the Third Reich.

P80 Unpacking the Semantics of Language in Academic Library Position Descriptions: A Matrix for Moving Away from Formulaic Language and Lexical Ambiguity to Describe Necessary Knowledge and Proficiencies. Brady Lund, graduate student.

Unemployment in the United States of individuals with disabilities is on the rise. High functioning individuals with Autism (Carpenter, 2013) are among the unemployed. According to the Bureau of Labor Statistics (2016), nearly 50,000 of those individuals currently diagnosed with high functioning Autism graduate from high school each year. About 80% of those individuals with high functioning Autism who graduate from high school, and who apply for jobs, are unemployed. Approximately 25% of all individuals with high functioning Autism attend college, and approximately 60% the 25% attending college graduate from college, which is over twice the percentage of graduates from college who are neurotically developing. This study addresses this unemployment problem in the context of professional librarians answering this research question: What do library position descriptions indicate about required responsibilities by master’s level librarians conducting reference work that will appeal to abilities and strengths of individuals with high functioning autism? Position descriptions from Kansas Public, Municipal, and Private University and Community and Technical Colleges that require a Master of Library Science or graduate degree in library science reviewed from December 2016 to March 2017 indicate that much of the language is formulaic jargon or words that are lexically ambiguous. A matrix of macro- and micro-concepts illustrates how formulaic language and lexical ambiguity can be radically changed to clearly and concisely state what is expected of an employee. These findings should challenge library professionals to become more proficient when describing job duties and tasks.

P81 Blue Zones: Socially Responsible Information Provision to Engage Citizens in Community Health Initiatives. Dr. Jinxuan Ma and Laurie Bonnici, University of Alabama.

There is widespread desire for longevity, provided it coincides with healthy, youthful years. Existing public health concerns placed government at the center of assuring citizens a healthy life. Evolution of U.S. public health culture has resulted in four current conditions: 1. National health issues, 2. Healthcare costs exceeding $3.0 trillion, 3. Prolific online consumer health information with varied quality, 4. Information technology (IT) innovations exacerbate information overload. Government involvement in personal health issues has met with resistance. Socially responsible strategies promoting public health encourage community engagement. A recent public/private partnership approach began as a National Geographic expedition to find the longest living cultures evolved into a recipe for living longer. Although Blue Zones (BZ) information is provided, there is insufficient information to support citizen engagement in BZ healthy lifestyles. Despite a systematic approach involving collaborative efforts between BZ, local government, and community members, information overload remains an issue. RQ: What is the role of information provision in community engagement and adoption of a healthy lifestyle? RQ1: How does indirect suggestion and positive feedback compare to formal information resource provision to encourage community engagement in health behavior changes? RQ2: How does e-delivered content customization impact information overload and BZ initiative adoption? RQ3: What is the role of embedded social support in the customized e-delivery system? Action research at a national conference aimed to inform the project while providing awareness among LIS educators and professionals to play a socially responsible key role to promote citizen engagement in community health initiatives.

P82 Using Goodreads in Collection Development. Amanda Wahlmeier, graduate student.

Utilizing social media is a common goal for every public library, but many fail to consider using social media to aid their collection development process. The social media site Goodreads provides a place for bibliophiles to congregate and share book recommendations, reviews, discussions, and much more. Libraries can harness this energy for collection development purposes, creating relevant, popular collections patrons can get excited about. By interacting with Goodreads’ 55 million users, public libraries can expand their reach and engage a population other than their immediate local community, while interacting with their regular patrons in a new and exciting way. The purpose of this poster is to explore the services offered by Goodreads and how best to utilize them in a public library setting. An example of Emporia Public Library’s Goodreads page is provided as an example.
P83 Employing Self-Direction in Learning Theory to Lifelong Learning, Community Engagement, and Social Responsibility Practice within Public Libraries. Paul Wilcox, graduate student, and Dr. Jinxuan Ma.

“The public library, the local gateway to knowledge provides a basic condition for lifelong learning, independent decision-making and cultural development of the individual and social groups” (IFLA/UNESCO, 1994, para. 2). As stated in the IFLA/UNESCO Public Library Manifesto, public libraries play a fundamental role in inspiring and supporting lifelong learning (LL), community engagement, and social responsibility. This theoretical literature review employs the Personal Responsibility Orientation (PRO) theory of self-direction in learning (SDL) to examine (1) the relationship between SDL and LL, (2) connections between SDL and social engagement, and (3) ways to improve current library educational initiatives, policies, and practices. PRO is necessary for LL because it requires individuals to take personal responsibility for their thoughts and actions. Once one does this, they are able to engage in SDL as a process (diagnosing learning needs, setting goals, strategizing, and evaluating progress), and develop self-directed personality characteristics. PRO is fundamental to community engagement and social responsibility based on its humanistic philosophy and psychology, which states the desire for transformation and social justice starts with the individual. PRO also contributes to human rights and democracy, which emphasize normative agency, reciprocity, and care. These attributes require equality in creating shared goals and activities, and establishing intercultural norms that enable people to uniquely develop. It is expected that research findings will guide current library practices to support patron’s SDL efforts, both with the process and development of self-directed personality characteristics that enable LL, community engagement, and social responsibility.

TEACHERS COLLEGE


Background: A nineteen year old female collegiate level track athlete was warming up for long jump competition. During one of her warmup approaches she felt a “pop” in her back which caused severe pain in her lower back and inability to move her distal extremities. She had a previous injury to the same area on her back caused while performing squats. Differential diagnosis: Compression of the lumbar nerve roots lumbar, vertebrae fracture, spinal cord lesion, or disc herniation leading to the inability to move or feel her legs. Treatment: She was transported to the emergency room, and was kept under observation until she regained normal neurological function. She was discharged with pain killers and instructed to not participate in track until she was drug and symptom free. A referral to neurology was scheduled for further examination. The current treatment for this condition has been rest. Her symptoms and pain have been monitored. MRI revealed a disc bulge with an annular tear in the L4-L5 disc, with the defect approaching the descending L5 nerve roots. The L5-S1 disc was also shown to have a disc bulge with annular tear with the disc bulge making contact with the S1 nerve root. Uniqueness: This injury is unique because annular tears are not common in 19 year old females. It is also an uncommon injury in a long jumper because the impact on the spine is normally not great enough to cause enough compression of the disc to form an annular tear. Conclusion: She has an appointment with a neurologist for further evaluation and further recommendations.

P85 Visions for Vets. Claire Becker, graduate student, Counselor Education.

Visions for Vets (VforV), a 501c3 organization since June 2016, seeks to bring the healing power of art to veterans--whether it's physical or mental healing. This organization was started by Scott Beaty, a cold war vet who spent 25 years in the US Navy on a submarine. VforV is clear that this is not a group therapy session but a safe place where healing can happen through the creative process of art making. War vets get the chance to socialize with people from the community and reminisce about what it was like to serve in the US Military. A variety of visual artistic disciplines, including ceramics, sculpture, drawing, painting, and now metal and blacksmithing are available to the vets in the art studios at Fontbonne University in St Louis. VforV sees the need for more groups like this one and wants to continue to reach out to veterans in need all over the country through new art groups like this one. War vets and their families have seen the healing art can provide and VforV is using art to improve the quality of life for Veterans and their families as well as saving the lives of veterans. Whether you're blind, deaf, paralyzed or an amputee, Visions for Vets welcomes you with open arms and can teach you art.

P86 Effects of a Mindfulness-Based Art Therapy Directive on Perceived Academic Stress Levels and Anxiety in Undergraduate Students. Paige Blaha and Katelin McAndrews, graduate students, Counselor Education.

This presentation presents the combined research on one poster on the results from studies about perceived academic stress levels and anxiety in undergraduate psychology students before and after a mindfulness-biased art therapy directive. A Likert-based survey of perceived levels of academic stress and anxiety was administered before and after engaging in the mindfulness-based art therapy directives in each study. Both hypotheses were supported that students reported lowered levels of academic stress and anxiety after directive completion.
KT tape is exceedingly broad and has many points that have yet to be proven. KT tape is lightweight and can be used for many common injuries. KT tape is a modern method of alternate medicine. It is mostly used for common injuries such as, but not limited to, back pain, knee pain, carpal tunnel syndrome, and tennis elbow. It can also help with pain for up to 24 hours per application. KT tape is made of reinforced cotton sheathes designed to provide durability and the necessary strength to keep the KT tape in place, even in extreme conditions, such as sweating excessively and constant motion of the tape. The material provides uni-directional elasticity, allowing the tape to stretch in length but preventing it to stretch in width. The fibers are stable and support without restricting or restraining motion. KT tape is applied along the muscles, ligaments and tendons to provide lightweight support from the outside of your body. One may use KT tape to help you remain fit and active while still recovering from your injury (depending on the severity). KT tape uses neuromuscular feedback. This feedback creates the same support as a brace or wrap but without the bulkiness or restrictiveness. So in conclusion, if you want to try something that isn’t as bulky as a brace or wrap, try KT tape.

Lumbar traction is an alternative treatment for reducing pain in the lower back and legs. There is not a lot of research on the efficacy of lumbar traction, nor do you see very many physical therapists use traction very often. Most lumbar treatments are used for peripheral pain that is not easily helped through exercise and stretching. During the treatment of lumbar traction, the patient’s waist or back is placed in a set position while the clinician gently pulls to decompress their vertebrae to help relieve the pressure and pain. If this treatment is not performed properly it can cause problems throughout the body and even make the pain they have worse. Traction therapy can be a series of treatments that may take time for the body to respond, which is why traction can be taught to the patients so they may preform it for themselves.

P89 Frequency of Fundamental Motor Skill Levels of Brazilian Elementary Students. Anderson Carvalho and Pedro Abdalla, graduate students, Dr. Nilo Ramos, Health, Physical Education, and Recreation, and Dalmo Machado, Universidad de Sao Paulo, Brazil.
Studies have indicated that children who demonstrate more proficient fundamental motor skills (FMS) tend to be more physically active. FMS are understood as an organization of a series of basic movements, essential for improving more complex movements required in physical activity. Children are expected to reach a proficient level in FMS no later than seven years of age. However, little is known about the FMS levels of children. Therefore, the purpose of this study was to investigate the frequency of FMS stages in students from elementary school during school recess. A sample of 17 boys and 12 girls (n=29) ages eight to 10 years old from a Brazilian elementary school participated in the study. Students were video recorded during school recess for three school days. The recordings were used to evaluate each student in his or her best performance of 10 Autonomous Fundamental Motor Skills (AFMS), including five locomotor and five manipulative. Some locomotor skills (skip, hop and jump) were not observed in the school AFMS, while only one student (3.4%) galloped. All children were able to run, with most students running at the elementary level (82.8%), followed by proficient (10.3%) and initial (6.9%) levels. On the other hand, all five manipulative skills of AFMS were observed. The locomotor running skill was the most frequent AFMS during recess, but only at an elementary level. The level of proficiency expected at these ages has not been confirmed, and it was manifested only in half of the AFMS.

P90 Different Food Rewards and College Students' Word Search Performance. Ana Castro Munoz and Shylie Kiefer, undergraduates, Psychology.
As children, we got all excited to see that good job sticker on the top of our tests or to receive a piece of candy for good behavior. These little rewards worked as incentives to make people want to accomplish a certain task. However, when people get older do rewards affect people as they did when they were younger? People may respond differently to a reward incentive depending on the task. Is a reward enough to improve performance on a low-interest task? This experiment consisted of 29 participants enrolled in psychology classes at Emporia State University. When participants from the reward groups (healthy and non-healthy) walked in the room, we told them that they would receive a reward if they finished the word search within 10 minutes. We gave the non-reward group the same word search as the reward groups, with the same amount of time to finish the task; however, we did not promise that group a reward for finishing the word search. We expected the reward groups would find more correct words on the word search than the non-reward group. However, our data did not support our hypothesis; there was not a significant difference between our groups. In other words, both groups found approximately the same number of words regardless of whether they expected a reward or not. Future research should determine to use a more complicated task and consider different types of rewards.
P91 Eco-friendly Media and Art Therapy. Sue Cliff, graduate student, Counselor Education.
An eco-friendly, art-making approach can involve the use of recycled materials and natural elements from the
environment, such as found objects, clay, and plants. Participants will learn about natural plant dyes and other materials,
which can be used during art making in an eco-friendly manner. Creative examples of art made from both recycled and
natural materials (e.g., visual journal, desk top doodle box, natural plant dyed fabric, wooden staff, etc.) will be exhibited.

P92 How Harry Potter Impacted a Generation. Kalliope Craft, undergraduate, Elementary Education, Early
Childhood and Special Education.
JK Rowling’s Harry Potter has so deeply impacted its fans that it has changed the way they view the world. Research has
shown that Harry Potter readers are more empathetic, compassionate, and open minded toward diversity due to exposure
to the lessons taught in the story. These findings are made reality in Harry Potter themed organizations and charities that
strive to make the world a bit brighter, a bit safer, and a bit more magical. Fan conventions and theme parks celebrate the
story, but these fans go beyond celebrating to embodiment of Harry Potter values. Rowling’s writing changed the world.

P93 Development of an Expressive Arts Workbook for Children with Visual Impairments. Taylor Croan,
graduate student, Counselor Education.
At the production of this project, no expressive arts workbook exists for children with visual impairments. Sourcebooks
designed for individuals with a variety of disabilities address needs for children with visual impairments but they only
target teachers or therapists. The purpose of this project was to produce a workbook that targets the children and their
families directly with accessible projects intended to slow regression during breaks from school. The art activities
provided promote use of music and movement and use materials that are found around most households or cost little
money. The book was designed for students attending a residential school in a Midwest state and includes adaptations for
varying levels of severity and additional disabilities for the users.

P94 Creative Self Care Research Project: Educator Survey. Anna Davis, graduate student, Counselor Education.
This study examined self-care practices among school-based mental health professionals, educators and support staff to
analyze the relationship between self-care and personal well-being. More specifically, this study explored the relationship
between creative practices and work-related stress. Additionally, this survey aimed to determine whether educators and
classroom support staff were interested in cultivating a creative practice and/or engaging in art therapy based self-care
interventions. At the beginning of this study, I hypothesized a positive correlation between time spent on self-care
(including creative outlets) and overall well-being. The poster presentation will include a summary of the literature, as
well as the research design, results, and discussion of this survey.

P95 Heart Rate Recovery Analysis Among Untrained, Recreationally-Trained, and Well-Trained College
See abstract on page 9.

P96 The Power of the Power Balance. Daelyn Haskins, undergraduate, Health, Physical Education, and
Recreation.
The effort of doing research on the Power Balance is to determine what it is made of, what makes it work or not work,
and why so many people believe in these bracelets. The power balance bracelets were designed to help increase a
person’s balance, strength, and power. The bracelets themselves offer a placebo effect to those who believe in what they
can do for a person’s balance, strength, and power. The bracelet is made with holograms that produce a frequency that is
supposed to correct your balance and help with fixing and increasing your strength and power. The power balance
bracelet can be worn and used all day if the athlete prefers it. The bracelet is used to increase the balance, strength, and
power of the athlete so it is best used during any performance like practice or weight lifting. The power balance bracelet
can be worn by any athlete if they would like but I wouldn’t have the bracelet in the clinic to give to athletes. Personally I
believe the power balance bracelet has no real effect on the performance in athletes besides it is a placebo effect.

This study investigated the effect of price difference of a product on college students’ perceived quality. Sixty-six
Emporia State University undergraduate students participated in this study. The four surveys had four different levels of
price for a Bluetooth speaker. Surveys contained the same content except for the prices. Each person completed one of the
surveys. The participants rated the quality of the product based on the price in the survey they had. We expected to find
that participants who finished the survey with a lower price ($12.99) or mid-low price ($34.99) would estimate the
product as lower quality than those who finished the survey with a mid-high ($54.99) or high price ($149.99). However,
analyses revealed no significant difference for quality of the speaker between the lower, mid-low, mid-high, and higher
price groups. This study suggested the price did not affect college students’ opinions of the product quality.
The Effect of a Transitional Skills Art Therapy Curriculum on Locus of Control of County Jail Inmates.  Kasen Keller, graduate student, Counselor Education.

The concept of external locus of control refers to the belief that personal events occur due primarily to outside factors, whereas internal locus of control refers to the belief that events occur due to one’s own actions (Rotter, 1996). A high internal locus of control is a factor in decreased recidivism within the incarcerated population (Halling, 2016). Gussak (2004, 2006, 2009, 2009) and Rosal (1993) were art therapy researchers who used the Nowicki-Strickland internal and external locus of control scale to demonstrate the effectiveness of art therapy with correctional and other populations. I used a modified form of Halling’s (2016) 8-week art therapy curriculum and assessed its impact on county jail inmates’ locus of control. The Adult Nowicki-Strickland Internal and External (ANSIE) locus of control scale was administered before and after a three-week version of Halling’s curriculum. Results suggest that the art therapy program positively impacted internal locus of control.


There are many types of injuries in the world, including fractures. Clinicians can apply treatment and rehabilitation to assist in healing fractures. The low intensity pulsed ultrasonic bone stimulator (LIPUS) is used to assist in fracture healing. The purpose of the project is to understand LIPUS, how it works for the treatment of fracture healing, and why it benefits healing. Patients need to rest and immobilize the area of the fracture after they become injured. After the bone gains stability, they can start no- or little-load exercise, then they can gradually increase load on the fractured area. LIPUS uses longitudinal waves which strike bone, and the waves expedite recovery by increasing fibroblastic activity, decreasing osteoclasts, stimulating collagen formation, and promoting extensibility of collagen, circulation, and pain threshold. Through this mechanism, the bone stimulator helps treat the fractured bone. There are factors which prevent healing the fracture, including nutritional deficiencies, diabetes, anemia, smoking, and nonsteroidal anti-inflammatory drugs. LIPUS is effective for healing fractures during all phases of the bone-healing process. However, patients are likely to have more effective results when they start using LIPUS earlier than later. There is evidence that ultrasound therapy heals specific types of fractures including fresh, delayed, and nonunion fractures. Therefore, athletic trainers and other related professionals should start using the bone stimulator for healing specific fractures.

Imaginary Worlds in Art Therapy: Active Imagination and Self-Representation in Fan-Art.  Ashley Lawrence, graduate student, Counselor Education.

See abstract on page 6.

Kinetic Sand.  Michaela Lazzo, Amelia Jenny, and Sydney Inman, graduate students, Counselor Education.

Kinetic sand is a building material that mimics the qualities of wet sand. Although it can be purchased from major retailers like WalMart or Michael’s, kinetic sand can also be made at home with a simple recipe. Various helping professions can utilize the properties and therapeutic opportunities that kinetic sand can offer. Additionally, numerous populations can enjoy and learn from the easily manipulated, soothing, and fascinating qualities that kinetic sand possesses. Individuals that visit our booth will have the opportunity to engage with kinetic sand.


Postural Orthostatic Tachycardia Syndrome (POTS) is an autonomic disturbance characterized by a variety of symptoms. Symptoms include dizziness, syncope, nausea, shortness of breath, fatigue, palpitation, exercise intolerance and anxiety. The patient’s heart rate can be above 120 beats per minute or will increase by 30 beats per minute after standing for 10 minutes. With POTS, standing and exercise will cause blood pressure to plummet while heart rate rises rapidly upon almost no physical exertion causing symptoms. POTS can be misdiagnosed as inappropriate sinus tachycardia syndrome due to the heart rate increasing out of proportion to the physical activity, but the heart rate never exceeds 100 bpm supine. POTS and CFS have very similar symptoms. The Center for Disease Control has criteria for CFS and POTS fails to meet all of the criteria. Since her diagnosis, she has been limited on activity and monitored closely throughout her days. Also, nutritional education has been provided as well as any immediate treatment, such as IV fluid, for her near syncope episodes. She was diagnosed with POTS, which isn’t a common diagnosis especially in collegiate athletes. There are many challenges when it comes to POTS and sport activity. Due to the increase in physical needs, the athlete has to be almost asymptomatic to be able to return to a sport.
P103  Top 10 Disney Film Princesses Displaying Traditional Gender Roles.  Carlye Lester, undergraduate, Psychology.
As time passes it seems as though gender roles are constant. One way to observe the constancy or fluidity of gender roles is to observe the media which we encounter even at a young age. In this study I am watching the top 10 Walt Disney Princess movies based off of box office revenue. I am looking for ways Disney Princesses fall into traditional female categories. The categories center around domestic activity, clothing, positive feminine stereotypes, negative feminine stereotypes, and beauty. These categories will involve whether or not she does something, to what degree, and what it is. I hypothesize that the gender roles will evolve to show empowerment of women yet we will still observe outdated and traditional stereotypes of women. This is important to regard because children, both boys and girls, are internalizing the messages their media is sending them, thus making the evolution of gender roles equal more difficult.

P104  Examining the Impact of Art Therapy for Children with Autism Spectrum Disorder.  *Chelsea Litfin, undergraduate, and Dr. Jessica Stallings, Counselor Education.
The purpose of this study is to examine the impact of using art therapy for children with Autism Spectrum Disorder (ASD). ASD is a lifelong developmental condition that impacts one in 68 children and is characterized by social deficits in communication and interaction. Art therapy has been identified to address the areas of cognitive growth, emotional regulation, adaptive behavioral styles, and physical development, suggesting art therapy’s potential to greatly impact multiple symptoms of ASD. However, there is limited evidence-based research to support the use of art therapy as an effective treatment for autism. To contribute to the literature on evidence-based research in art therapy, this study used mixed method measurements to assess improvements in children with autism after participating in weekly art therapy sessions for 8 weeks. Eighteen participants were chosen from a K-12 school based on the criteria of having been diagnosed with ASD. Participants ranged in age from 12-19 and demonstrated moderate to high functioning ASD. Pre- and post-intervention measurements were collected from parents using the Autism Impact Measure (AIM) and the Social Skills Improvement rating System (SSIS) to gauge improvement in frequency and impact of symptoms and observable social skills/problem behaviors. The Face Stimulus Assessment (FSA) was used to measure improvements in emotional regulation. Data was also collected from a waitlist control group to compare results regarding the impact of art therapy in children with ASD. The results of this study are pending, as data is currently being compiled and analyzed.

P105  The Relationship between the Testosterone-to-Cortisol Ratio and Vertical Jump Performance across Phases of a Women's Division II Basketball Season.  Dr. Paul Luebbers, Health, Physical Education, and Recreation, Matt Andre, University of Wisconsin-LaCrosse, and Andrew Fry, University of Kansas.
PURPOSE: To examine the relationships of T/C and vertical jump (VJ) performance of female collegiate Division II basketball players across a season. METHODS: Saliva samples were taken from ten athletes prior to an afternoon practice in the middle of the week from the beginning of pre-season to just prior to the team’s departure for the NCAA quarterfinals, for a total of 30 weeks. Samples were assayed for testosterone (T) and cortisol (C). Also, at the conclusion of the saliva samples, and after a warm-up, players completed two countermovement vertical jumps, with the best jump of the two used for data analysis. Pearson product correlation coefficients (r) were used to examine the relationships between T/C and VJ. A repeated measures MANOVA was used to examine these variables across different phases of the season. RESULTS: Pearson correlations revealed a significant relationship between T/C and VJ only during the Pre-season phase. The MANOVA revealed a significant difference across the season for both variables. Bonferroni post hoc tests indicated that T/C in the first phase of competition was significantly lower than the pre-season and late conference season. VJ was CONCLUSION: These data support the literature that has indicated a positive relationship between T/C ratio and lower-body power, but only in the pre-season phase. Once the first phase of the competitive season begins, this relationship actually reverses and trends towards a moderate negative relationship, before disappearing altogether in the second half of the season. The MANOVA indicates that the first competitive phase deserves further investigation.

Objective: To determine if Low Level Laser Therapy (LLLT) is beneficial. Background: LLLT can be used to treat tendon pathologies and is believed to help with inflammation. It has been observed to be more beneficial in treating these pathologies when added to an exercise program. Description: LLLT uses short wavelengths of light to treat tendon pathologies. Dosage has not been identified yet. Clinical Advantages: This technique is used for the reduction of inflammation. Clinical studies show LLLT is beneficial by itself, but is most beneficial if in conjunction with an exercise program. Conclusion/Recommendation: If used in conjunction with an exercise program for rehabilitation, LLLT is beneficial to the healing process. Although not everyone who used the treatment in studies saw improvement, the overall results were in favor of LLLT.

Background: 22-year-old white male Division II football player. While playing in a regular season game, the athlete was hit helmet to helmet and when he contacted the ground, his neck rolled in an abnormal motion. He continued to play and removed himself from the game because he felt a deep “pop” as he was moving his neck. It was determined that he go to the emergency room immediately to determine the extent of the injury. The radiographs determined there was a stable fracture at the superior portion of the right side of the cervical 7 vertebrae facet. Differential Diagnosis: There could have been a strain of the muscles acting upon the area or a ligamentous sprain. There was no radiating pain which excluded neurological involvement. Treatment: The athlete was placed in aridged cervical collar and was removed from participation until pain subsided. Cardiorespiratory exercise was implemented until the brace was removed. Isometric strengthening began immediately after removal of the brace. Uniqueness: Weakness and atrophy in the area follows the clinical course of this injury, including 3 months of non-use. The fracture completely healed as expected. There were no residual effects or complications. Conclusions: The athlete is predicted to make a full recovery and is expected to be released for contact training in 2-3 months. He plans to return to football participation with no restrictions next season. Strengthening exercises have been successful, and the fracture has healed.

P108 Implementing a Process Painting Workshop: An Open Studio Approach.  Allisyn McCoy and Anna Berthelsen, graduate students, Counselor Education.

Art contributes to individual and community emotional health; viewing artwork, participating in art making, and art-based community events and support groups promote well-being. Unfortunately, access to art is heavily influenced by income. The percentage of individuals living below the poverty line in Lyon County is 17.5% (U.S. Department of Commerce, 2015). That means, approximately 5,834 people in Lyon County live in poverty. I developed a process-painting workshop facilitated through Kansas Free for Arts (KFA), a local non-profit organization that provides creative arts services to individuals experiencing poverty in our community. Process-painting is an art therapy experience that promotes self-awareness, emotional expression, and creativity (Miller, 2012). The art-based workshop was designed to promote creative expression in a safe, non-judgmental space in which participants learn and grow artistically, mentally, and emotionally. The Expressive Therapies Continuum and developmental approaches to art therapy were used to design the workshop. This poster will introduce a review of related literature, themes that emerged in the artwork created during the workshop, and interactions between group members.


This article is to disclose the indications, applications, and effectiveness of therapeutic hypnosis. Hypnosis is used in treating a variety of issues ranging from psychological disorders such as depression and anxiety to chronic as well as acute pain management. Psychological disorders are often treated with an assortment of medications. Pain is also usually treated with medications but is often coupled with other modalities such as cold packs or TENS therapy. Medical or therapeutic hypnosis is a technique in which the provider relaxes the mind and body resulting in an achieved sense of amplified focus. Hypnosis is commonly used as a pre-medical procedure to reduce anxiety associated with treatment but also as needed for chronic and acute pain and patient adherence to treatment. Hypnosis techniques include mental imaging and word repetition. Hypnosis tends to be a cost-effective modality requiring no expendable supplies or expensive capital equipment. It is extremely safe having very few adverse reactions or precautions. Hypnotism therapy is a safe inexpensive way to treat pain and other disorders plaguing an individual. Hypnotism, however, should not be used as the primary form of pain relief as its effectiveness remains to be efficiently proven but rather as a secondary option assuming other modalities have been ineffective in producing a decrease in symptoms.


Objective- Dry needling is used for myofascial trigger points which cause chronic pain to individuals. Background-Myofascial trigger points are spots within the fascia that are highly sensitive. Dry needling, along with the use of electrical stimulation, will interfere with the chemical receptors in the muscle which will, in turn, decrease trigger point pain. Description- Dry needling can be used as a short-term treatment in order for athletes to return to competition during season. Clinical Advantages- Studies have shown beneficial differences in pain, function, range of motion, and return to competition during rehabilitative settings for shoulder pain. Conclusions/Recommendations- The dry needling technique is often times used with electrical stimulation. In order to practice dry needling, a health professional will need to be properly licensed in a state where it is legal to perform. Dry needling is a dangerous and painful modality if not properly executed. However, as long as the professional understands the technique, dry needling is a beneficial modality to use for myofascial trigger points.
P111 Childhood Cancer Nonprofits. Katherine Meier, undergraduate, Elementary Education, Early Childhood, and Special Education.
Childhood cancer is a big issue in the United States and many people are not aware that it is underfunded. There are many reasons that the United States government should give more funding to nonprofit organizations which help kids with cancer. The article “Risk for Psychosocial Problems in Pediatric Cancer: Impact of Socioeconomics” (2013) explains that childhood cancer greatly affects the whole family of the patient and can lead to mental health disorders. This article implies that if childhood cancer were more funded, there could be more solutions to the health issues that arise from the cancer. The article “MAKING A DIFFERENCE; Youngsters with cancer join fight” (2013) discusses a nonprofit organization called CURE Childhood Cancer that shares personal stories of children’s battles with cancer. This article provides evidence of how children feel during their battle and what the families go through as well. This nonprofit organization gives more information about statistics of childhood cancer and the emotions that come with childhood cancer. From reading this, one can imply that if childhood cancer nonprofit organizations receive more funding from the government, they would be able to expand their horizons and create more fundraising for pediatric cancer.

The purpose of cold modalities is to decrease metabolic rate, inflammation, and pain. In these years, in professional settings, cold water immersions (CWIs) are mainly used after games instead of cold packs (CPs) for preventing delayed onset muscles soreness (DOMS). Therefore, the purpose of this research is to clarify the effects of CPs and CWIs. During cold application, the heat lost from the tissue to the modality must be greater than the heat gained from adjacent tissues, blood flow, and local metabolism. However, each cold modality has a slightly different indication. Cold modalities are predominantly attributed to its vasoconstrictive effect. When tissue temperatures reach 50°F to 59°F, cell metabolism maximizes to decrease. After that, cell metabolism also decreases and the number of cells killed by a lack of oxygen. Consequently, it can prevent the release of inflammatory mediators and reduce pain. CPs may not affect microvascular perfusion because after exercise increases blood volume and flow may have resulted from increased surface area for the exchange of substrates across the plasma membrane, allowing macrophages, neutrophils, and other repair cytokines to accumulate around the injured area. Whereas the muscle was cool, the vascular response was unchanged. However, CWIs induced a reduction of femoral artery blood flow and muscle temperature because the treated surface of the body might influence the cooling results. Conclusions/Recommendations: CPs can reduce pain, but it cannot cope with DOMS. Therefore, CWIs is better than CPs for preventing DOMS after a practice or game.

P113 Self-Esteem Art Therapy Directives with Geriatric Patients. Danielle Naeger, graduate student, Counselor Education.
Art therapy benefits geriatric patients by improving self-esteem and self-worth, enhancing feelings of competence and usefulness, and addressing issues with mortality. Creative expression encourages geriatric patients to reminisce and explore both negative and positive feelings associated with the aging process. Individuals of various cognitive and physical capacities are invited to express emotions that may be difficult to express verbally. My research utilized both qualitative and quantitative data collection including post-test measurements, qualitative observation, and unstructured interviews in order to gather accurate information regarding the topic of self-esteem. All participants in the study were 55 or older and are residents in a long term care or skilled nursing facility. Results indicated that art therapy does positively influence self-esteem in geriatric patients, but more research needs to be conducted in regards to accurate measurement methods, particularly with patients with dementia.

P114 Art Therapy for Social Change. Kimberly Nguyen, graduate student, Counselor Education.
See abstract on page 7.

P115 Art Therapy with Individuals on the Autism Spectrum. Jordan Nooney and Shelby Howland, graduate students, Counselor Education.
According to the DSM-5, the two main criteria for Autism Spectrum Disorder include persistant social deficits and restricted or repetitive behavior, interests, or activities (American Psychiatric Association, 2013). Individuals on the autism spectrum can also be easily overwhelmed by sensory stimuli. By concentrating on one sensory subject at a time, individuals with ASD can explore unfamiliar stimuli they otherwise would not. Art therapy can introduce individuals with ASD to new sensory experiences through controlled and non-threatening activities, such as sensory collages. The sensory collages presented in this poster will invite participants of the ESU Research & Creativity Day to engage in exploring various examples of textures at his or her own pace, just as individuals on the autism spectrum would in art therapy sessions.
Severe Mental Illness (SMI) are debilitating disorders that effect the everyday function of many individuals. One in one hundred individuals are diagnosed with an SMI such as schizophrenia. People with an SMI deal with issues such as side effects to prescriptions, psychosocial stressors, medical issues, psychological issues, and stigma. Stigma is a stumbling block that society has created and is perpetuated through movies, television, inappropriate language use, and assumptions about another demographic of people. Everyone needs to have relationships that involve trust and communication as well as lives that are viewed as productive and valuable to the world around them. People who are diagnosed with an SMI are no different. Stigma stifles progress in the lives of people who have an SMI by taking away the ability to feel meaningful to the world. Many people, including people who have been diagnosed with an SMI, believe

(Continued on page 33)
that the mere diagnosis of an SMI is a death sentence, or at the very least, a label condemning them to be chronically ill their entire lives; however, recovery from an SMI is possible through proper therapy. Individuals with an SMI benefit from non-verbal forms of therapy such as art therapy. The therapeutic process of art making provides healing for people with an SMI while allowing them to make relevant contributions and feel valued by themselves and society.

P121 Postnatal Sound Exposure and Rat Pups' Reflex Development: A Pilot Study. Rachel Rohleder, graduate student, and Dr. Cathy Grover, Psychology.
Reflex development is not typically expressed at birth or even shortly thereafter in rat pups. However, So et al. (2010) have shown that sound exposure at birth to postnatal two weeks increases reflex development by at least 15 percent. Attempting to do a partial replication in the current research, we measure only auditory startle and righting reflex as indicators of behavioral development. The hypothesis is that eight hr. daily exposure to four kHz tone will increase these reflexes, findings similar to So et al. We discuss the methodology as well as our preliminary findings with the control group.

P122 RICE or Not to RICE. Haylie Schmidt, undergraduate, Health, Physical Education, and Recreation.
RICE is usually used to heal musculoskeletal injuries by reducing blood flow and decreasing the swelling. RICE stands for rest, ice, compression, and elevation. RICE is usually used to decrease swelling in the injured area by resting and icing to decrease blood flow, and manually compressing the area and elevating it so gravity helps decrease the swelling. The rest and ice elements of RICE are usually used in the acute inflammatory stage to decrease blood flow to reduce cell metabolism, therefore decreasing the chances for more damages as well as decreasing pain. Resting and icing delay the healing process by exterminating the macrophages that produce inflammation and promote healing. The rest and ice elements of RICE should not be used in the acute inflammatory phase as they delay healing, but will help in the later stages of healing to help decrease pain. Compression and elevation still should be used in the acute inflammatory stage to remove blood out of the injured area and deposit it back into the rest of the body. For clinicians to stop icing injuries would be a huge adjustment, but it might get athletes and others back into participation sooner than usual.

The purpose of this paper is to explain the effects of foam rolling on muscle soreness as well as performance in athletic competition. Static stretching and heat are the common treatments for muscle soreness, however, according to research, foam rolling is the better option. Foam rolling uses high-density material rollers, in combination with body weight to produce compression on the muscles to provide a more effective stretch. This technique would be used after intense, unaccustomed exercise to help decrease the effects of DOMS. It is shown to help muscles recover quicker. This technique could be beneficial to clinics as the athlete uses their own body weight to create more pressure for a better stretch, whereas with heat and a static stretch, the pressure is absent.

P124 Effects of Photographic Self-Portraits on College Students Self Perception. Brianna Thill, graduate student, Counselor Education.
For my research, I studied the impact of photographic self-portraits on college student’s self-worth and self-concept. The participants in the pilot study included three college students who completed a pre and posttest examining their perceptions of self-worth and self-concept before and after creating/processing their self-portraits. Results demonstrated that each participant improved his or her view of his or her self-worth in at least one category assessed on the pre/post test, which correlated to the photograph they took.

P125 Art Therapy and Victimology. Brittany Topps, graduate student, Counselor Education.
Thousands of individuals in the United States are impacted by violent crime (Buereau of Justice, 2015). Survivors of these crimes are often left to deal with symptoms that effect their every day functioning. Some individuals may choose to seek counseling services only to discover that traditional talk therapy does not meet their specific needs when engaging in the healing process. Art therapy is an expressive form of therapy than can allow for emotions to be processed via art when there are no words to express grief, fear and/or anxiety. Art therapy can be a great alternative for those who find talk therapy is simply not for them; unfortunately, empirical research on the intersection of art therapy and survivors of violent crime is limited. This poster presentation will introduce art therapy and the benefits of using the expressive arts in a therapeutic setting. This poster will also make connections regarding how art therapy can help survivors of violent crime.
The purpose of this study was to test the ability of the SMART Aging curriculum to increase physical activity in rural Kansas communities. METHODS: 69 healthy, older, underactive adults (ages 50-85 years) participated in this study. Subjects were randomly assigned to one of three groups: Education (E), Education + Exercise (E+E) or Control (C). During the 10-week study, subjects received either one weekly education seminar, presented by the research team (E), education in addition to three weekly supervised exercise sessions (E+E) or no intervention (C). All subjects received a PA tracking device, used to measure daily step count. PA was tracked and averaged weekly over the course of 10 weeks. The research team hypothesized that the experimental groups (E and E+E) would increase PA levels after 10 weeks, and that the E+E group would see the largest improvement between those two groups. RESULTS: Average percent change from week 1 to week 10 for each group are as follows: E+E=15.11± 53.5%, E=5.2±46.5%, and C=-1.08±19.6%. A one-way ANOVA found no significant difference between the percent change of the step count averages among the three groups (p=.606). CONCLUSIONS: These data indicate that no significant improvements in PA, determined by step counts, were seen among the groups. Longitudinal studies are necessary to determine long-term interventions to significantly increase PA in rural Kansas.

P127 The Effect of Virtual Reality on Learning Motivation and Academic Performance. Ting Wang, graduate student, Instructional Design and Technology.
This study is designed to investigate whether Virtual Reality (VR) has positive effects on students learning motivation and academic performance. In the study, we designed an experiment to test the effects of VR during students learning activities. Students were divided into two groups, which are control group, who used traditional 2D learning materials, and experimental group, who use VR learning materials. Learning motivation is measured by Intrinsic Motivation Inventory survey. Academic performance is measured by assignment scores. All results were collected and compared. As the results, there was a significant improvement for learning motivation and slightly improvement for academic performance.

UNIVERSITY LIBRARARIES AND ARCHIVES

P128 Emotional Intelligence as a Framework for Reference and Information Services Competencies. Terri Sumney, University Libraries and Archives.
Purpose: To explore the feasibility of utilizing the Bar-On mixed model of emotional-social intelligence as a framework for the competencies and traits needed for reference and information services librarians. Design/methodology/approach: Through a survey of the literature, the author created a baseline list of competencies, which was compared and contrasted with the abilities, traits, and competencies that comprise the Bar-On model of emotional-social intelligence. The author conducted a pilot study with a small group (n=10) of reference and user services librarians who took the EQ-i 2.0. Findings: The competencies and traits of reference and user services librarians identified in the literature compare favorably with those measured by the EQ-i 2.0. Overall, a majority of the participants (70%) obtained a total score on the EQ-i 2.0 in the mid or high range. Composite scales with the highest overall mean scores were decision-making and self-perception. Subscales with the highest scores included the following: impulse control, self-actualization, social responsibility, problem-solving, and reality-testing. Research limitations/implications: As a pilot study, it was conducted using a small population of academic reference and user services librarians. Further research should be conducted utilizing a larger population of reference and user services librarians or librarians who have been recognized as exemplary in reference librarianship. Practical implications: The findings of this study could assist pre-service and in-service reference and user services librarians in further developing their emotional-social intelligence competencies and abilities by identifying areas where improvements could occur.

CROSS DISCIPLINARY AND OTHER

P129 Literature Comparison on Chinese and American Parents' Gender Stereotype Towards their Young Children. Xinwei Liu, undergraduate, Psychology, and Dr. Joyce Zhou, School of Business.
Gender stereotypes are defined as knowledge representations or beliefs about sex-related behavior and characteristics (Ashmore & Del Boca,1979). It is acknowledged that parents can have a huge impact on a child’s thoughts through their behaviors, which means if a parent has a gender stereotype, he or she is more likely to deliver this attitude to their kids. This research investigates and presents previous literature about differences between Chinese and American parents' attitudes toward their young different gendered children. The significance of this study is helping people know better about parents' gender stereotype toward their young children under Chinese and American culture.
P130  Measuring the Impact of Service Learning in Honors Chemistry II. Megan Mahoney, University Libraries and Archives, Dr. Claudia Aguirre-Mendez and Dr. Diane Nutbrown, Physical Sciences. The purpose of this study is to examine the impact of service learning in a general chemistry course. Service learning is a pedagogy that connects community service with academic course content and objectives. Service learning pedagogies have been carried out in chemistry at the college level. This study is particularly novel in that it combines qualitative methods with control design. It is a multiple-case study embedded within a one-semester Honors College General Chemistry II seminar. Findings indicate that the students developed more specific knowledge and appreciation of the community, skills relevant to future careers, and greater awareness of self and others. Implications of this pedagogy for chemistry teaching and learning are discussed.

P131  Happiness? It's Your Choice. Jessy Schriefer, undergraduate, Leadership Studies. This project demonstrates how happiness is a choice, and how by simple tasks every day, we can personally change how happy we are. Everyone deserves a happy and successful life. Happiness is also the number one key aspect that people want in a leader. Leadership has changed over hundreds of years. This is the newest research and I believe it will stay for hundreds of years to come.

P132  Social Dominance Orientation as a Prejudice Against Minority Selection. *Dallas Shafer, undergraduate, School Leadership/Middle and Secondary Teacher Education, and Dr. Jeffrey Muldoon, School of Business. With overall growing attendance rates, the importance of earning a post-secondary degree for future career opportunities is also increasing. Despite efforts to narrow racial, gender, and class-based gaps in the most selective institutions, minority social groups are still underrepresented. We aim to identify biases in admission processes which may impede the achievement of campus diversity goals. Using Social Dominance Theory, we explore how admission process biases and Social Dominance Orientation contribute to educational opportunity gaps. Participants will complete a survey collecting background information and personal views regarding standardized testing, group-based hierarchy, and education. After viewing student profiles, participants will assume the role of an admissions officer and make a decision regarding the acceptance of the students.

P133  Mapping Leadership Across Kansas. Ashley Sherwood, undergraduate, Leadership Studies. The KLC Journal publishes highlights of best practices in leadership across the State of Kansas. But current students have trouble finding the articles that are near their hometown and most relevant to their lives. "Mapping Leadership Across Kansas" addresses this problem by showing students the articles by geographic location. Through taking all the available issues we created an online map that students can utilize to choose different articles to read from across Kansas. This can be used in the classroom for students to explore leadership in Kansas.

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!
This year’s logo was designed by Chloe Callahan, undergraduate student in Biochemistry and Molecular Biology. She received a $250 scholarship for the spring semester as the winner of this year’s t-shirt design contest. We thank all of the students who submitted designs!

Save the date!
Research and Creativity Day 2018
April 25, 2018

http://www.emporia.edu/research